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An Exploration of the Relationships between Markers of Social Status and Position and HIV Risk Behaviours in African, Caribbean, and Other Black Populations

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Epidemiology and Biostatistics

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AN EXPLORATION OF THE RELATIONSHIPS BETWEEN MARKERS OF SOCIAL
STATUS AND POSITION AND HIV RISK BEHAVIOURS IN AFRICAN,
CARIBBEAN, AND OTHER BLACK POPULATIONS

(Dissertation format: Integrated Article)

by

Shamara M. Baidoobonso

Graduate Program
in
Epidemiology & Biostatistics

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
London, Ontario, Canada

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Abstract

African, Caribbean, and other Black (ACB) people are a priority group for HIV prevention in Canada, but little is known about the epidemiology of HIV risk in this population. The overall goal of this thesis is to guide HIV prevention interventions for ACB communities. It focuses on social factors that impact HIV vulnerability.

This research used data from the Black, African, and Caribbean Canadian Health Study—a mixed methods study that used 30 semi-structured interviews, and a cross-sectional survey using a structured, self-administered quantitative questionnaire to collect information about HIV and health from 188 ACB people.

The first manuscript compares risk perceptions to the social epidemiology of HIV risk. ACB people generally perceived their personal HIV risk to be low and they focused on sexual risks. Service providers' perceptions about HIV risk behaviours were sometimes inconsistent with ACB people's experiences. Quantitative results confirmed that HIV risk was mainly sexual. There were few gender-based differences in risk behaviours. Those living in poverty were more likely to be abstinent and use condoms. Born Canadians had the highest prevalences of forced sex, mixing alcohol or drugs with sex, and past STI diagnoses. Stable employment was associated with higher prevalences of not using condoms and past STI diagnoses.

The second manuscript identified social and proximate determinants of HIV testing in the past year. Approximately 20% of ACB people had tested for HIV in the past year. Testing for HIV was independently associated with higher education, stable immigration classes, living in Canada for <5 years, and gender and ethnicity combined. Proximate determinants mediating these relationships included: lower English language proficiency, greater HIV knowledge, and higher numbers of lifetime and past-year sex partners.

The third manuscript ascertains social and proximate determinants of the frequency of condom use. About 20.5% of sexually active ACB adults used condoms consistently. Male gender, wealth, unstable immigration classes, and less secure employment statuses status were independently associated with the frequency of condom use. Proximate determinants mediating these relationships included: not having a

cohabiting regular partner, not disliking condoms, having one lifetime sex partner, and having a history of unwanted sex.

Keywords:

Social determinants of health, HIV/ AIDS, African-descent, Black, HIV risk, HIV prevention, social production of disease theory, intersectionality theory, proximate determinants, social epidemiology

Co-Authorship Statement

Each of the three manuscripts in this thesis were written by Shamara Baidoobonso in fulfilment of her doctoral work, and they are based on data from the Black, African, and Caribbean Canadian Health (BLACCH) Study. The BLACCH Study was a community-based research project for which Ms. Baidoobonso was the Lead Principal Investigator. Ms. Baidoobonso conceived of the project, recruited members for the research team, and designed the project in collaboration with the research team. As part of her role as the project's Lead Principal Investigator, Ms. Baidoobonso wrote the project's funding proposal, completed research ethics board review documents, actively recruited participants for Phases I and II of the BLACCH Study, interviewed participants for Phase I, prepared the executed data entry and management processes, cleaned the data, and led the research team in completing data analyses and knowledge translation activities.

For this dissertation, specifically, Ms. Baidoobonso conceived of research questions, designed all analyses, executed all analyses, and wrote all components of the manuscripts. The research questions were selected based on the interests the Cross Cultural Learner Centre, the Regional HIV/AIDS Connection, and the African and Caribbean Council on HIV/AIDS in Ontario. She finalized the research questions in consultation with these organizations in order to meet their informational and programming needs. The analyses were conceptualized and designed by Ms. Baidoobonso with guidance from her Thesis Supervisory Committee—Drs. Greta Bauer, Kathy Nixon Speechley, and Erica Lawson. She executed the analyses and periodically consulted with Dr. Greta Bauer, her supervisor, regarding analytic matters, as needed. Ms. Baidoobonso wrote all drafts of each manuscript, and her Thesis Supervisory Committee provided feedback on each draft. She revised the drafts based on the feedback received, and the committee approved the final draft of each manuscript.

As per the BLACCH Study's authorship policy, "The BLACCH Study Team" is credited on all manuscripts based on data from the BLACCH Study. However, only team members who worked on the manuscript are listed individually as authors.

Dedication

For the two most important people in my life—Marcia Stephens and Tryston Baidobonso—my mother and sister. Thank you for your unwavering support and unconditional love.

Mommy, I would not have made it this far without you. You have been a strong, encouraging, and loving mother. I could not have asked for more.

Tryston, you are always motivating me from behind. I know you look up to me, so I always try to be a positive example for you. Thank you for always being my loyal volunteer and biggest cheerleader.

I will always love you both.

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Firstly, I would like to thank my Thesis Supervisory Committee. Dr. Greta Bauer has been an amazing mentor. She encouraged and supported my decision to pursue independent research, and guided me through the process. Over the years, she has provided invaluable advice and assistance as I grew as a scholar. I would like to thank Drs. Kathy Nixon Speechley and Erica Lawson for agreeing to serve on my committee and the commitment they have shown to guiding me as I completed my doctoral work.

The BLACCH Study Team has been instrumental to the undertaking of this doctoral research. I am eternally grateful to Monica Abdelkader, Michael Antwi, Greta Bauer, Julius Ehiemua, Rob Haile, Sherin Hussien, Jan Jasnos, Sila Joshua, Erica Lawson, Roxanne Longman Marcellin, Leah Meidinger, Harina Mokanan, Mercy Nleya-Ncube, Daniel Pugh, and Mbaka Wadham. Additionally, I would like to acknowledge the research partners for the BLACCH Study: the Regional HIV/AIDS Connection, the Cross Cultural Learner Centre, and the African and Caribbean Council on HIV/AIDS in Ontario. They have committed their staff to serving on the research team and provided additional resources for the BLACCH Study.

Next, I would like to thank the research participants and organizations that helped to promote the research. Without the participants generously sharing their information, this project would not have been possible. This research was promoted by: 106.9 FM The X; 94.9 FM CHRW; Above Average Hair Care; the African Canadian Federation of London and Area; the African, Caribbean and Black Committee at the Regional HIV/AIDS Connection; the African Students Association at The University of Western Ontario; Afroresta London; the Association Canadienne-Française de l'Ontario de London-Sarnia; the Black Students Association at The University of Western Ontario; Black Talk radio show; Church of the Pentecost; the Congress of Black Women of Canada- London Chapter, Hip Hop Don't Stop Clothing and Accessories; the London Black History Coordinating Committee; the London Public Library; Positive Journey radio show; The Come Up Show; United Kutz; and Wafrika.

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List of Abbreviations and Symbols

α	Alpha value
ACB	African, Caribbean, and other Black
ACCHO	African and Caribbean Council on HIV/AIDS in Ontario
AIDS	Acquired Immune Deficiency Syndrome
BLACCH	Black, African, and Caribbean Canadian Health
CBR	Community-based research
CCLC	Cross Cultural Learner Centre
CI	Confidence interval
DEBI	Diffusion of Evidence-Based Interventions
EAST	East African Health Study in Toronto
HIV	Human Immunodeficiency Virus
IDU	Injection drug user
IOM	Institute of Medicine
LICO	Low-income cut-off
MSM	Men who have sex with men
n	Sample frequency
p	P-value
POR	Prevalence odds ratio
PR	Prevalence ratio
RHAC	Regional HIV/AIDS Connection
SDOH	Social determinants of health
SES	Socio-economic status
SSP	Social status and position
STI	Sexually transmitted infection
UK	United Kingdom
USAID	Joint United Nations Programme on HIV/ AIDS
USA	United States of America
Western	The University of Western Ontario
wPrev	Weighted prevalence

Chapter 1 : Introduction and Research Objectives

1.1. Background: A Case for HIV Prevention Research

Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) is an intriguing disease. It is infectious and chronic; biological and social; and dependent on viral, societal and human characteristics. These factors in particular make it challenging to devise a suitable cure, treat, and prevent HIV infections. Studying HIV prevention leads to knowledge about the complexities of human beings—our experiences, prejudices, cultures, and humanity—and efforts to treat or prevent HIV infection require consideration of these complexities.

HIV infection is life-long, and because of antiretroviral therapy, people infected with HIV are living longer.¹ The provision of antiretroviral therapy to all persons living with HIV may not be affordable, however, as these therapies are very expensive and the countries most impacted by HIV infection cannot afford to cover the costs for all their infected citizens. Providing antiretroviral therapy to a large group of individuals might be unsustainable in high-income countries as well due to competing health care priorities.² Furthermore, people living with HIV generally report having lower quality of life compared to the broader population.³ Hence, even though antiretroviral therapy extends life, it does not overcome all of the challenges associated with HIV infection. Prevention of infection in the first place is the best remedy.

At present, there is no vaccine to prevent HIV infection or suitable cure that can be used for the millions of people living with HIV/AIDS. Vaccines, to date, have shown moderate or no effectiveness at preventing HIV infections.⁴⁻⁶ Furthermore, new vaccines that are currently being assessed will not be ready for use in the general population for many years.⁷ Although one man was reportedly cured of HIV infection following a stem cell transplant, he still has detectable levels of the virus, which means that the “cure” did not work, he was re-infected, there will always be residual traces of HIV infection, or his lab results were contaminated. The debate on this matter is ongoing.⁸ Approximately 2.5 million people become infected with HIV each year as we await the development efficacious and effective vaccines or cures.^{5,9} However, having a vaccine or cure alone may not have a significant impact on HIV infections worldwide, because even if a cure or

vaccine existed, the most vulnerable people might not have access to it.⁹ Furthermore, if a vaccine existed, there is evidence that some people would engage in behaviours that put them at high risk for HIV exposure,¹⁰ as was seen when HIV incidence increased after the introduction of antiretrovirals to treat HIV infections.^{11,12} Therefore, it is vital to prevent HIV infection through other mechanisms, such as prevention interventions that include condom use and HIV testing, which is often coupled with behaviour change counselling and treatment to reduce viral load.

Preventing HIV infection is not easy, however. It requires attention to factors that influence exposure to the virus, transmission of the virus, and the duration of infectivity.¹³ Each of these factors is impacted by social, behavioural, and biological determinants.¹³ Unless all these determinants are considered, the success of prevention efforts will be thwarted. Hence, prevention strategies must be multifaceted. Research focused on prevention must be conducted and interpreted in a manner that recognizes multiple levels and types of determinants of HIV risk. In doing so, research can begin to appropriately account for the social context of HIV risk and connect it to behavioural and biological determinants of risk. This in turn has the potential to lead to more effective interventions, especially for groups that are at increased risk for infection.

1.1.1. Canada Has a Concentrated HIV Epidemic

The Canadian HIV epidemic is concentrated in vulnerable populations, meaning those in which: the prevalence of HIV infection is higher than in the broader Canadian population; and the prevalences of HIV risk factors, behavioural and social, are comparatively higher than in the broader Canadian population as well. In Canada, the populations most vulnerable to HIV infection are: men who have sex with men (MSM); injection drug users (IDUs); Aboriginal people; and African, Caribbean, and other Black (ACB) people.¹⁴ In order to appropriately address HIV in the Canadian context, it is necessary to design prevention strategies that are appropriate for these groups, and this might require designing targeted prevention strategies or tailoring available strategies to meet specific prevention needs in these populations. Since HIV risk is influenced by social factors, an understanding of the social determinants of health (SDOH) as they relate to HIV risk is imperative for preventing infection in these groups. More

specifically, it is important to understand how SDOH act individually and in combination to create social positions that produce contexts in which HIV risk behaviours occur.

1.1.2. Impact of HIV on Canada's ACB Population

1.1.2.1. Definition of "ACB"

The term "ACB" refers to African, Caribbean, and other Black people. It focuses on people who self-identify as Black, which is a racial category, but it includes ethnicity as well, thereby recognizing the heterogeneity in the Black population. The ACB population in London and Middlesex County is quite diverse, and includes people from Africa, the Caribbean, North America, Europe, Latin America, and other places. Furthermore, while some ACB people are recent immigrants, others have been in Canada for decades, and still others are from families that have been in Canada for centuries.^{15,16} Hence, it is appropriate to use the term African, Caribbean, and other Black people in order to acknowledge the vast ethnic diversity in this population.

Race and ethnicity are being used to define the population of interest, because both concepts are essential for an accurate definition. Ethnicity is a multidimensional construct that sometimes includes race, national identity, religion, ancestry, language, culture, customs, and beliefs.¹⁷ It plays a significant role in public health because of the many dimensions it encapsulates and its impact on human experiences,^{17,18} and therefore health. However, it should be noted that ethnicity is not a perfect construct as its definition is dynamic and complex.^{19,20} For instance, each tribe in Africa constitutes a different ethnic group, and multiple tribes typically occupy each country, further adding to the ethnic diversity within the ACB population. Furthermore, due to the history of slavery, it is easier for the majority of ACB people from regions other than the African continent to self-identify within the Black race, which relates to broader African origin rather than a specific ethnicity.²¹

Despite the ethnic diversity in this population, its members are bound by race due to a sense of shared history and experience of social exclusion resulting from xenophobia, racial discrimination, and exploitation due to colonialism and slavery.²²⁻²⁵ The local ACB population organizes itself into communities based on both race and ethnicity. Within the larger community formed by this population, there are several organizations for which

membership is defined in terms of national identity (e.g. Barbadian community organization, Ethiopian community organization, etc.), which is a component of ethnicity. Additionally, many of these groups often collaborate along racial lines due to a sense of kinship as persons of African descent (e.g. Afrofest, Black History Month celebrations, Black Leadership Council, Congress of Black Women of Canada, etc.). In the age of migration and globalization, multiple racial groups might belong to the same nationality and share the same ethnic identity, as is evidenced in the Caribbean and parts of Africa. Misclassification would occur if national identity, and by extension ethnicity, was used alone.

The term “ACB” squarely focuses attention on a population that is at increased risk for HIV infection in Canada.^{24,26} In Ontario, evidence shows that HIV infection rates among Black African and Caribbean people have been increasing for years,^{24,27} but there are currently no data about HIV in Canada’s other Black populations. ACB people have recently become a priority population for HIV research and prevention efforts in the province of Ontario.²⁸ In recognition of this, the term ACB is used for the purposes of research, service delivery, planning, and resource allocation. It is used by community-based agencies and governments as well.

1.1.2.2. Definition of “HIV-endemic”

Canadian HIV surveillance data are divided into six HIV behavioural risk groups—MSM, MSM-IDUs, IDUs, non-IDU heterosexuals from countries where HIV is not endemic, non-IDU heterosexuals from HIV-endemic countries, and “other”.^{14,26} A growing proportion of new infections is attributable to heterosexuals from HIV-endemic countries.^{14,26}

“HIV-endemic” is used to describe countries where: the adult prevalence of HIV is 1.0% or more, more than half of HIV cases are attributable to heterosexual contact, the male to female ratio for infection is 2:1 or less, and there is a HIV prevalence of 2.0% or more among women receiving pre-natal care.^{14,26} The countries that fall into this category are primarily located in Sub-Saharan Africa or the Caribbean, Bermuda, and Central/South America. Within these regions, only three HIV-endemic countries do not have predominantly Black populations: Suriname, Guyana, and Honduras.²⁶ In Suriname, 31% of the population is Creole (mixed with Black and White) and 10% is Black.²⁹ In

Honduras, only 2% of the population self-identifies as Black, and in Guyana, 30.2% of the population self-identifies as Black. Only three HIV-endemic countries are outside these regions: Thailand, Cambodia, and Myanmar/Burma.²⁶ Surveillance data from 2006 show that about 92.7% of HIV-positive people in Canada who are from HIV-endemic countries self-identify as Black.^{14,26} Hence, people in the HIV-endemic category are appropriately used as a proxy for heterosexual, non-IDU ACB people.²⁴ HIV infection data for the city of Ottawa covering the period from 1983 to 2004 showed that 81% of infections among Blacks were attributable to the HIV-endemic category.²⁷ This indicates that the HIV epidemiologic data for the HIV-endemic category are fairly good approximations for the ACB population as a whole.

1.1.2.3. Descriptive Epidemiology of HIV in ACB Communities: National

The number of HIV-positive adults in Canada in 2011 was estimated to be 71300 (95% CI: 58600, 84000).^{30,31} Of these, approximately 10640 (95% CI: 6780, 12500) were from countries where HIV is endemic.³¹ It should be noted, however, that according to the 2006 Canadian census, people born in HIV-endemic countries only comprise 2.2% of the broader population.³² At the end of 2008, people in the HIV-endemic category accounted for 14% (95% CI: 12, 15) of prevalent HIV cases in Canada.³² Furthermore, people who fall into the HIV-endemic risk category are 9.0 times more likely to acquire HIV than other Canadians.³¹ At present, there are no national data about HIV risk among people from HIV-endemic countries who fall into the MSM or IDU risk categories.

1.1.2.4. Descriptive Epidemiology of HIV in ACB Communities: Provincial

As reflected in the national statistics, HIV also disproportionately impacts ACB people in Ontario. The prevalence of HIV in ACB populations in Ontario has been increasing. From 2001 to December 31, 2006, HIV prevalence among heterosexuals from HIV-endemic countries increased by 72%.³³ As of December 2009, the estimated prevalence was 1.1%—nearly three times the overall prevalence in Ontario, which was estimated to be approximately 0.4% at the end of 2009.³⁴ It must be noted that, figures reported for this population might be greater, as only persons who chose to report that they were born in a HIV-endemic country are included in this statistic, and race/ethnicity was only reported for about 60% of all HIV cases identified in Ontario.^{28,35}

ACB people comprised 3.9% of Ontario's population in 2006,^{36,37} but data for the years from 1985 to 2009 show that ACB people were over-represented in HIV incidence and prevalence data among heterosexuals. For example, the proportion of total HIV infections in women that was attributable to the HIV-endemic category during that period was 42.6%; the corresponding percentage for men was 7.5%.³⁴ When only infections acquired through heterosexual contact were considered, ACB women accounted for 55.8% of infections among women, and ACB men accounted for 51.3% of infections among men.³⁴ More recently, Ontario data from 2009 showed that ACB men accounted for 8.4% of new diagnoses among men, and ACB women accounted for 48.4% of new diagnoses among women in that year.³⁸ Among those who became infected through heterosexual contact, ACB women accounted for 59.6% of new diagnoses, and ACB men accounted for 34.4% of new diagnoses.³⁸ These data show that, using 2006 population estimates, ACB women were about 10.6 times as likely to be HIV-positive as would be expected, and when only heterosexual transmission was considered, this number increased to 14.3. The corresponding numbers for ACB men were 1.7 times and 12.9 times, respectively. Data from 2009 also show that ACB women were about 11.4 times more likely to be newly diagnosed with HIV than would be expected, and 15.3 times as likely to be newly diagnosed when only heterosexual transmission was considered. Correspondingly, among men, the numbers for ACB men were about 2.2 times and 8.8 times, respectively. The differences between ACB women and men might be slightly exaggerated, however, because African and Caribbean women in Ontario outnumber African and Caribbean men,³⁹ and it is likely that this discrepancy persists when only race is taken into account.

It is evident that infections acquired in Canada are at least partially responsible for driving the epidemic among ACB people. Despite representing less than 4% of Ontario's population, men and women from HIV-endemic countries accounted for roughly 20.9% of all new HIV diagnoses in Ontario in 2010.⁴⁰ With the exception of the period from 1993 to 1998, the estimated annual HIV incidence among people from HIV-endemic countries in Ontario has continually increased from 1977 through 2006.⁴¹ Mandatory HIV testing for immigration purposes did not seem to explain all of this increase because the upward trend began prior to 2002, when the Citizenship and Immigration Canada's

mandatory testing policy was implemented.⁴¹ Furthermore, Ontario-based studies show that as many as 60% of infections in this group occurred after immigrants and refugees arrived in Canada.^{33,42,43}

Surveillance data show that the overall proportion of infections in Ontario that are attributable to the HIV-endemic category has increased since monitoring began in 1985. In 1985, people from HIV-endemic countries accounted for 0.29% of new HIV diagnoses, but this proportion has increased over the years—it was: 26.8% in 2003, 20.7% in 2004, 21.7% in 2005, 30.3% in 2006, 21.9% in 2007, 22.4% in 2008, and 17.5% in 2008.^{34,40} It is important to note that the proportion of new infections attributable to people from HIV-endemic countries has remained stable in recent years, for the most part. However, this proportion is very high considering that ACB people comprise less than 4% of Ontario's population. Furthermore, in 2008, it was estimated that only about 56.3% of HIV-infected persons in the HIV-endemic category knew their HIV status,⁴⁴ so there are many people who may potentially be transmitting HIV unknowingly. This further increases the risk of a susceptible person in the ACB population being exposed to HIV.

The descriptive epidemiology of HIV suggests that ACB women may be at greater risk for HIV infection than ACB men. As described above, ACB women are more likely to be HIV-positive compared to other women than ACB men are when compared to other men. In 2009, 112 women from HIV-endemic countries were diagnosed with HIV, but the corresponding number for men was 65,³⁸ and this discrepancy persists when the number of ACB women and men are taken into account. This is not surprising given that women are at greater risk for HIV infection for a variety of biological and social reasons,⁴⁵ and pregnant women in Ontario are supposed to be offered an HIV test through the Prenatal HIV Screening Program,⁴⁶ which leads to greater detection among women. Some of the social reasons for the differences in HIV risk are discussed in Chapter 3.

1.1.2.5. Descriptive Epidemiology of HIV in ACB Communities: Local

The proportion of HIV diagnoses in London, Middlesex County and surrounding areas that is attributable to the HIV-endemic exposure category is increasing as well, and people who fall into this category have lower HIV testing rates than MSM and IDUs.⁴¹ London reportedly has the third highest HIV infection and cumulative incidence rates in

Ontario, behind Toronto and Ottawa.^{41,44} In London, the proportion of overall HIV diagnoses attributable to the HIV-endemic category increased from 3.1% in the period from 1985 to 1995 to 11% in 1996 to 2003.⁴⁷ In 2007, people from HIV-endemic countries accounted for 20.7% of new diagnoses in Southwestern Ontario.³⁸ It is estimated that the prevalence of HIV among people from HIV-endemic countries was 2.0% in London and Middlesex County in 2008.⁴⁸ Locally, the trend in gender differences in HIV risk appear to be reversed or more complex. African and Caribbean men outnumber African and Caribbean women in London,³⁹ and accounted for a smaller number of HIV diagnoses,^{47,48} but a larger proportion of undiagnosed cases. On the other hand, ACB men seemed to be at greater risk for infection among men than ACB women were among women.⁴⁸ Even locally, it is likely that not all infections in this population occurred in Canada. Regardless of where infections occurred, preventing infections in Canada will reduce the incidence, and eventually the prevalence, of HIV among ACB people.

1.2. Prevention-Focused HIV Research Is Needed

Treatment, cure, and prevention are the main areas of focus in HIV research.⁵ Research in the area of HIV treatment has been very successful, but as mentioned previously, it is unsustainable to provide treatment to the millions of people living with HIV,⁵ and there is an ongoing demand for new drugs. Additionally, when viewed with a lens of optimism, it will be years before a cure for HIV is found.⁵ Hence, safe, efficacious, and effective prevention interventions are necessary for controlling HIV now and in the long-term.⁵ By and large, vaccine studies have not shown much promise, and a safe, effective vaccine is years away. The most promising vaccine was evaluated in a phase 2 clinical trial in 2009, and it had a 31% efficacy in preventing HIV infection, which is quite modest.^{5,6} A number of safe, efficacious, effective prevention interventions already exist, and these include: behavioural and educational interventions, condom use, needle exchange programs, antiretrovirals to prevent HIV transmission from mother to child, HIV testing coupled with treatment or risk counselling, and male circumcision (which is not effective in all contexts).⁵

Although proven prevention interventions are available, their uptake is lagging. The United States of America's (USA) Diffusion of Evidence-Based Interventions

(DEBI) program illustrates this point. Through DEBI, the government has identified dozens of evidence-based HIV prevention interventions that were designed by prevention scientists.⁴⁹ However, there are barriers to applying these interventions in non-research settings.⁵⁰ Some challenges to implementing them include: context of the implementing organization, content of the interventions, funding for implementation, and lack of multilevel models developed to aid implementation of these programs.⁵⁰ Barriers to the uptake of these interventions include: limited accessibility to information about the programs, lack of knowledge about with whom implementing organizations can consult to obtain assistance with implementing the interventions, poor fit with the diversity of the organization's clients, and lack of epidemiologic data to assist with planning and choosing an intervention.^{49,51}

Many of the barriers to uptake and implementation of prevention interventions can be overcome through prevention-focused epidemiologic research. Epidemiologic research can enhance understanding of the local epidemic, which makes it more likely that the appropriate prevention intervention will be chosen and that the services delivered will be appropriate for groups facing multiple challenges related to health and other factors.^{51,52} Furthermore, epidemiologic research can increase accountability in HIV prevention by informing decisions about how and where prevention resources should be targeted.⁵² This will reduce the waste of HIV prevention resources and make it more likely that the resources will be directed to where they are most needed and effective. Lastly, as many prevention interventions are “pre-packaged”, epidemiologic research can help identify components of existing interventions that can be eliminated or modified to fit the prevention needs of a particular population.⁴⁹ Without the contributions made by prevention-focused research, it is very likely that opportunities and resources for HIV prevention interventions will be squandered.

1.2.1. Prevention Measures of Interest

Condom use and HIV testing are important for preventing HIV infection, detecting infection early, and preventing transmission of HIV. However, little information is available about the factors that influence them in ACB populations. Many studies have been conducted to look at condom use and HIV testing, but the findings of these studies are context-specific, and to date, none of these studies has been conducted

with ACB populations in the Canadian context. Furthermore, it is evident that these two prevention approaches are important features of most intervention programs,¹³ and many ACB people want more promotion of condom use and HIV testing in HIV prevention.⁵³ Hence, compared to other risk behaviours and practices, special attention is given to HIV testing and condom use.

1.2.1.1. HIV Testing

HIV testing affects an individual's HIV risk by influencing a susceptible person's exposure to HIV and the efficiency of HIV transmission per contact. HIV testing promotes behaviour change,⁵⁴⁻⁵⁸ which in turn influences a susceptible person's likelihood of being exposed to HIV. Additionally, it allows for early diagnosis and treatment of HIV infection.⁵⁴⁻⁵⁸ Consequently, testing reduces the efficiency of HIV transmission, because treatment reduces the viral load, and thereby reduces the likelihood that an infected person will transmit the virus.

However, HIV testing rates among ACB people are low. There are exploratory models for HIV testing, but none of the models located is applicable to the ACB population in London or the rest of Canada. In London and Middlesex County, half of the ACB population is foreign born and a high proportion of the ACB population in Ontario and the rest of Canada is foreign born as well.³⁷ In 2002, HIV testing became mandatory for all non-refugees and non-family class immigrants;¹⁴ it is also mandatory for obtaining some visitor and temporary resident visas (i.e. student and work visas). Some additional factors specifically related to immigration, like language barriers may also impact HIV testing within the ACB population.⁵³ A qualitative study identified other factors that may potentially impact decisions to undergo HIV testing within ACB populations. They include: feeling ill, having a homosexual or bisexual identity (among men), being engaged to be married, being pregnant, applying for insurance, applying to participate in clinical trials, receiving treatment for other STIs, having an HIV-positive partner, injecting drugs, a doctor requisitioning an HIV test, and a doctor's perception of an individual's level of risk.⁵³

HIV testing is an important, cost-effective component of HIV prevention interventions.⁵⁹ Within London, Ontario, there are several existing testing centres, including an anonymous testing centre whose employees travel throughout Middlesex

County to provide services. Hence, the infrastructure to support HIV testing is already available in the city and arguably in the county as well. These services are underused, however, so it is important to identify mechanisms through which their uptake can be enhanced within the ACB population.

1.2.1.2. Condom Use

Latex and polyurethane condoms reduce the likelihood that an individual will be exposed to HIV during penetrative sexual intercourse by serving as a barrier, and it impacts the efficiency with which the virus is transmitted. Although both male and female condoms are available, male condoms are far more commonly used for a variety of reasons, including lower cost, greater familiarity, and acceptability. As barriers, condoms are protective for both penetrative and receptive partners. For receptive partners, condoms contain the semen that has been ejaculated by the penetrative partner thereby preventing it from entering the receptive partner.⁶⁰ They also protect penetrative partners by preventing virus in the receptive partner's vaginal and anal fluids from entering the penetrative partner's penis through cuts and tears on the penis and through the mucosal lining of the urethra.⁶⁰

Condom use influences the efficiency of HIV transmission per sexual contact. If used consistently and correctly, condoms reduce the likelihood of exposure to HIV during sexual activities. They have been shown to reduce per contact HIV risk 20-fold.⁶¹ Additionally, a systematic review has shown that there is an 80% decrease in HIV transmission if male condoms are used consistently.⁶² These data are for all male condoms, not necessarily those made from latex. Due to their efficacy, condoms are widely promoted as a prevention measure in Canada.

Many exploratory models have been proposed to identify predictors of condom use, but evidence shows that the predictive abilities of these models vary by ethnic and gender groups, and they ignore the context in which condoms are used and not used, and the SDOH that impact condom use. Research findings on the factors that are associated with condom use in the broader Canadian population may not be applicable to minority ethno-racial communities given that Canadians are mostly White and cultural differences surrounding condom use exist. For instance, a systematic review of the literature on predictors of condom use in Aboriginal populations in Canada and the United States was

inconclusive, but it highlighted a need for more research focused on the contexts in which condoms are used.⁶³ The situation may be similar in ACB populations, which typically differ from the broader Canadian population. Additionally, rather than simply identifying the predictors of condom use, it would be more beneficial to identify predictors of the frequency of condom use. Such information may help increase understanding of vulnerability and resiliency factors, and in turn aid the development of interventions that reduce risk.

Findings from descriptive studies suggest that a variety of factors might impact condom use in ACB populations and thereby reduce condoms' preventive impact. For English-speaking Caribbean women, condom use was influenced by: embarrassment about introducing condoms into a relationship, fear of intimate partner violence, the use of other kinds of birth control, trying to get pregnant, and having a partner who refuses to use condoms.⁶⁴ For English-speaking Caribbean men, condom use was influenced by: knowing how to use condoms, partner's willingness to use condoms, availability of condoms, and relying on condoms to prevent STIs.⁶⁴ Having a partner who is using another form of birth control and the use of alcohol also influenced condom use among men.⁶⁴ Other studies have shown that ACB women in Toronto have difficulty negotiating condom use with their partners.⁵³ Additionally, ethnicity may impact condom use through community norms and religious beliefs. For instance, in a focus group, Somali and Ethiopian men said it is difficult for men in their communities to talk about condoms:

It's against their ethic, it's against everything they believe in, it's like having a plastic on the body and having sexual intercourse, they don't want to do that. And some people, like, they're not even gonna give you a chance to explain it to them. So that's kind of a big problem.^{53(p39)}

Additionally, within the same study, there was evidence that religion impacts condom use within the ACB population.⁵³ However, although religious leaders are very influential in ACB communities, it may be inappropriate or nearly impossible to get them to promote condom use.⁵³

Evidence shows that, like HIV testing, condoms use is important for HIV prevention, but there are numerous factors that may influence condom use in ACB populations. In addition to being effective at preventing HIV infection, condoms are a

cost effective component of prevention interventions.^{5,59,65} Hence, it is important to understand how their use can be enhanced.

1.3. What This Dissertation Adds

This research addresses some of the gaps in HIV prevention research for ACB populations. For instance, there is currently no published research about HIV testing and screening among ACB people in Canada, the United Kingdom (UK), the USA, Australia, or New Zealand. Research on HIV prevention service delivery and combination prevention packages is also non-existent. Additionally, there is little research about prevention interventions and social factors within ACB populations.⁶⁶ This project focuses on SDOH as they relate to HIV risk in the ACB population by impacting HIV risk behaviours.

To date, while some studies have looked at subsets of the Canada's ACB population, none has looked at HIV in Canada's ACB population more broadly, or identified subgroups that are at increased risk for infection. Canadian researchers have recently begun to look at HIV in ACB populations, but little has been published. Few researchers are working in this area, and their studies typically focus on ACB communities in Toronto and Montreal, which are large urban centres. Aside from this doctoral research, there have only been two epidemiologic studies that look at HIV in ACB populations in Ontario—the East African Health Study in Toronto (EAST) and the MaBwana Study.^{67,68} Data collection is complete for both of these studies and analyses are underway. Neither study focused on the broader ACB population. MaBwana focused exclusively on ACB MSM, and the EAST Study focused on five East African communities (Ethiopians, Kenyans, Somalis, Tanzanians, and Ugandans).^{67,68} Other epidemiologic studies focused on the ACB population have taken place in Montreal, and these studies focused exclusively on Haitians.

This doctoral research project is the only study to date that looks at the ACB population as a whole and the distribution of HIV risk across the population. This study collects information on the heterogeneity of HIV risk within the ACB population, which will help identify subgroups that display protective behaviours or are in need of targeted interventions. Such information is necessary for designing more effective primary and secondary prevention interventions for ACB people. Since much of the risk is believed to

result from the social context of people's lives, this research focuses on SDOH that are related to an individual's social status and position (SSP) through their relationships with the distribution of power, privilege, oppression, and discrimination. SDOH that are markers of SSP include: gender, poverty status/ income, education, immigration experience, ethnicity, and employment status. An individual's SSP thereby comprises the social context of that individual's life.

The findings of this research have the potential to inform HIV prevention in other urban-rural locales beyond London and Middlesex County. Results from this doctoral research project can be used to: modify existing prevention interventions, like those in the DEBI program, to make them fit the local ACB population better; or design new prevention interventions specifically for the population. This exploratory research project will also help guide the generation of hypotheses about the associations between SSP and HIV risk.

1.4. Objectives

Objective 1: To describe the distribution of HIV risk and protective factors among ACB people based on an individual's social status and position (SSP)

- 1) What are the point prevalences of: age of sexual debut (12 years or younger, 13 to 15 years, 16 to 18 years, more than 18 years), engaging in transactional sex, history of forced/ unwanted sex, having a partner who used injection drugs, ever testing for HIV, testing for HIV in Canada in the past 12 months, sharing drug use equipment, abstinence (lifetime and past 12 months), having unprotected sex with a cohabiting regular partner in the past 12 months, having unprotected sex with a non-cohabiting regular partner in the last 12 months, having unprotected sex during last intercourse with a regular partner, having unprotected sex with a casual partner in the last 12 months, having unprotected sex during last intercourse with a casual partner, never using a condom in the last 12 months, ever mixing sex with alcohol or drugs, participant or partner having concurrent partners in the last 12 months, history of sexually transmitted infections, lifetime number of sex partners (none, 1, 2-4, 5-9, 10-19, 20 or more), and number of sex partners in the past 12 months (0, 1, 2, 3 or more).

- 2) What patterns appear in the distributions of HIV risk and protective factors, with regards to the following markers of SSP: gender, poverty status/ income, immigration experience, and employment status?
- 3) How does the distribution of HIV risk and protective factors compare to perceptions about HIV risk in the local African, Caribbean, and other Black (ACB) community?

Objective 2: To identify which markers of social status and position (SSP) are associated with ACB people being tested for HIV infection in the past year

- 1) Do the markers of SSP that are associated with HIV testing in the last 12 months interact (or intersect) to create social positions that influence HIV testing?
- 2) What are mediators of the relationship between markers of SSP and HIV testing in the last 12 months?

Objective 3: To determine which markers of social status and position (SSP) are associated with the frequency with which condoms are used among ACB people in the last 12 months

- 1) Do markers of SSP interact (or intersect) to create social positions that influence the frequency of condom use?
- 2) What factors mediate the relationship between markers of SSP and the frequency of condom use?

1.5. How This Dissertation Is Organized

An integrated-article format is used for this dissertation. Chapter 2 provides and discusses the integrated conceptual framework underlying this dissertation. It is followed by an overview of the literature about HIV risk and markers of SSP in ACB populations around the world in Chapter 3. The next three chapters, Chapters 4 through 6, feature articles to satisfy Objectives 1, 2, and 3, respectively. Lastly, this dissertation ends with the concluding chapter, Chapter 7. The appendices feature details about the research methods, the research approach, and the data collection instruments. In an integrated-article thesis, each chapter is a stand-alone article, and details about research methods are provided in an appendix. Hence, there might be some repetition across the chapters and appendices.

This dissertation uses a mix of qualitative and quantitative data collection and analysis methods. In Phase I of data collection and analysis, semi-structured interviews were conducted to gather qualitative data, which were later analyzed. Results from Phase I were used to partially satisfy Objective 1. Phase II featured the use of a quantitative self-administered questionnaire for data collection. These data were analyzed, and the results were used to satisfy Objectives 1, 2 and 3. Details about both phases can be found in Appendix A.

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Chapter 2 : Integrated Conceptual Framework

2.1. Background

Since no single theory fully captured the impact of social status and position (SSP) on HIV risk and protective behaviours, an integrated conceptual framework was created. The integrated conceptual framework combines social epidemiology, the social determinants of health (SDOH) framework, social production of disease/ political economy of health theories, the proximate-determinants framework, and intersectionality theory. While social epidemiology focuses on social context, it does not provide mechanisms that show how context impacts health outcomes. The SDOH framework identifies social factors that impact the distribution of health and disease within populations, but again, it does not provide insights into the mechanisms through which these impacts occur. The social production of disease/ political economy of health theories build on the SDOH framework by proposing a causal mechanism and focusing on SDOH that are markers of SSP and therefore impact behaviours. The proximate determinants framework links social context with HIV infection, specifically. Lastly, intersectionality theory adds dimension to social context by proposing that markers of SSP may have a different impact when they are combined versus when they are isolated. Hence, the integration of these theories, concepts and approaches provides a more complete picture of the phenomenon being studied and a stronger foundation for the thesis than would have been possible had only one of these been used.

2.2. Integrated Conceptual Framework

The aforementioned theories, concepts and approaches were being combined and applied in order to comprehend how various SDOH that are markers of SSP operate independently and in combination with each other to create unique SSPs that influence HIV risk. This conceptual framework (presented in Figure 2.1) considers upstream factors that influence HIV risk and protective behaviours, and in so doing, tries to contextualize these behaviours.¹⁻³ This framework is based on the hypothesis that inequalities in health are caused by policies and practices that create social hierarchies. These hierarchies create an individual's SSP, which impacts HIV risk through proximate

determinants, which are behaviours that increase the biological likelihood of HIV infection.

The framework also shows a number of feedback loops and two-way relationships illustrating some of the complexity that is inherent in studying social phenomena and their impacts on health. For instance, SSP is created by and creates the context in which health and disease occur (i.e. governance, macroeconomic policies, social policies, public policies, and culture and societal values). The availability of intervention programs is another contextual factor that impacts risk and protective behaviours. It is impacted by the aforementioned contextual factors, and it can act by impacting proximate determinants of HIV risk directly, or through SSP. Lastly, HIV infection impacts the context as well as the likelihood that a susceptible person will be exposed to HIV.

This framework was used to identify factors that are potentially related to HIV risk and then locate these factors within the multilevel structure of disease causation. Hence, it can aid the creation of better HIV prevention interventions targeting risk and protective behaviours in specific groups. Discussions about the framework’s constitutive theories, concepts, and approaches follow.

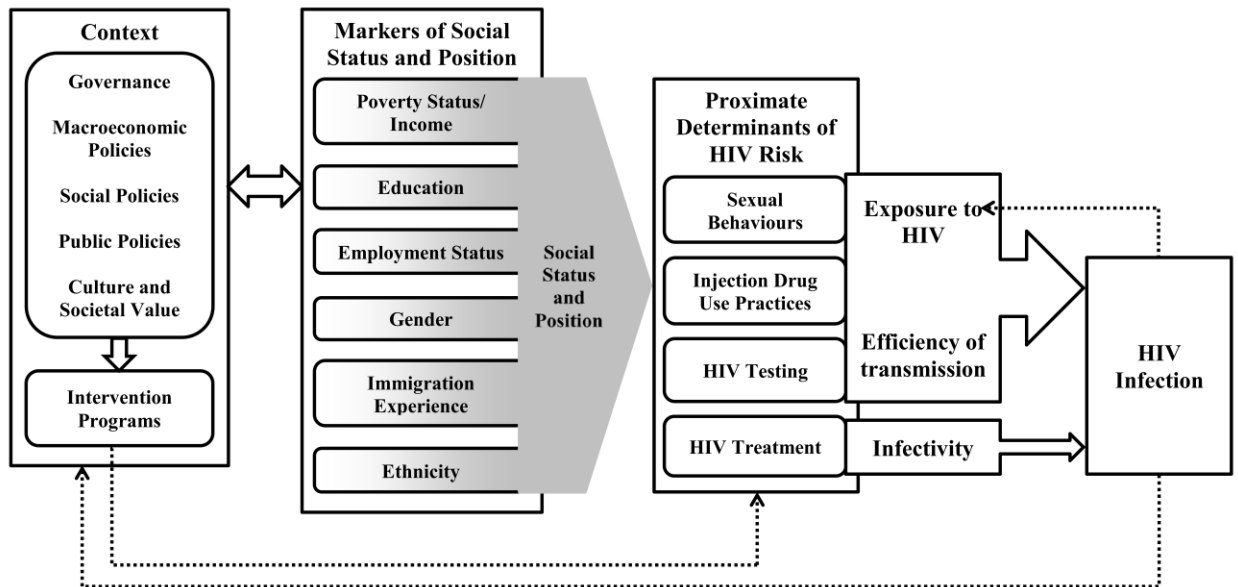


Figure 2.1: Integrated Conceptual Framework

2.2.1. Social Epidemiology

A social epidemiology approach connects individual-level characteristics to the broader social context in which individuals live by acknowledging the contributions of

factors that operate at multiple levels.⁴ Social epidemiology consists of theories and frameworks regarding the distribution of health and disease that are alternatives to the biomedical and lifestyle theories that dominate modern epidemiologic research.¹ There are three classes of social epidemiologic theories—psychosocial, socio-political, and ecosocial.¹ A socio-political framework is used in this doctoral research, because it is the most appropriate framework for the topic being studied and the perspective being used. This framework links disease distribution to rights, economics, politics, and power.¹ Socio-political theories posit that proximal factors are caused by more distal ones,¹ and they are not primarily concerned with biological or biomedical factors, just the social context that influences them. Consequently, the socio-political framework emphasizes the public health aspect of epidemiology. The SDOH framework and the social production of disease/ political economy of health theories fall under this class.¹

In social epidemiology, markers of SSP are often used to operationalize social context. Using these markers, social epidemiologists are able to examine disease distribution within populations,² which may lead to important etiologic information.⁵ Within the field of social epidemiology, there is an ongoing debate over whether social factors cause disease or are the result of disease—social causation versus social selection.^{6,7} In recent years, however, such binary distinctions are giving way to examinations of how both processes work in tandem to shape health and illness trajectories.⁸ Furthermore, it is recognized that social causation and social selection processes are mutually reinforcing.⁸ This project assumes social causation is at play—markers of SSP are exposures that drive risk and protective behaviours—as it is unlikely that the reverse is true.

2.2.1.1. Social Determinants of Health

SDOH are conceptualized as distal causes of disease that operate through proximal causes.^{1,9} They constitute the context surrounding disease risk, and they are responsible for inequities within and between populations. The 12 “determinants of health” recognized by the Public Health Agency of Canada are: income and social status, social support networks, education and literacy, employment/ working conditions, social environments, physical environments, personal health practice and coping skills, healthy child development, biology and genetic endowment, health services, gender, and

culture.¹⁰ Other Canadian sources identify a more politically oriented list of 14 SDOH, by focusing on determinants of health that are created by public policies and politics. These 14 SDOH are: income and its distribution, education, unemployment and job security, employment and working conditions, early childhood development, food insecurity, housing, social exclusion, social safety network, health services, Aboriginal status, gender, race, and disability.¹¹ For practical reasons, it is impossible to focus on all of these SDOH. Hence, this doctoral research project focuses on a set of SDOH that are markers of social status and position (SSP) because of their role in creating hierarchies of power and privilege. The SDOH/ markers of SSP of interest are: gender, poverty status/ income, education, and employment status. Other foci of this research include immigration experience and ethnicity. Although not widely recognized as determinants of health in the Canadian context, evidence shows that each of these factors impact health in general and HIV risk in particular. The social epidemiology of HIV around the world is largely unknown,¹² and it is almost completely unknown in the Canadian context.

2.2.1.2. Social Production of Disease/ Political Economy of Health

The social production of disease and political economy of health theories help to situate markers of SSP in a broader context and help to link them to health outcomes. These theories are based on social justice and health principles that focus on the impacts economic and political policies and decisions have on individuals' health.¹ The underlying idea is that the economic and political climate creates, enforces and perpetuates systems of social and economic privilege and hierarchies.³ These theories focus on upstream factors that influence downstream behaviours, and in so doing, try to contextualize behaviours and move away from blaming victims for their lifestyles and choices.² They address the political and economic determinants of health and disease and focus on who benefits (or is harmed) by specific policies and practices.^{2,3} The fundamental hypothesis underlying these theories is that economic and political policies, practices, and institutions perpetuate the root causes of social inequities in health by creating unjust power hierarchies that manifest through individual actions. These actions in turn impact health status, which in turn influences economic growth and public policies, which constitute the social context. These theories concentrate on SDOH that are markers of SSP, such as education, income, occupational status, ethnicity, gender, and

sexuality.^{2,9} As such, the theories lend themselves to analyses based on these markers of SSP and provide a mechanism through which these SDOH/ markers of SSP lead to health outcomes. Figure 2.2 shows the World Health Organization's model of the SDOH and their relationship to SSP using the social production of disease and political economy of health theories.

The cultural, political, and structural domains of society constitute the social context, which influences patterns of social stratification,^{9,13} and lead to health inequalities based on SSP. Markers of SSP are “specific determinants of individual health status reflecting the individual's social location within the stratified system”.^{9(pp45–46)} SSP has three dimensions: class (socio-economic status), status (prestige), and power (political power).⁹ Power shapes social hierarchies and conditions health differences between groups.^{9,13} SSP by itself does not impact health; it works through intermediary factors thereby leading to differences in exposures and vulnerability, and influencing the differential impacts of exposures on health outcomes.⁹ Markers of SSP are the exposure variables, and intermediary factors linking SSP to health outcomes tend to be: psychosocial (emphasize stressors and inequities), material (linked to economic factors that influence resources that can be directed to health, exposures and experiences), behavioural (unevenly distributed according to social position), due to the of the health system, and biological.⁹ Again, a social causation approach is useful for understanding how social position impacts health.^{7,9}

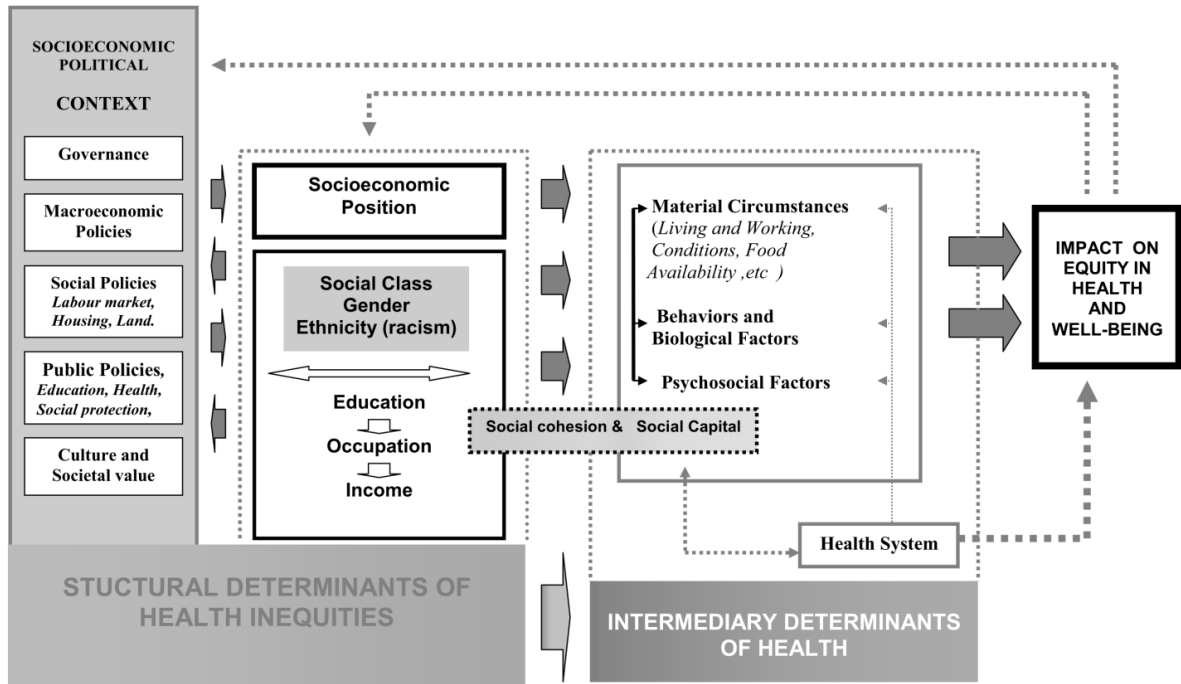


Figure 2.2: WHO Framework for the Social Determinants of Health⁹

2.2.2. Intersectionality Theory

Although intersectionality theory was not originally designed for public health or disease distribution purposes, it has been applied to these kinds of research.¹³ Of the three classes of social epidemiology theories, intersectionality theory would most readily fall into, and expand on, the socio-political theories. Hence, it is an appropriate addition to the SDOH framework and the social production of disease/ political economy of health theories, and by extension, the integrated conceptual framework underlying this dissertation.

Intersectionality theory recognizes the interaction among multiple socially defined categories.^{14,15} It was developed by Black feminist scholars to emphasize the simultaneous effects of inequity based on race, class, and gender. These scholars noted that the combined effect of these factors was not equal to the sum of their individual effects.^{13,16} Intersectionality is primarily concerned with diversity within,¹⁵ not between, groups. Often, it considers the intersection/ interaction of race, class, gender, and sexual orientation, but it is not limited to these categories. In fact, it can be applied to other categories related to the organizing structures of society.¹⁵ Gender, poverty status/ income, education, immigration experience, ethnicity, and employment status have

historically been linked to stratifications of power and privilege. Each of these factors is associated with socially constructed hierarchies that manifest in various health outcomes.

Intersectionality theory is related to aspects of the social production of disease/ political economy of health theories through its concentration on the constraints and structures within which people make choices. Interpretation of intersectional data considers factors related to history, power distribution, experiences, and the political economy.¹³ It also recognizes that multiple marginalizations create social and political stratifications that may simultaneously limit and enhance an individual's agency.¹⁵ Focusing on singular categories of oppression or privilege may lead to ineffective HIV interventions. Hence, it highlights the need for more complex HIV prevention interventions that simultaneously target multiple forms of marginalization, oppression, and difference. Intersectionality will help to identify combinations of markers of SSP that are potentially protective and those that are potentially harmful. In doing so, the results of this dissertation can help policy makers and program planners to determine meaningful points for intervention.

2.2.3. Proximate Determinants Framework

The proximate determinants framework from demography also expands and confirms the application of the SDOH and the social production of disease/ political economy of health theories to studying HIV risk. This framework uses demographic and epidemiologic approaches to understand the distribution and determinants of HIV infection. This framework also allows for an examination of the distribution of risk behaviours and the social context in which they occur. Figure 2.3 illustrates the proximate determinants framework as it relates to HIV.

According to the model, health outcomes are caused by biological determinants.¹⁷ In the case of HIV infection, these biological determinants are: exposure of susceptible persons to infected persons, the efficiency of HIV transmission per contact, and the duration of infectivity.¹⁷ These in turn determine if a person will be infected with HIV once exposed.¹⁷

The biological determinants of HIV risk are in turn caused by proximate determinants which are largely risk behaviours and practices.¹⁷ Specifically, proximate determinants of exposure for people who are HIV-positive include, but are not limited to:

new partner acquisition, sexual partner concurrency, coital frequency, abstinence, sexual mixing, blood transfusion, injection drug use, and medical injections.¹⁷ Proximate determinants of the efficiency of HIV transmission per contact between an infected and uninfected person include: condom use, history of other STIs, circumcision, type of sexual intercourse, viral load, biological susceptibility, blood safety practices, and needle safety.¹⁷ Some of the factors impacting the duration of infectivity are: treatment with antiretrovirals and treatment of opportunistic infections.¹⁷

Proximate determinants of HIV risk are in turn impacted by underlying determinants, which are more distal. Underlying determinants can be divided into two categories—contextual factors and features of intervention programs.¹⁷ Contextual factors are socio-economic, demographic, and sociocultural,¹⁷ and they overlap extensively with the markers of SSP identified using the SDOH and the social production of disease/ political economy of health theories. Features of intervention programs include: HIV testing and counselling, STI control, condom promotion, education for knowledge and changing attitudes, blood safety, safe injection, and harm reduction.¹⁷

While this framework is useful for identifying HIV risk and protective behaviours, it has limitations in its applicability to epidemiology and public health, and these limitations might be due to disciplinary differences. For one, HIV testing is included as an underlying determinant rather than a proximate determinant, despite its proximity to exposure to HIV and transmission of the virus. Knowing one's HIV status impacts risk behaviours and thus the likelihood of exposure. Furthermore, testing positive affects treatment—this impacts transmission and infectivity. Secondly, the model shows condom use only impacting transmission, when it in fact affects exposure as well.

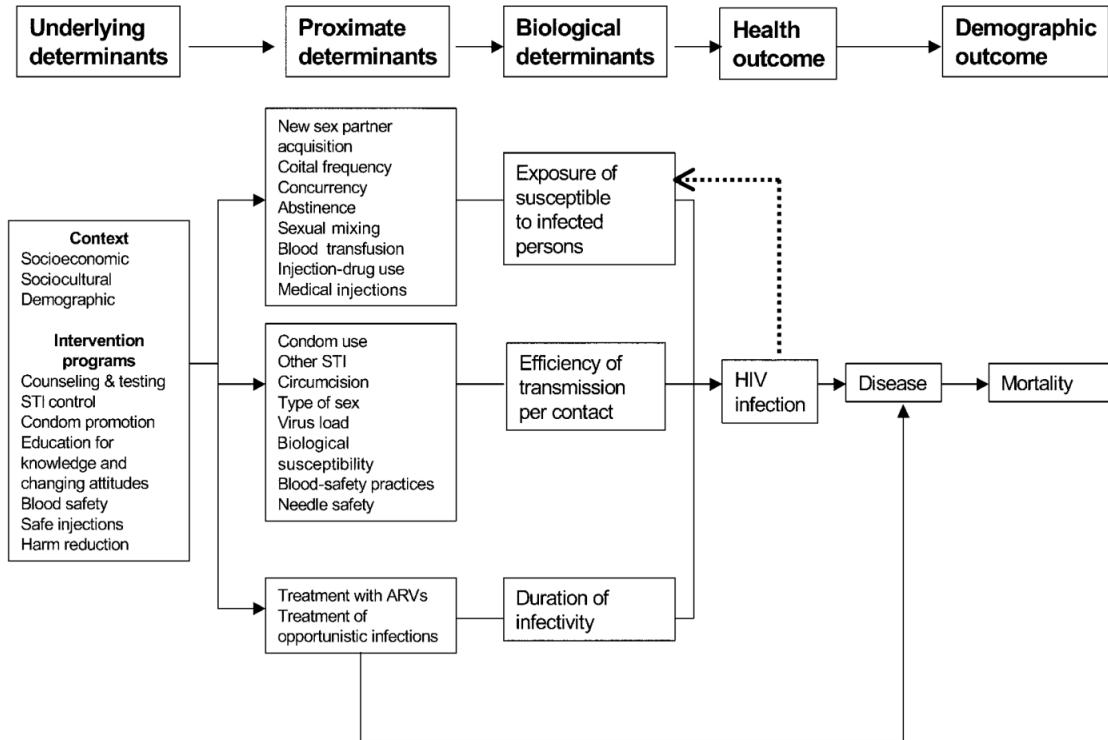


Figure 2.3: Proximate Determinants Conceptual Framework for Factors Affecting HIV Transmission¹⁷

2.3. Conclusion

Since the distribution of HIV within and between populations is impacted by social factors, the integrated conceptual framework of this doctoral research project focuses on socio-political factors and their impacts on HIV risk and protective behaviours. The aim of this doctoral research project is to provide information that can be used enhance HIV prevention interventions for ACB people in London, Ontario, and potentially other communities. By focusing on markers of SSP, the findings of this study have the potential to influence the design and targeting of HIV prevention programs. Secondly, these findings may also assist civil and political action aimed at addressing SSP and its impact on health and society.

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Chapter 3 : Literature Review

3.1. Background

The process of identifying relevant literature about the social epidemiology of HIV highlighted two important points that speak to the need for this research. One, there is a dearth of information about ACB people and HIV in the Canadian context, so more information is needed to curb the spread of HIV within this population. Two, few studies outside of Sub-Saharan Africa have looked at the social epidemiology of HIV, and this focus has only begun in recent years. Hence, this area of research needs further development. Additionally, studies that have explored the impact of social factors on HIV risk and infection have produced inconsistent results. However, at present, an explanatory framework in which to interpret these apparently contradictory research results does not exist.

3.2. Search Strategy

The literature search for this dissertation was conducted to identify qualitative and quantitative studies that assessed the relationship between markers of social status and position (SSP) and Human Immunodeficiency Virus (HIV) infection or risk behaviours. The search focused on gender, poverty status/ income, education, immigration experience, ethnicity, and employment, as these are the main markers of SSP identified in the theoretical literature. Since the scientific rigour of the research was of utmost importance, the literature search strategy aimed to identify peer-reviewed literature that had been vetted and research that was reviewed by experts. Hence, Scopus and PubMed, which are both scholarly databases, were used to locate relevant articles that were written in English. Although there were no limits placed on publication dates, the majority of relevant articles had been published since the year 2000. The literature review includes studies that assessed the relationships between markers of SSP and HIV risk regardless of whether or not these relationships were the studies' main foci.

The literature search yielded few peer-reviewed articles or reports about markers of SSP and HIV in African, Caribbean, and other Black (ACB) communities in Canada or the United States of America (USA). Hence, the search was expanded to include global

African diasporic communities. The new search strategy yielded articles from studies conducted in Europe, the Caribbean, and Sub-Saharan Africa, with the majority of studies being conducted in Sub-Saharan Africa. The literature review also included reports from completed research projects in Canada and Canadian government agencies, and whenever possible, peer-reviewed articles from these same research projects were used. The following literature review summarizes the literature that was located through this search. The literature included the individual and combined (or intersecting) effects of the various markers of SSP.

3.3. Overview of the Literature on Markers of SSP and HIV Risk

3.3.1. Gender

Gender impacts health through its connection to gender roles, personality traits, attitudes, beliefs, relative power, and societal influence.¹ As a result of these factors that are associated with gender, women are more impacted by the other SDOH than men. Gender also negatively impacts men's health and life expectancy. Men are more prone to accidents and extreme forms of social exclusion that manifest in homelessness and extreme substance abuse. Additionally, gender impacts health through its relationship with sexual orientation and gender identity.² Lesbian, gay, bisexual, and transgendered Canadians face homophobic, biphobic, and transphobic discrimination, which heighten the negative impacts of gender and the other SDOH. Gender's impact on the other SDOH provides evidence of its position as an important factor in intersectionality theory.

Women account for a growing proportion of incident HIV cases in Canada, and they comprise a priority group for prevention efforts,³ however, the sex-based distribution of HIV infection is due to more factors than biology alone—gender plays a key role in the epidemiology of HIV infection.⁴ For instance, in Canada the proportion of HIV infections among women has increased. Additionally, the numbers and proportions of HIV cases among women that are attributable to heterosexual contact are increasing while the corresponding numbers and proportions due to injection drug use are decreasing.⁵ Gender- and sex-based exposures have been found to adversely affect women and increase their HIV risk,⁶ both sexual and otherwise. These factors influence the changing epidemiology of HIV among women.

Heterosexual ACB women may be at greater risk for HIV infection because their potential partners, ACB men, engage in riskier behaviours. A study of young African Americans showed that men and women were evenly distributed in the low risk group (50.2% v. 49.8%), but men accounted for a greater proportion of the moderate risk group that used condoms (54.4% v. 45.6%) and the high risk group (61.1% v. 38.9%). Women only outnumbered men in the moderate risk group that engaged in serial monogamy (75.0% v. 25.0%). The high risk group was characterized by: high frequency of sexual intercourse, high numbers of sexual partners, high use of alcohol or drugs during sex, and moderate condom use.⁷ Women were consequently more likely than men to choose partners from a pool of higher risk individuals. In another study, female youth were more likely to report inconsistent condom use than their male counterparts,⁸ and women's lack of control over sex in their relationships with men put them at risk for HIV infection.⁴ Even within marriages, women are vulnerable to HIV infection. Marriage and monogamous relationships increase women's vulnerability, because it is very difficult for women to negotiate condom use in the context of such partnerships.⁹ Additionally, many women depend on men for financial and social support and are compelled to remain in relationships with men who engage in high risk activities.¹⁰

Norms within some cultures might also encourage ACB men to have multiple partners while compelling ACB women to continue having sexual intercourse with these men in order to maintain their relationships. A literature review focusing on Sub-Saharan Africa concluded that part of masculinity is the ability to attract and keep women, and African men's masculinity is historically rooted in material and professional achievement. Obedience and passivity were identified as hallmarks of African women's femininity. Furthermore, there are two perspectives on sex among Black South Africans—the one rooted in Christianity and the other rooted in traditional Black African ideas. In the latter, there is a frame of sexual openness in which African women are seen as sexual beings, and sex is essential to a relationship's success. This cultural system embeds sanctions and rewards to uphold the ideal of femininity, and women with greater material and social vulnerability are more likely to adhere to this system.⁴

There is also evidence that during heterosexual intercourse, females may be at greater risk for HIV infection than their male partners. A meta-analysis of observational

studies found that among discordant couples in the absence of antiretrovirals in high-income countries, the probabilities for females transmitting HIV to their male partners per sexual contact was 0.0004 (95% CI: 0.0001, 0.0014), and for male-to-female transmission, the corresponding probability was 0.0008 (95% CI: 0.0006, 0.0011). However, in low-income countries, and in the absence of commercial sex, the per-contact probabilities were 0.0038 (95% CI: 0.0013, 0.0110) for female-to-male transmission and 0.0030 (95% CI: 0.0014, 0.0063) for male-to-female transmission.¹¹ Many of the results of the meta-analysis were not statistically significant,¹¹ which may have been due to small sample sizes.¹² A large study looking at discordant couples in southern and eastern Sub-Saharan Africa found that, during unprotected sexual contact, the probability of per-contact female-to-male transmission was 0.0010 (95% CI: 0.0006, 0.0017), and for male-to-female transmission the per-contact probability was 0.0019 (95% CI: 0.0010, 0.0037).¹²

Sexism, dependency on men, and lack of rights and sexual control over one's own body put ACB women at increased risk for HIV infection.¹³ Sexism deprives women of power and agency, which contributes to their vulnerability to HIV infection.¹⁰ Furthermore, as a result of sexism, dominant HIV prevention messages in the Canadian context are inappropriate to the lived realities of women in general, and ACB women in particular.¹³ ACB women in Toronto cited a number of barriers to maintaining sexual health, such as the inability to negotiate condom use, and familial or cultural pressures related to marriage and reproduction. Additionally, women's sexuality being viewed as binary—virtuous or promiscuous—dissuades women from seeking information about HIV prevention, and service providers often do not consider women to be at risk.¹⁴

Poverty and gender inequity influence each other and work in combination to: restrict access to health information and services, restrict education and skill levels, perpetuate intimate partner violence, and lead to migration. Structural pathways through which poverty and gender inequity act in turn influence risky sexual behaviours that lead to HIV infection. Furthermore, poverty and gender inequity constitute part of the reality and context of peoples' lives, which influence decision making about risky behaviours. Risk behaviours are influenced by knowledge about HIV, which is thereby essential for HIV prevention, but it is not sufficient to prevent HIV infection, and women tend to have

less knowledge about HIV than men. However, women with more formal education are usually more knowledgeable about HIV/AIDS than women with less education.¹⁵ Additionally, women are less likely to take protective actions, like using condoms or accessing voluntary counselling and testing services.^{7,8,15}

Other factors related to gender, poverty, and HIV risk are intimate partner violence, migration, and transactional sex. Intimate partner violence is more strongly associated with lower socio-economic (SES) than higher SES, and it is associated with HIV risk.¹⁵ Studies have found that sexual and physical intimate partner violence can directly lead to sexually transmitted infections and HIV infection. They may also indirectly impact HIV risk by triggering local inflammatory responses in the vagina, and leading to future risky sexual behaviours and substance misuse.¹⁶ Additionally, migrants tend to be at higher risk for HIV infection than nonmigrants,¹⁵ and in many cases, migration to or from a country is associated with the gender of the migrant due to employment opportunities in the receiving country. The prevalence of transactional sex, a risk factor for HIV exposure, is higher among female migrants than male migrants and male and female non-migrants.¹⁵

Societal pressure on males and definitions of masculinity may put men at greater risk for HIV infection. Men are expected to always be ready and interested in sex, which has the consequence of resulting in unsafe activities that put them and their partners at risk for infection.¹⁷ Studies conducted in Canada have shown that being male had a stronger association with HIV infection than being female (OR 1.8; 95% CI: 1.04, 3.1); this study looked at people of Haitian origin in Montreal and did not account for sexual orientation.¹⁸ Some ACB men in Toronto said the dominant masculine identity in Canadian culture that promotes sexuality, yet discourages sexual literacy, increases their risk for HIV infection.⁹ For instance one man said:

It rejects sex education basically, it promotes sexuality, and the sexual education is perceived as uncool, it's not cool, it's not, you know what I mean? Sitting in a room like this and talking about things like that, 'yo, no, forget that man, you know, let's go do something, let's go, let's go, let's go play ball man, let's go ahead and do something.' You know what I mean? And it has sort of been inscribed within us.^{9(p39)}

Furthermore, having multiple sex partners is more acceptable for men,^{19,20} but this behaviour increases the likelihood that they will be exposed to HIV.

One study of Jamaican youth illustrated how poverty, gender inequity, and pressure on males impact HIV risk for both males and females. For instance, the study found that as a result of poverty, girls were commonly involved with older men and exchanged sex for money, clothes, favours, etc.—this practice was common. Some boys, usually homeless ones, were also involved with older men for the purposes of survival, but this is not widely discussed. Furthermore, when the older men were drug dealers or gang leaders, the girls reportedly had no control over condom use.²¹ Data for boys involved with these kinds of older men were not available, but it is likely that boys in these arrangements have little control over condom use as well.

Additionally, the study found that gender inequality and sexism increased Jamaican girls' risk for HIV infection in a variety of ways. For one, boys reported forcing girls to have sex and some were physically abusive in order to gain control over girls. Boys were encouraged to have sex with multiple girlfriends while girls were told to remain chaste. In fact, girls were often unaware that their partner had other partners, and when girls found out about the other partners, they often stayed in the relationships for a variety of reasons, which may have been related to their gender role and sense of control over their sexual relationships. As a result of these gender-based expectations, despite both boys and girls engaging in a variety of risk behaviours, girls were fearful of purchasing condoms and thus left this responsibility to the boys.²¹

Lastly, the study's findings showed that Jamaican boys faced social pressures that increased their risk for HIV infection. For example, boys said that their partners and religious groups disapproved of them using condoms, even though they engaged in a variety of risky behaviours. Boys were more likely to say that their mothers would approve of them having sex than to say that their mothers would approve of them using condoms. Furthermore, pressure from society and their fathers to prove that they are straight encouraged boys to have sex. Social pressures discouraged boys from using condoms, while encouraging them to have multiple partners. Boys reported having multiple sexual partners to gain status and because of the general belief that one girl could not satisfy them.²¹

3.3.2. Poverty Status/ Income

Some researchers believe that income is the most important SDOH because it shapes one's overall living condition and influences behaviours related to health.^{22,1,2} Such behaviours include: quality of diet, degree and kind of physical activity, tobacco use, and degree of alcohol use.² Individual income and employment status are indicators of an individual's direct access to funds.²³ In general, people living in poverty and people with low incomes are at higher risk for HIV infection than people with higher incomes.²²

Some studies have explicitly looked into the relationship between income and HIV risk, but many others have focused on socio-economic status (SES; defined by income, education, and occupation). It must be noted, however, that measures of wealth (e.g. wealth level, poverty, and access to material resources) are used to define SES in some studies, even though they are only proxies for income, one component of SES. Hence, the impact of income on HIV risk is measured implicitly in these studies. This review includes literature in which the impact of income, SES, poverty, and wealth level on HIV risk are assessed. These factors are treated as proxies for poverty status.

It is apparent that, in keeping with Intersectionality Theory, the impact of poverty status on overall HIV risk, positive or negative, depends on other markers of SSP—gender, employment status, education, age, wealth status, marital status, ethnicity, and rural versus urban residence.^{23,24} A systematic review found inconclusive results about the impact of SES on HIV risk—some studies showed positive associations, some showed negative associations, and some showed no associations—regardless of study design.²³ These findings were likely due to the definition of SES differing across studies, and different measures of SES may be related to different health outcomes.²³ Other studies show that globally, poverty is associated with HIV infection, but in parts of Sub-Saharan Africa, wealth is associated with increased risk for HIV infection.²⁴ This mixed relationship between poverty and HIV risk might also be true for African immigrants living in wealthy countries, like Canada, but this hypothesis has been unexplored thus far.

Studies show that there is an association between poverty status and HIV prevalence in Sub-Saharan Africa. In almost all southern African countries, the highest prevalence of HIV was among the wealthiest people.¹⁹ Also, in Tanzania, as an individual's standard of living increased so did the odds of being HIV-positive—this was

true for men and women.²⁵ A Kenyan study showed wealthier women were willing to exchange money for unprotected sex with men in the informal market.¹⁹ Additionally, belonging to a middle-income household in South Africa increased the hazard of acquiring HIV by a factor of 1.72 ($p=0.012$) when compared to living in a low-income household.²⁶ On the other hand, a population-based study showed the opposite relationship between wealth and HIV prevalence. The association between HIV prevalence and wealth was positive in Burkina Faso and Tanzania, but negative in Ghana.²⁷

Poverty status has been shown to be associated with specific risk behaviours as well, but the direction of the association varies across studies and countries. In South Africa one study showed that higher income protected females, but not males, from earlier sexual debut.¹⁹ For males, higher household income was associated with an increase in the number of sex partners. However, in that study, young women commonly had sex for economic reasons, and sexuality was seen as a resource that could be used for material or economic advantages.¹⁹ Hence, these young women were more likely to engage in risky sexual behaviours. Additionally, wealth was inversely associated with intentions of early sexual debut, and actual early sexual debut among adolescents in South Africa.²⁸ A study looking at adolescents in Malawi, Ghana, Uganda, and Burkina Faso found that poorer females had a higher likelihood of initiating sexual activity at younger ages, but this relationship did not hold for males.²⁹ Among adolescents in Sub-Saharan Africa, the poorest individuals were less likely to have used condoms the last time they engaged in sexual intercourse when compared to the wealthiest individuals.²⁹ Another study found that among Kenyan women, having low wealth status decreased the odds of having multiple sex partners (OR 0.68; 95% CI: 0.47, 0.99). In the same study, there was no statistically significant relationship between wealth status and having multiple partners among men, but the odds of having multiple sex partners increased linearly with wealth status.²⁴ On the contrary, females in South Africa from higher income households were more likely to report having multiple sex partners, but this association was not statistically significant.¹⁹ A study from Tanzania seems to agree with the findings from this South African study. Its results showed that only the lowest per capita income quintile (\$1,500 or less) was associated with having multiple sex partners

in a study of factory workers.³⁰ Lastly, findings from a study in Ghana and Kenya showed a U-shaped relationship between wealth status and risk,²⁴ which is different from findings in other studies conducted in these countries around the same time-period. However, it also illustrates that a more complex, context-dependent relationship may be present.

Theoretically, there is a clear, indirect link between poverty status and HIV risk. Psychological factors related to community stressors link poverty to HIV risk.³¹ Poverty creates a social and environmental context in which the risk of contracting HIV is increased,³² and people who live with more poverty-related stressors engage in a greater number of behavioural risk factors for HIV infection.³² Poverty is associated with illiteracy, gender inequality, and failure to negotiate safer sex at the individual level,²⁹ which all contribute to HIV risk. Communities most affected by HIV also face other stressors, so HIV cannot be treated as a single, isolated issue affecting them.³² A path model showed that threats due to discrimination, crime, violence, employment issues, HIV/AIDS, and education increased the likelihood of alcohol and drug use, which in turn increased the likelihood of engaging in sexual risk behaviours.^{31,32} However, unlike other personal threats, people have some control over their HIV risk, which may be a source of empowerment for action on HIV.³²

Within the Western world—Canada, the United States of America (USA), and Great Britain—there is a relationship between poverty status and HIV risk. Studies have shown that low income has been related to increased HIV risk in Canada and the United States.¹⁰ Low income has been shown to be associated with HIV and STI rates.³³ Low SES was also associated with HIV infection among African Americans in North Carolina,³⁴ which is not surprising since numerous studies have shown poverty to be related to HIV infection through a number of pathways.³⁴ A study of ACB men who have sex with men (MSM) in New York and Philadelphia in the USA found that financial hardships were significantly associated with potentially risky sexual behaviours, which significantly mediated the relationship between financial hardships and unprotected anal intercourse.³⁵ Furthermore, ACB people in Toronto identified poverty as a driver of HIV infection.⁹ On the other hand, being of higher social class was associated with higher HIV risk among women in Great Britain (OR 1.6; 95% CI: 1.1, 2.2).³⁶ Again, the contradictory findings suggest that the relationship between poverty status and HIV risk depends on

contextual factors, which include location and possibly policies, values, culture, and governance.

3.3.3. Education

People with higher education generally have better health than those with lower education, and education impacts health through a variety of pathways.² For instance, education equips people with problem solving skills and knowledge, which are important for interpreting health promotion and disease prevention messages.¹ Furthermore, like income, education is a component of SES. Education is also associated with increased opportunities for job and income security and job satisfaction.^{1,2} The relationship between education and HIV risk is mediated by HIV risk behaviours,²⁷ and behaviour change is likely linked to education as well.³⁷ Education might influence HIV related risk behaviours by increasing: the likelihood of exposure to interventions, the ability to understand health promotion messages, and the likelihood of lifestyle changes.³⁷ A systematic review showed a positive association between HIV status and education in most African countries in unadjusted models, but this relationship disappeared in models that adjusted for risk behaviours.³⁷

Some studies from Sub-Saharan Africa show that as education increases, HIV risk decreases. Among men in Ethiopia, higher education was associated with lower odds ratios for HIV infection. When compared to men with no education, the odds of HIV infection among men with primary education was 1.05 (95% CI: 0.85, 1.31) times as high. Among men with secondary education, the odds were 0.77 (95% CI: 0.61, 0.97) times that of uneducated men, and the odds were even lower among men with greater than secondary education (OR 0.42; 95% CI: 0.31, 0.56). In the same study, it was evident that higher education was associated with lower HIV prevalence among female voluntary counselling and testing clients in Ethiopia. As with the data for males the odds of HIV infection decreased among females as education level increased—primary (OR 1.16; 95% CI: 1.00, 1.35), secondary (OR 0.63; 95% CI: 0.54, 0.74), and greater than secondary (OR 0.34; 95% CI: 0.26, 0.45).³⁸ A longitudinal, population-based HIV surveillance study in South Africa showed that the hazard of acquiring HIV decreased by 7% with each additional year of education.²⁶ Also, in South Africa, completing secondary education was associated with reduced HIV risk in women aged 15-24, but there was no

significant association between education and HIV risk in women aged 25-49 when comparing women who completed secondary education to those who only completed primary education.³⁹

Studies conducted in North America also show that higher education was associated with lower HIV risk. After controlling for behavioural and demographic risk factors, having less than a high school education was associated with HIV infection among African Americans in North Carolina when compared to having at least a high school education (OR 3.0; 95% CI: 1.8, 5.2). Having less than a high school education was associated with HIV infection among low-risk African Americans as well (OR 5.0; 95% CI: 2.2, 11.1).³⁴ Within the Canadian context, there was only one study that assessed the impact of education on HIV risk within an ACB population. That study showed that having less than 14 years of formal education was associated with HIV infection (OR 2.8; 95% CI: 1.4, 5.8) among Haitians living in Montreal.¹⁸ A qualitative study conducted with ACB people in Toronto found that they linked issues related to the education system and lower education to HIV risk.⁹

Studies have also shown that higher education is linked to engaging in more HIV protective behaviours. In Tanzania, among those who finished secondary school, when compared to those with seven or fewer years of formal education, the odds of ever using condoms was 3.5 (95% CI: 2.2, 5.8) times as great, and the odds of using a condom in the last month was 4.4 (95% CI: 1.8, 10.8) times as great.³⁰ Among African American injection drug users, there was a negative association between higher education and: sharing water for injection drug use (OR 0.70; 95% CI: 0.50, 0.99), receiving money for sex (OR 0.62; 95% CI: 0.38, 0.99), sharing needles with someone who has HIV/AIDS (OR 0.58; 95% CI: 0.37, 0.90), and testing positive for HIV (OR 0.58; 95% CI: 0.38, 0.94). Higher education may have impacted risk behaviours among injection drug users by encouraging engagement in safer behaviours and increasing their ability to comprehend and act on health promotion messages.⁴⁰ Higher education was also significantly associated with postponing sexual initiation,^{37,41} later marriage, and behaviour change in response to health promotion messages.³⁷ Studies have also shown that women's risk of HIV is associated with their partners' educational status, and behaviour change is likely to happen more quickly among more educated individuals.³⁷

On the contrary, higher education has also been shown to be associated with higher infection rates. HIV infection rates were higher among more educated persons in a sample of individuals from five African countries (Ghana, Cameroon, Kenya, Tanzania, and Burkina Faso). Multivariate models showed that education was not related to HIV infection in Burkina Faso and Ghana, but there was evidence of a positive, nonlinear relationship between higher education and HIV infection in Cameroon, Kenya, and Tanzania.²⁷ Studies in Uganda, Tanzania, and Zambia found an increased risk of HIV among those with higher education, and there was little evidence of sex-based differences in this relationship. However, there was evidence to suggest that this relationship was stronger in urban settings compared to rural ones.³⁷ Furthermore, in another study, compared to those who had 14 years of schooling or less, those with greater than 14 years of schooling had 2.8 (95% CI: 1.4, 5.8) times the odds of being HIV-positive.¹⁸

Evidence suggests that higher education is also associated with increases in HIV risk behaviours. Among Ghanaian women, having a secondary school education was associated with having multiple partners (OR 1.62; 95% CI: 1.14, 2.31), and the relationship between education and having multiple partners increased linearly. Having an education was also associated with the odds of Ghanaian men having multiple sex partners—having a primary school education (OR 1.73; 95% CI: 1.24, 2.39), having a secondary school education (OR 1.59; 95% CI: 1.18, 2.15), and having higher than a secondary school education (OR 1.86; 95% CI: 1.20, 2.90).²⁴ Highly educated women became sexually active at later ages and were more likely to have engaged in premarital sex in Burkina Faso, Cameroon, Ghana, and Kenya. Among men in Cameroon and Kenya, having more education was positively associated with increasing years of sexual activity,²⁷ and potentially more opportunities for exposure to HIV and other STIs.

Yet still, one study has found no relationship between education and HIV risk. In a Tanzanian study of 4,086 women and 3,429 men, after controlling for demographic confounders, education did not significantly impact the odds of men being HIV-positive. Education, partner's education, and partner's profession did not have statistically significant relationships with HIV infection among women either.²⁵

Epidemic maturity has been proposed as a reason for the inconsistent relationship between education and HIV risk in some countries. According to the hypothesis, higher

education is positively associated with HIV early in the epidemic, but this relationship changes as the epidemic matures and health promotion programs are introduced.³⁹ Education is therefore viewed as a “social vaccine” against HIV infection because of its ability to predict HIV knowledge, safer behaviours, and a reduction in infection rates.⁴⁰ Notably, however, studies show that highly educated people in some Sub-Saharan African countries with mature epidemics are still at higher risk for infection than less educated people. This is seen in Ghana, Cameroon, Kenya, Tanzania, Burkina Faso, Uganda, Tanzania, and Zambia.^{27,37} Hence, the epidemic maturity hypothesis is not applicable in all settings.

The epidemic maturity hypothesis is supported by a systematic review that used data collected prior to and since 1996. Studies using data collected before 1996 were mainly conducted in Sub-Saharan Africa, and their results suggested that risk for HIV infection increased with education; this association was stronger in urban settings than in rural ones, and it was similar for men and women.³⁷ This relationship between HIV risk and education might have been unique to African countries, however as it was not present in studies conducted in Asian countries. Since 1996, studies have shown a negative association between education and HIV risk in Sub-Saharan Africa. This suggests that the epidemiology of HIV in Sub-Saharan Africa might be changing, which has led to the change in the relationship between education and HIV risk. It is likely that most new infections since the mid-1990s have been occurring in people with lower levels of education.⁴² It must be noted that the relationship between education and HIV status was not the focus in most of the early studies, so many analyses may not have been appropriate due to over-adjustment for risk behaviours,³⁷ and consequently attenuation of the effect of education on HIV risk.

A study using data from 1991 and 2005 also supports the epidemic maturity hypothesis. In that study, data from 1991 showed that compared to those with less than seven years of education, those with primary (OR 2.7; 95% CI: 1.3, 20.0), and secondary education (OR 4.5; 95% CI: 1.4, 24.9) were at increased risk for infection. However, when using data from 2005, that same study found that the opposite relationship emerged—those with primary (OR 0.5; 95% CI: 0.2, 0.8) and secondary (OR 0.4; 95% CI: 0.3, 0.9) education were at lower risk for HIV infection when compared to those with

less than seven years of education. Condom use among women was shown to increase with education (OR 2.8; 95% CI: 1.1, 7.3) in 2005 and suggested to decrease with education in 1991, but this latter relationship was not statistically significant. Having two or more partners in the past year among women increased with education in 1991, but this relationship was reversed in 2005. Among males, increasing education was associated with having two or more partners in the past month in 1991, but this relationship was also reversed in 2005. Furthermore, among males increasing education was associated with having two or more partners in the past 5 years in 1991, but the reverse relationship did not yield a statistically significant odds ratio in 2005.⁴³

There is strong evidence that education impacts HIV risk through a variety of potential pathways. It may impact individual HIV risk through one's exposure to HIV prevention messages, one's ability to access HIV prevention messages, or by impacting risk indirectly.³⁸ Pathways through which education impacts HIV risk are shown in Figure 3.1. Education's influence on sexual behaviour might be mediated by: socio-cognitive determinants of behaviours (i.e. knowledge, attitudes, self-esteem, and self-efficacy), social networks, and changes in SES. An individual's education level impacts her/ his exposure to, and understanding of, HIV prevention messages. The impact of education on HIV infection through one's social network follows two pathways: social networks influence sexual networks, which in turn influence behaviours; and social networks define behavioural norms, which also influence behaviours. As the epidemic matures, education may become a protective factor rather than a risk factor.⁴⁴ High education and high SES are associated with more opportunities to travel, disposable income, and more money to spend paying for sex,⁴³ but they are also associated with protective behaviours that reduce risk. As the epidemic becomes more generalized, the risk of infection will shift and be more pronounced among people with lower SES rather than people with higher SES and education, because education changes the social environment that fosters behaviour change,⁴³ which reduces risk.

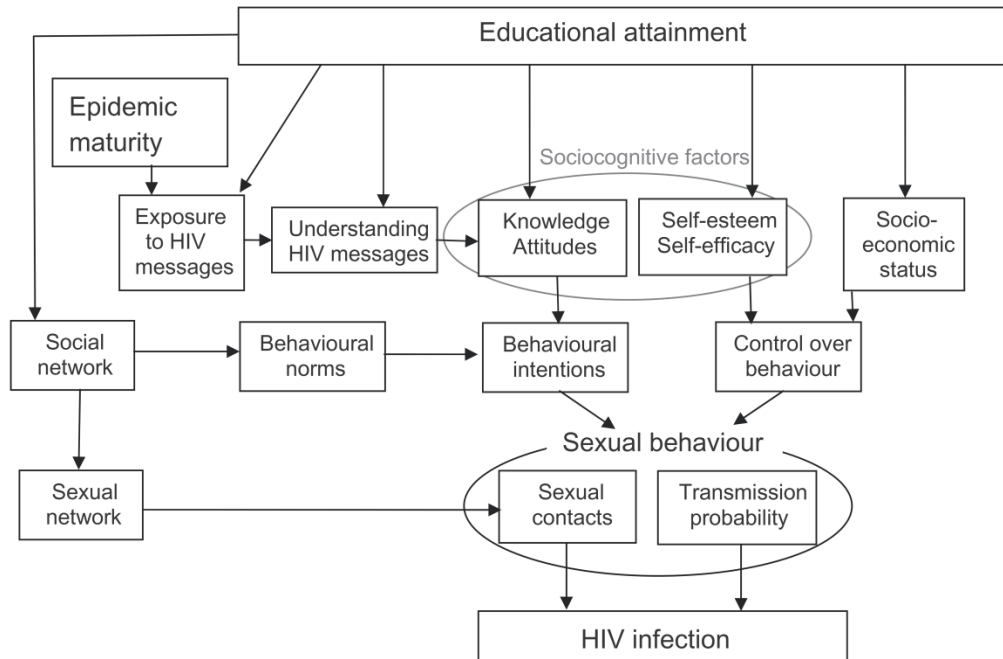


Figure 3.1: Pathways for the effect of education on HIV infection and how these mechanisms are influenced by epidemic maturity⁴⁴

3.3.4. Immigration Experience

In Canada, recent immigrants are likely to experience social exclusion, which is an SDOH.² Socially excluded groups are more likely to be unemployed than other groups and they generally earn less. These groups also lack power, so they have little influence on governmental and institutional policies and decisions.²

Immigrants are at increased risk for HIV infection due to a variety of social factors. Xenophobia, linguistic barriers, stigma, discrimination, exploitation, and limited access to HIV education and health services put immigrants at increased risk for HIV infection when compared to non-immigrants.⁴⁵ The Joint United Nations Programme on HIV/AIDS (UNAIDS) and the Institute of Medicine (IOM) issued a report that says migrants are at increased risk of HIV infection due to separation from family and community, social isolation and exclusion, loneliness, difficulty assimilating, discrimination, increased sexual freedom and anonymity, and financial hardships.⁴⁶

Immigrants' HIV risk is impacted by a combination of cultural factors and beliefs about HIV in their new home. Among ACB immigrants in European countries, HIV testing rates are low, and immigrants reported low levels of condom use, but they were knowledgeable about HIV. In a Dutch study, 37.7% of ACB participants had been tested

for HIV previously, and this was due to routine testing during pregnancy for 53% of them.⁴⁷ As seen in studies mentioned previously, men were more likely to be active testers than women (39.0% vs. 23.5%, $p < 0.01$). Not surprisingly, HIV prevalence was higher among those who reported ever being tested (1.6% vs. 0.7%), and 87% of HIV-positive participants were unaware of their status prior to enrolling into the research project.⁴⁷ Ethiopian and Eritrean immigrants in the United Kingdom (UK) were very knowledgeable about HIV and they claimed to have acquired that knowledge “back home”. They all believed their knowledge and awareness of HIV had declined since moving to the UK, which they did not perceive as a risky environment for HIV infection. In fact, all participants in that study admitted to having little knowledge of HIV in the UK, because the information was not easily accessible. Most of them felt that they could not be infected with HIV in the UK, because it is a safe environment, so they were complacent about the disease. Additionally, they had little knowledge of HIV services available in their local area, and there were no social networks in place to facilitate the exchange of information about HIV prevention services. Furthermore, the discussion of sexual matters was taboo, especially for women, and stigma and discrimination undercut HIV prevention efforts by preventing access to prevention services and HIV testing. Failure to use a condom was the most common unsafe sexual practice in which participants engaged, but participants did not think this was a great risk because they believed all immigrants were tested for HIV before being admitted to the UK, so there should be little or no HIV in their communities.⁴⁸

Studies have shown that risk factors for HIV infection tend to be prevalent among immigrant populations or related to the experience of immigrating. Research showed that trauma is associated with sexual risk behaviours. Childhood sexual abuse, conceptualized as trauma, is more prevalent in African countries than wealthier European and North American countries and is more prevalent among African immigrants than the rest of the population in these wealthier countries. Those who did not experience psychological symptoms post-abuse or those who were able to overcome the abuse did not report engaging in risky sexual behaviours, however.⁴⁶ As another example, trauma caused by war can also impact HIV risk behaviours once an individual leaves the conflict zone (i.e. post-migration). Migration following a conflict can increase HIV vulnerability and

opportunities for exposure to HIV. Vulnerability can be increased through fragmentation of households and the expansion of underground economies that facilitate transactional sex. Connection to a new population, mobility, and resettlement can all increase opportunities for exposure.⁴⁹ Unfortunately, many ACB immigrants are from areas where violence and/ or war are common or ongoing, such as Sudan/ South Sudan, Eritrea, Rwanda, Haiti, Colombia, and Jamaica. Also, hardships of daily life often result in many immigrants questioning the feasibility of their aspirations. Consequently, migration is often associated with loss of self-esteem, increased frustration and disappointment, and feelings of failure,⁵⁰ which are psychosocial aspects of HIV risk.

Furthermore, factors related to settling in a new country might impact immigrants' HIV risk. One study showed that Caribbean immigrants in the United States experience difficulties in adjusting, homelessness, employment struggles, unstable sexual partnerships, and unemployment leading to involvement in illegal activities,⁵⁰ which all work to increase the risk of HIV infection. Immigration status might put women in precarious positions, especially if they rely on men for support—housing or economic—or legal immigration status.⁵⁰ Close knit communities “back home” made it possible to know a partner's sexual history and risk status,⁵⁰ but these community characteristics did not exist after migration. Similar to immigrants in the UK, young African immigrants in Canada erroneously believed that everyone in Canada is free of HIV because visas are not granted to anyone who tests positive,⁵¹ which increases their risk of HIV infection in the Canadian context by decreasing their risk perception.

A study comparing Canadian-born and foreign-born men who have sex with men found that immigrant men were at greater risk for HIV infection compared to their Canadian-born counterparts. However, risk among immigrants was not uniform. White immigrant men were the most likely group to have sex with an HIV-positive partner, and they were most likely to have unprotected sex while traveling. Non-White immigrant men were the least likely to: have sex with an HIV-positive partner, have sold sex, have sex with women, have had sex with 1-5 women, and have had sex with 6 or more women. Being born outside Canada was associated with HIV risk behaviours, such as: unprotected sex while traveling (OR 3.53; 95% CI: 1.91, 6.49), having more than 20 lifetime sex partners (OR 2.30; 95% CI: 1.34, 3.98), and having an HIV-positive partner

(OR 1.89; 95% CI: 1.13, 3.19). It was also associated with unemployment (OR 1.19; 95% CI: 1.10, 3.22).⁵²

3.3.5. Ethnicity

Although ethnicity is not usually recognized as a SDOH in Canada, two dimensions of ethnicity—culture and race—are.⁵³ A person's culture is associated with his or her socio-economic environment, especially for people whose cultural values are not dominant. These individuals face marginalization and stigmatization in addition to losses of culture and language. Furthermore, they tend to lack access to culturally appropriate health services.¹ This doctoral research project focuses on one racialized group, hence it is not possible to assess the impact of race on the distribution of HIV risk in this project. However, race is a SDOH that has major impact on health in the Canadian context, and evidence shows that non-White Canadians experience the negative impacts of the other SDOH to a greater extent than White Canadians, and this is evident in every province.² Three forms of racism impact health—institutional, personally mediated, and internalized. Institutional racism is concerned with societal structures, which include law, government inaction, policies, etc. Personally mediated racism is in the realm of discrimination and prejudice, and it manifests as suspicion, scapegoating, and dehumanization, among other things. Internalized racism is the form of racism in which racialized individuals accept the messages about their abilities and self-worth.² In this doctoral thesis, ethnicity is being defined in terms of nationality/ region of familial heritage and cultural group.

There are variations in infection rates by ethnic group, even within the ACB population. Foreign-born Blacks account for 23% of newly diagnosed HIV infections among Blacks in New York City, and 50% of these infections are among Caribbean immigrants.⁵⁴ The average HIV prevalence comparing three African and Caribbean communities in Amsterdam was 1.0%, but it varied across ethnic groups: Dutch-Antilleans (1.8%), West Africans (1.4%), and Afro-Surinamese (0.5%).⁴⁷ In Ontario, four Caribbean countries accounted for 86% of HIV infections among Caribbean people in 2002: Jamaica 36%, Guyana 19%, Trinidad 20%, and Haiti 11%. In that same year, five African countries accounted for 66% of HIV infections among Africans living in Ontario: Ethiopia 29%, Somalia 10%, South Africa 9%, Uganda 10%, and Kenya 7%. In 2002,

estimated incidence rates in Ontario were 15 times higher among Caribbean people and 30 times higher among Africans, when compared to the general population in Ontario.⁹

Social risk factors for HIV also vary by ethnicity within ACB populations. Although some of these risk factors might be specific to particular groups, others are relevant for multiple ethnic groups. For one, there are some specific social factors that impact vulnerability in Caribbean communities when compared to African American communities. Gender inequalities in Caribbean societies may promote risk, but there are other factors that may decrease Caribbean women's risk, namely migrating on one's own and higher workforce participation than other immigrant women.⁵⁴ Caribbean immigrants generally rank higher than African Americans on economic indicators, but they are subject to the same social factors African Americans face, such as racial discrimination and social and economic marginalization. Compared to Caribbean women, Black women born in the United States of America (USA) were more likely to be extremely confident about their ability to convince their partners to use condoms (OR 2.40; 95% CI: 1.21, 4.76). African American men were less likely to report feeling extremely confident about their ability to discuss STI screening with regular partners than Caribbean men (OR 0.54, 95% CI: 0.30, 0.97).⁵⁴ African American women were more likely to report feeling extremely confident in their ability to convince their regular partners to undergo STI screening than Caribbean women (OR 1.89; 95% CI: 1.03, 3.47). Lastly, USA-born women were less likely to report feeling extremely positive about discussing STI screening with casual partners when compared to Caribbean women (OR 0.12, 95% CI: 0.03, 0.42).⁵⁴ A qualitative study from the USA that included Caribbean immigrants and immigrants from other regions identified other social factors impacting HIV vulnerability in Caribbean communities. Caribbean immigrants frequently reported experiences with sexual abuse, neglect, and physical abuse,⁵⁰ which increase HIV risk. Furthermore, they often migrated on their own, thus freeing them of some of the gender role confinements of their cultures,⁵⁰ so they were able to explore new forms of sexual freedom and anonymity. However, their intimate relationships still remained male-dominant.⁵⁰

Sexual and drug use behaviours, which are associated with HIV risk, have also been shown to vary by ethnicity within ACB populations. In a New York-based study, African American men reported more casual sex partners (55.8% v. 43.0%, $p=0.02$) and

one-time sex partners (43.0% v. 32.5%, $p=0.04$) than Caribbean immigrant men, and African American women reported more one-time sex partners than Caribbean immigrant women (18.0% v. 8.8%, $p=0.04$). The two ethnic groups did not differ with regards to the use of condoms with any type of partner, but African American men reported foregoing sex more frequently if a condom was unavailable when compared to Caribbean immigrant men (39.9% v. 25.8%, $p=0.01$). Even after controlling for same-sex sexual experiences, Caribbean immigrants reported anal intercourse more frequently than African Americans, and when anal intercourse did occur, Caribbean immigrant women used condoms more frequently than African American women (85.7% v. 25.0%, $p=0.02$). The use of drugs other than marijuana was more common among African American men than Caribbean immigrant men (5.5% vs. 0.7%, $p=0.01$), and African American women were less likely to report being extremely likely to always use condoms with casual partners (OR 0.15, 95% CI: 0.03, 0.78) compared to their Caribbean counterparts.⁵⁴

Two studies from Florida also showed that sexual behaviours among ACB people differed by ethnicity. English-speaking Haitians had the highest proportion of virgins in their community (12.6%) compared to the other groups (range from 4.1% for Creole-speaking Haitians to 6.3% for English-speaking Caribbean Islanders). African Americans reported the highest proportion of abstinence in the last 12 months (9.3%), followed by English-speaking Haitians (8.8%), Creole-speaking Haitians (7.6%), and English-speaking Caribbean Islanders (7.0%). English-speaking Caribbean Islanders reported the highest percentage of condom use in the last 12 months (69.9%). All other groups reported percentages of condom use upwards of 68.0%, except Creole-speaking Haitians, for whom the percentage was 47.6%.⁵⁷ A perceptual map showed that African Americans and English-speaking Caribbean Islanders were similar with respect to condom use and abstinence in the last 12 months.⁵⁷ In another study based in Florida, Haitians were more likely to be abstinent in the last year than African Americans, Hispanics, and other Caribbean Islanders. Most respondents in the study who had used condoms in the past year used them for birth control and protection against disease. Of the four groups, condom use was highest among African American men and women.⁵⁸

Studies also showed that HIV testing among ACB people varied by ethnicity. In a study from Florida, 82.5% of African Americans had ever tested for HIV, compared to

75.6% of English-speaking Caribbean Islanders, 61.5% of English-speaking Haitians, and 65.3% of Creole-speaking Haitians.⁵⁷ Lastly, a Dutch study showed that such differences are not only apparent among ACB groups in North America. When compared to West African ethnicity, Afro-Surinamese ethnicity was a statistically significant predictor of not testing for HIV among women (OR 2.12; 95% CI: 1.22, 3.70), but not among men.⁴⁷

Some studies showed that social and cultural factors impact HIV vulnerability in ACB communities in Canada. Racism is a barrier to accessing health services, including HIV prevention and education services, for African and Caribbean women,¹³ and the demands of HIV prevention programs are inconsistent with African and Caribbean cultural values—existing prevention interventions do not reflect areas in which ACB women have control.¹⁰ Factors within ACB communities, like gossiping, are also barriers to accessing HIV services and information.^{14,55} ACB communities do not openly discuss sex or sexuality, and community members are encouraged to maintain confidentiality and privacy around these issues. This cultural secrecy contributes to the denial that HIV affects ACB communities in Canada. Economic disadvantage was apparently another factor putting ACB communities at greater risk for HIV infection compared to other communities. Since immigrants do not always have relatives in Canada, they are likely to enter relationships with people they do not know well for housing and financial survival.¹⁴ Furthermore, ACB communities' norms and beliefs about sex encourage men and women to have sexual relationships with persons outside their communities, which may increase the risk of HIV due to differences between the sexual norms in the larger community and specific ethnic communities. These norms influence sexual practices and precautions taken during sexual acts.⁵⁶

Religion is an important aspect of ethnicity and it plays a role in HIV vulnerability in ACB communities, but the exact relationship between HIV and religion is ambiguous.⁵⁹ Furthermore, the impact of religion on sexuality and sexual decisions may be context-specific, and factors such as religiosity and location influence how people negotiate religion in sexual situations. For one, ACB women often prefer to follow the prescriptions of their religions and religious leaders over the recommendations of public health officials,¹³ hence conflicts between religion and public health recommendations for HIV prevention are common.¹⁰ For example, ACB people have reported that religions

prohibiting condom use impact HIV transmission and prevention in their communities.¹⁴ Religion can also impact sexual behaviours,⁵⁹ and a study of African youth in Windsor, Ontario found that religious values influenced sexual experiences, such as youth forming sexual networks of people with similar religious values and believing this reduced their chances of contracting HIV. Additionally, among these youth, the tensions between sexual desire and religious beliefs are evident. For instance, Muslims preferred anal sex since it allowed women to preserve their chastity and thus the honour of their families.⁵¹ In addition, there is the erroneous belief that HIV does not affect Muslims since their religion prohibits pre-marital sex,⁹ which may give some Muslims a false sense of security. On the other hand, religions generally constrain sexuality, and if religious tenets are followed, they might be protective against STIs like HIV. For example, religious practices, like circumcision, may reduce HIV transmission rates.⁶⁰ Additionally, if individuals are married and only have sex within their marriages, as religions generally prescribe, then the risk of contracting HIV is very low. Following strict religious tenets around sex and sexuality may be difficult for some people, however.

Religious affiliation and beliefs might impact HIV risk, knowledge of condoms, and risk perception due to stigmatizing people who engage in pre-marital sex, discouraging condom use, and providing a false sense of security for religious individuals. A study conducted in Sub-Saharan Africa found that being Catholic was associated with HIV infection when compared to all other religions (OR 1.8, 95% CI: 1.0, 3.2). Although potential explanations for the relationship between Catholicism and HIV risk were not provided, results from the same study showed that there was no statistically significant difference between Catholics and non-Catholics when condom use and number of lifetime partners were considered. Catholics, however, were more likely to report having two or more concurrent partners than non-Catholics (OR 1.4, 95% CI: 1.1, 1.7).⁶¹ Another study showed that men who said religion was very important to them were less likely to report that HIV is an important health concern (OR 0.4, p=0.008), and findings were similar among women who considered religion to be very important. Men who said religion was very important to them were also more likely to have heard of condoms compared to other men (OR 2.1, p=0.01), and women who thought religion was very important were more likely to say religion forbids the use of condoms (OR 2.7,

p=0.02). Among men, those who said religion was very important to them were less likely to think they were at risk for HIV infection (OR 0.5, p=0.0005), and women who thought religion was important were more likely to perceive that they were at risk for HIV infection (OR 9.3, p=0.0001).⁵⁹ An exploratory qualitative study of African American women showed that many women believed God would protect them from bad things, and they consequently relied on God for coping and protection against HIV infection.⁶² Hence they were typically not proactive about HIV prevention. These findings may explain some of the relationship between religious beliefs and HIV risk perception.

Islam and Christianity are common religions among ACB people, and their relationships with HIV risk are mixed. The relationship between Islam and HIV risk is not straightforward, but if Muslims follow their religious tenets, there should be a negative association between being Muslim and HIV risk.⁶⁰ Islam prohibits risk factors for HIV such as extramarital sex, alcohol consumption, and homosexuality. It also promotes penile washing and circumcision, which reduce the risk of STI transmission.⁶⁰

In a literature review, 6 out of 7 studies showed a negative relationship between HIV and Islam. Among circumcised men in Uganda, there was a non-significantly lower prevalence of HIV among Muslims, and Muslims typically practice penile cleansing post-intercourse which may protect against HIV. Another study from Uganda found that Muslims had lower HIV prevalence than non-Muslims, and alcohol consumption mediated this effect. Furthermore Muslims had a lower prevalence of HIV than other religious groups, even after controlling for number of lifetime sex partners. Muslim truck drivers in Kenya had a lower prevalence of HIV than those from other religious groups, and this might have been due to circumcision status. However, these truck drivers were also less likely to visit sex workers. When looking at risk factors for HIV infection and their relationship with Islam, studies showed mixed results: in Tanzania, Islam was linked to lower risk of HIV infection due to higher circumcision rates; and in Senegal, Muslims reported lower alcohol consumption but were just as likely as Christians to have engaged in casual sex in the last 12 months and were more likely to have concurrent sexual partners. In Uganda, Muslims were at increased risk for HIV infection due to lower frequency of condom use and sexual partner concurrency but were at decreased risk due

to lower alcohol consumption, being less likely to have extramarital partners, and being more likely to be circumcised. Moreover Islam permits men to marry up to four wives and divorce easily, which increases the number of lifetime and concurrent sex partners and thereby increases the risk of contracting HIV. However, in Nigeria there were no differences between Muslim and Protestant men having extramarital partners.⁶⁰ No study found Islamic affiliation to be positively associated with HIV risk behaviours,⁶⁰ but studies showed that Christians were slightly more knowledgeable about HIV than Muslims (HIV knowledge score of 8.4/11 vs. 7.7/11, $p < 0.001$).⁶³

Some studies also showed associations between different sects of Christianity and HIV risk. For example, among Kenyan men, Catholicism was found to be associated with HIV infection when compared to all other religions (OR 1.8; 95% CI: 1.0, 3.2), which might be due to greater odds of having concurrent sexual partnerships.⁶¹ Compared to Pentecostals, Seventh Day Adventists and Jehovah's Witnesses were significantly more likely to postpone sexual initiation, and they were also significantly less likely to use condoms at sexual debut. Positive and negative effects of affiliation with conservative religious groups seem to cancel each other, however.⁴¹ Very few studies assessing the relationship between Christianity and HIV risk were located, so understanding of this relationship is currently very incomplete.

Like religion, religiosity has been shown to impact HIV risk, but the relationship is also unclear. No studies that focused exclusively on religiosity and HIV risk in ACB populations were located, but three related studies were identified. One study looked at religiosity and HIV risk behaviours among Americans, the second study looked at religiosity and HIV risk among trans youth, and the third study looked at religion and HIV risk behaviours in rural Senegal.^{59,64,65} Although the populations of focus in these studies are not the same as the population of focus in this dissertation, they were included because religious identity and affiliation alone may be insufficient for understanding the relationship between religion and HIV risk—religiosity must also be considered.

Two studies showed that religiosity may protect against HIV infection.^{64,65} The first study showed that abstinence was associated with religiosity. Additionally, university students who were more religious exhibited lower risk of HIV due to later sexual debut, having fewer sexual partners, and being more likely to have their first

sexual intercourse with a spouse or fiancé. Among non-university women religiosity was protective through its association with decreased depression, increased self-esteem, low numbers of sex partners, and more frequent condom use. Religiosity was associated with a decrease in the prevalence of risk behaviours among adolescents, but this effect was small for actions and greater for attitudes and intentions. The study cited other studies that showed that religiosity was associated with: lower odds of sexual touching and oral sex, later sexual debut, higher self-efficacy to communicate about sex and HIV, and being more likely to have used condoms in the last 6 months. Among women, never attending religious services was associated with increasing prevalence of HIV sexual risk behaviours (OR 1.67; 95% CI: 1.11, 2.52). No significant relationship was observed between the frequency of attending religious services and the prevalence of HIV risk behaviours among men, but as observed among women, there seemed to be a trend between decreasing frequency of attending religious services and increasing odds of engaging in risk behaviours. For women, having no religious affiliation (OR 1.57; 95% CI: 1.09, 2.27) was associated with the prevalence of HIV-related sexual risk.⁶⁴ The study of trans youth in the USA found that formally practicing religion may reduce HIV risk, but just being conscious of God did not. This relationship between religiosity and HIV risk among trans youth in the USA might be mediated by social support, stress relief and community connectedness.⁶⁵

There is also evidence of religiosity having a negative effect on HIV risk.^{59,64} One study showed that when compared to non-religious women, Protestant and Catholic women were more likely to “hook up”. Also, there is evidence of religiosity not being associated with engaging in protective behaviours, such as being predictive of unprotected sex. Among men, having a current religious affiliation was associated with increasing prevalence of sexual risk factors for HIV.⁶⁴ The study from rural Senegal found that prevention-related factors were inversely associated with religiosity, and religiosity was inversely associated with seeing HIV as an important health concern and considering oneself to be at risk for HIV infection.⁵⁹ Religiosity was also found to be associated with sharing drug injection equipment, such as cookers, cotton, and water. However, among heroin and cocaine users, religious beliefs were also associated with HIV prevention behaviours.⁶⁴

3.3.6. Employment Status

Employment has a positive impact on health. Employment is associated with income and socio-economic status. It provides a sense of identity and structure in everyday life.² Additionally, it leads to fewer stress-related conditions.¹ Unemployment causes deprivation—material and social—pathological stress and risky health behaviours.² It is also linked to depression, anxiety, and physical health problems.²

Very few studies have tested or explored the relationship between employment and HIV risk, and the existing data on this relationship are inconsistent—some studies show an increase in risk among the unemployed and others show an increase in risk among the employed. For instance, being employed was associated with Ghanaian (OR 1.73; 95% CI: 1.30, 2.31) and Kenyan (OR 1.98; 95% CI: 1.52, 2.59) men having multiple sexual partners.²⁴ Being employed has been shown to increase HIV risk in African American youth in the United States. Among these youth, work intensity (defined by number of hours worked per week) was associated with older sex partners among female youth and inconsistent condom use.⁸ Furthermore, female professionals were more likely to be HIV-positive than female agricultural workers (OR 1.54; 95% CI: 1.02, 2.38) in Tanzania. On the other hand, being unemployed was associated with men being HIV-positive when compared to those employed in the agricultural sector (OR 3.49; 95% CI: 1.43, 8.58).²⁵

In the Canadian context, unemployment puts ACB people at increased risk for infection by influencing decisions to become involved in relationships with people they do not know well. Furthermore, ACB immigrants tend to have difficulty finding employment, so they rely on whatever savings they bring to Canada with them and once these savings begin to dwindle, they make decisions based on survival.⁹ One participant in a study about HIV among ACB people in Toronto remarked: “because when the kids and them can’t find a job, they’re on the street, and they mix together. And that’s where [HIV] interacts”.^{9(p19)}

3.4. Limitations of the Literature on Markers of SSP and HIV risk

The literature on social factors impacting HIV vulnerability in ACB communities is sparse, and literature specific to the Canadian context is even sparser. From this literature review, it is evident that much of the research on this topic has been conducted

in Sub-Saharan Africa. Studies from the USA have recently begun to assess the relationships between social factors and HIV vulnerability, but much of that research is in the nascent stages. Furthermore, the research from the USA tends to focus on gender, race, and socio-economic status, which typically account for only three dimensions of SSP overall, and two dimensions of diversity and SSP within ACB populations. Additionally, the growing body of USA-based literature about the SDOH and HIV in ACB communities concentrates on ACB MSM, and may not be applicable to a broader ACB community that includes women and heterosexual men. Since there are so few Canadian studies focused on HIV in ACB communities, it is highly probable that all Canadian studies on the topic were either cited in this literature review, or consulted during the writing of this literature review. It must also be noted that Canada seems to produce more research about SDOH and HIV in ACB communities than most European countries, so there is an even larger gap in the European literature. This sparseness of literature speaks to the need for more research focused on the social epidemiology of HIV vulnerability. This information is important for HIV prevention, and the contextual nature of social epidemiology research indicates that local information is needed in Canada and all other countries.

Social status and position was not the main focus of many of the North American studies that were identified. Despite attempts to find North American studies in which markers of SSP were the main analytical variables, very few were found. Additionally, some studies treated markers of SSP as demographic variables, which were used to adjust analyses. Some of the effects of the markers of SSP may have been attenuated because of this, so the results of those studies may not have been accurate. Furthermore, when studies focused on markers of SSP, they typically focused on just one and ignored others. These types of analyses do not account for the fact that a person's life experiences are not determined by one dimension of their SSP; multiple dimensions of SSP are always at play. Thus, there is a void in the literature in terms of how markers of SSP are conceptualized and analyzed as important etiologic factors. Research on HIV vulnerability for all populations, including ACB people, needs to focus on multiple dimensions of SSP. Although this focus adds another level of complexity to analyses and

interpretations of study results, they may lead to more effective HIV prevention interventions.

Most of the research on social factors impacting HIV vulnerability in Canada's ACB communities is qualitative, not quantitative. While qualitative studies can provide deep information about people's beliefs, attitudes, and experiences, they do not typically provide information about the impact of these beliefs, attitudes, and experiences at the population level. For this, quantitative research is needed. Granted, the ACB population in Canada is small, but as evidenced by this dissertation research and other quantitative studies that have been conducted, the population is large enough for quantitative studies to be feasible. Hence, there is a need for more quantitative research about social factors impacting HIV vulnerability for ACB people in Canada. Once this research is conducted, it will be possible to fill the gap in the Canadian literature. Additionally, the information from quantitative research is needed for designing effective strategies to address HIV in ACB communities.

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Chapter 4 : HIV Risk Perceptions and Distribution of HIV Risk among African, Caribbean, and Other Black people in a Canadian City: Mixed Methods Results from the BLACCH Study¹

4.1 Background

People from countries where HIV is endemic are 12.6 times more likely to contract HIV through heterosexual exposure than other adults in Canada,^{1,2} and data show that Black people from Africa and the Caribbean account for 93% of people from endemic countries living with HIV.^{1,2} In 2001, 55% of Canada's Black population was foreign-born, and approximately 90% of Canada's Black population had been in Canada for three generations or fewer.³ Sub-Saharan African and Caribbean countries accounted for 73% of Black immigrants to Canada in 1961 and 94% in the period from 1991 to 2001.³ Due to the composition of Canada's Black population, the term African, Caribbean, and other Black (ACB) is used to recognize ethnic diversity and racial identity. In epidemiologic research on HIV in Canada, the terms "HIV-endemic" and "ACB" are used interchangeably because the two overlap substantially.

Although a priority group for HIV prevention in Canada, ACB people are under-researched and research on this population usually focuses on particular ethnic groups or Black men who have sex with men.^{4,5} To the best of the authors' knowledge, no quantitative studies have studied HIV risk in a broader Canadian ACB population. Furthermore, HIV surveillance data for ACB people are usually aggregated,^{1,6} thus masking variations in risk and influencing ACB people's and service providers' perceptions about how HIV risk is distributed among ACB people. This therefore impacts the uptake and delivery of prevention interventions,⁷ because perceptions influence attitudes, and attitudes influence behaviours.⁸ Although these perceptions of risk may be valid, as they are sometimes based on observations that are akin to case studies, they may not accurately reflect the population's risk profile, and their generalizability may be

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limited to particular groups of ACB people. It is therefore important to identify groups for which common perceptions about HIV risk may be valid, which can aid the design of more targeted HIV prevention interventions.

According to the World Health Organization, some social determinants of health (SDOH) are markers of social status and position (SSP) because they create power hierarchies, and SSP impacts individual behaviours, which are proximal risk factors for disease.⁹ Markers of SSP include: race, sex/ gender, poverty status/ income, education, employment status, and immigration experience.⁹ The first five are widely recognized as SDOH in the Canadian context,¹⁰ and immigration experience is gaining traction in Canada due to its relationship with social exclusion.¹¹ These SDOH have also been recognized as markers of SSP in the literature on Intersectionality Theory, which posits that markers of SSP act jointly to create unique social positions that influence behaviours and social and health-related outcomes.^{12,13}

Emerging literature shows that markers of SSP impact the distribution of HIV risk, but most research in this area has been conducted in Sub-Saharan Africa. There, research findings show that poverty status/ income,¹⁴⁻¹⁶ education,^{17,18} and employment status^{19,20} impact HIV risk. Studies from North America and Western Europe show that in ACB populations, the epidemiology of HIV is impacted by sex/ gender,²¹⁻²⁴ and immigration experience.²⁵⁻²⁸ Results vary among studies, so the magnitudes and directions of these relationships are unclear. However, this is not surprising, as the impacts of markers of SSP are context-specific. To date, no study from North America has looked at multiple markers of SSP within a broad ACB population, so this exploratory study is the first of its kind.

This paper has three objectives. First, this paper will qualitatively present perceptions some ACB people and service providers have about HIV risk and protective behaviours within ACB populations. Second, this paper will use markers of SSP to quantitatively describe the distribution of HIV risk and protective behaviours and identify groups of ACB people who might be at increased risk for HIV exposure and transmission. Third, this paper will compare perceptions presented under the first objective to the risk profile presented under the second objective.

4.2 Methods

The data in this paper were gathered as part of the Black, African and Caribbean Canadian Health (BLACCH) Study, conducted in London, Canada. London is in southwestern Ontario, located midway between Toronto, Canada and Detroit, United States of America (USA). It is an urban area surrounded by farmlands, with a population of about 370,000 people.²⁹ Black Londoners comprise approximately 2% of the population (~7,500 people), and about 61% of this population (~4,500 people) is aged 18 or older.

4.2.1. Research Approach

This study used a community-based research (CBR) approach, which is recognized and promoted for conducting HIV research with practical implications. CBR seeks to combine rigorous research methods with equitable partnerships between academic researchers and communities affected by the research.³⁰ It incorporates multiple sources of knowledge that can influence policy and the delivery of health programs and services.^{30,31} Furthermore, CBR aims to strengthen communities affected by the research by raising questions that are of interest to them.³² At its best, CBR ensures that research is scientifically sound, relevant, and ethical.^{30–32} Partner organizations for the BLACCH Study were The University of Western Ontario, the Regional HIV/AIDS Connection, and the Cross Cultural Learner Centre—a research university, an AIDS service organization, and a settlement organization, respectively. The research team also included community members not affiliated with these three organizations. Community members on the research team included African and Caribbean men and women whose ages ranged from the mid-twenties to late-forties, and they were students, entrepreneurs, and people employed by the aforementioned organizations. With the exception of one person, all were immigrants or refugees, and the younger community members on the team had been raised in Canada or the USA.

4.2.2. Research Design

The BLACCH Study had two phases. In Phase I, research team members conducted qualitative semi-structured interviews, which contributed to the development of the quantitative questionnaire used in Phase II. Data from both phases were triangulated to meet this paper's objectives.

4.2.3. Interview Sample and Procedures

Three ACB women on the research team conducted one-on-one semi-structured interviews with a purposive sample of eight service providers and 22 ACB people aged 16 or older. The interview participants were recruited in London, Ontario from September 2009 to February 2010. Purposive sampling was used because it allows researchers to reach a diverse sample and gather information about a breadth of experiences.³³ The service providers included in the sample were front-line workers from AIDS service organizations, clinics, settlement organizations, and community organizations that had ACB clients. Whenever possible, ACB service providers were selected and interviewed based on their experiences as service providers. The community members were chosen based on: age, HIV status, injection drug use history, sexual orientation, income, immigration experience, religion, ethnicity, and gender.

Participants completed a demographics questionnaire, followed by an interview about health and HIV. Community members were asked questions about personal and community risks, HIV service needs, and myths about HIV. Service providers were asked about barriers to HIV prevention for ACB men and women. The interviews were audio-recorded and lasted from 30 minutes to over 2 hours, with most lasting approximately 40 minutes. Upon completing the interviews, community member participants were offered \$10 and a list of local organizations where they could access services.

4.2.4. Qualitative Analysis

Two research team members checked the interview transcripts for errors and corrected them as needed. SB and another interviewer analyzed the transcripts using qualitative content analysis (QCA), which identifies a broad range of themes, thereby making it complementary to purposive sampling,^{34,35} which also has the goal of capturing a breadth of information. QCA is also an appropriate method to use when little data are available in a particular area, and it consists of identifying themes that emerge from the data.³⁶ SB and another interviewer independently completed initial coding of the interviews, and the two met for debriefing sessions to compare their notes and summaries and record insights they gained from the data. They identified emergent themes on a question-by-question basis. Three questions from the community member interviews, and two questions from the service provider interviews were used in these analyses. SB

analyzed the responses to each question separately by looking for patterns and areas in which generalizations could be made and re-examined these generalizations based on new and existing knowledge from community members and the literature.

4.2.5. Questionnaire Sample and Procedures

Following the interviews, the research team recruited ACB people to participate in Phase II of the study from November 2010 to November 2011. The inclusion criteria for the self-administered questionnaire survey were as follows: 18 years or older, self-identify as Black, and live or spend most of the year in London or Middlesex County. Interview participants were recruited using a combination of venue-based sampling, snowballing, outreach, and a media campaign in order to overcome some of the weaknesses associated with each sampling method and reach a broad, diverse sample. These methods have been used successfully to recruit similar populations into health research.³⁷⁻³⁹ Outreach and venue-based sampling took place at schools, community organizations, summer festivals, libraries, sporting events, and public spaces. A very small, diverse group of participants recruited others into the study. The media campaign included posters, interviews on local radio shows, and radio advertisements. While only one participant was directly recruited through the media campaign, it appeared to have increased familiarity with the study, since some people who were approached at the different venues said that they were already aware of the study.

Recruitment procedures were developed based on Dillman's "Tailored Design Method" for mailed surveys.⁴⁰ To build trust and provide non-monetary rewards, the research team recruited participants face-to-face through one-on-one contact, and if interested, participants could request copies of the final project report. Social costs to participation were reduced through using simple language in the questionnaire, providing it in a portable format, and providing an addressed, stamped return envelope. Potential participants provided their contact information, and SB called or e-mailed them biweekly with reminders.

The questionnaire consisted of seven sections that covered topics that included health behaviours, sexual health, and HIV service needs. Individuals who pre-tested the survey completed it in 25 minutes to one hour, and most said it took them approximately 30 minutes to complete the survey in one sitting. It is likely that participants spent as

much time completing the survey. Participants were told that consent was implied when the questionnaire was returned.

In all, 595 questionnaires were distributed, and 188 (32%) were returned. Although low, this response rate is not unusual for a study focusing on an ACB population in Ontario, Canada.⁵ The response rate was impacted by some aspects of the research project. Based on conversations with three community members during follow-up phone calls and e-mails, some people did not participate in the research because they were uncomfortable answering questions about sexual behaviours. Several others said they did not have time to complete the survey, so the length of the questionnaire might have also played a role. The survey was offered in English and French, but many community members have a first language other than English or French, and they might be more comfortable completing a survey in their native language. Lastly, based on a comparison between the sample and the underlying population (as defined by the 2006 Census), survey participants were more educated than the local Black population ($\chi^2=164.06$, $df=8$, $p<0.0001$). Survey participants were required to read a large volume of information in the survey packages (i.e. information and consent letter, list of service organizations, and introductory and instruction letter), so literacy may have also impacted the response rate.

4.2.6. Measures

The self-administered questionnaire covered a variety of health topics. However, only questions related to markers of SSP and HIV exposure and transmission were included in this analysis. Gender, poverty status, immigration experience, and employment status were the markers of SSP on which these analyses focus. Poverty status was defined using the low-income cut-off (LICO) score, which is based on household income and the number of people supported by it.⁴¹ Immigration experience was divided into length of time in Canada and immigration status at time of survey completion. Risk and protective behaviours assessed included HIV testing, abstinence, number of sex partners, condom use with various types of partners, being in a non-monogamous sexual partnership, sharing injection drug use equipment, age of sexual debut, ever mixing intercourse with alcohol or drugs, having a partner who had ever used

injection drugs, having a history of other sexually transmitted infections (STIs), being pressured to engage in intercourse, and ever engaging in transactional sex.

4.2.7. Statistical Analysis

Data from the questionnaires were analyzed using SAS software, version 9.3.⁴² To adjust for selection bias due to convenience sampling, the sample was compared to the Black population in London on age, education, gender, and ethnicity using the 2006 Census. Chi-square tests showed that the two groups were significantly different at the $p=0.01$ level on all four characteristics—the sample was younger, more educated, more likely to include women, and more likely to be African. Hence, non-response weights were derived using these four variables in a logistic regression model in which being included in the sample was the outcome.^{43,44} Predicted probabilities from this model were used to calculate the weights, which were normalized so that they summed to 188. The mean and standard deviation of the weights were 1.00 and 1.13, respectively. Continuous variables were categorized for the descriptive analyses, risk factors were stratified according to the markers of SSP, and point prevalences and 95% Wilson confidence intervals were calculated along with Rao-Scott chi-square tests to assess the relationships between markers of SSP and risk factors used in these analyses. The analyses were performed using the weights in the SURVEYFREQ procedure in the SAS software.

4.2.8. Data Integration

The mixed methods, community-based approach to this research helps to produce a more complete picture of the epidemiology of HIV in London's ACB population. Qualitative and quantitative data were combined using concurrent triangulation.⁴⁵ Both sets of data were collected and analyzed separately and integrated by comparing them and noting areas where they converged and failed to converge. These results are part of the discussion section of this paper.

4.2.9. Ethical Approval and Consent

This research was approved by the Non-Medical Research Ethics Board at The University of Western Ontario. Standard consent procedures were followed.

4.3. Results

4.3.1. Phase I

4.3.1.1. Description of the Interview Sample

As expected, the sample was diverse. The median age for community members was 41 years, with the youngest being 16 years old. For service providers, the median age was 49 years. People with African and Caribbean ethnicity accounted for 45% and 36% of the community members, respectively. Among service providers, they accounted for 50% and 13% of the sample, respectively. Women represented 55% of the sample among community members, and 75% of the service providers. It was difficult to find male service providers, because there were few men working in the organizations contacted, and even fewer male service providers worked with ACB clients extensively enough to participate in this research. Among community members and service providers, people of Christian faith were the majority, and Muslims were represented in both groups. The majority of community members were foreign-born, and regardless of birthplace, the majority were Canadian citizens. Community members showed a range of educational levels and household incomes, and all the service providers had at least some post-secondary education. While community members reported a range of relationship statuses and sexual orientations, all service providers reported that they were heterosexuals in stable relationships.

4.3.1.2. Community Members: Perception of Low Personal Risk

Regardless of ethnicity, when community members thought about HIV risk, they thought of it as something that was removed from Canada and happens elsewhere. When acknowledging the presence of HIV in Canada, HIV was seen as something that affects others, but not them personally.

Most community members said HIV was a problem in their communities. One African community member talked about having relatives in Africa who died as a result of HIV and many people in the community in Canada being unaware of their HIV status. However, some Caribbean community members and one African either said HIV was not a problem in Canada, or that they did not know if HIV was a problem in their

communities. Although the interviews were specifically about the Canadian context, some individuals talked about HIV in African countries.

...[I]t affected me a lot back home like... our friends...they go back home and... it's easy to get contracted with HIV.... [African female]

Almost unanimously, community members said their personal risk for contracting HIV was low or non-existent but acknowledged that it was difficult to be certain about one's risk. Some women said they were not at risk due to abstinence or marriage. On the other hand, while men said they had low risk of HIV infection, none said he had no risk, and none cited abstinence or marriage as reasons for having low HIV risk. At the same time, community members also talked about high risk for HIV in their communities, in general.

I don't believe I'm at risk for that. My greatest risk would be whether or not my husband had sexual intercourse with people I don't know about... [Canadian/ Caribbean female]

[Y]ou never know, but I think it's zero because... I am like very careful... [African male]

4.3.1.3. Community Members: Risk Behaviours

Community members generally focused on sexual risk behaviours related to HIV infection and largely ignored non-sexual modes of exposure or transmission. They cited relationship factors, such as being in a non-monogamous sexual relationship, not knowing a partner's sexual history, and general lack of education about safer sex and HIV prevention as risks for HIV infection. There was a gender split in these responses—while male and female participants talked about the relationship aspects of risk, only women mentioned alcohol and injection drug use.

...[F]or those that drink...they can't say no, they just go on and do whatever comes to their mind so mostly it's through sexual activities....Of course there is also a substance, injection drugs. [African female]

I would say a lot of factors; the first one would be unprotected sex, another one would be not knowing the sexual background of your partner. [Caribbean male]

4.3.1.4. Community Members: Services to Meet HIV-Related Needs

When asked about the types of services they believed ACB people require to meet their HIV-related needs, the majority of community members called for more information and education about HIV in Canada. Additionally, one participant called for more condoms in the general community, not just at HIV testing sites. HIV testing, especially testing as couples and families, was cited by several community members. Many also believed structural factors need to be addressed in order to better meet ACB people's HIV prevention needs. For instance, they said that culturally appropriate services designed to specifically target ACB people and address the unique realities of their lives need to be provided, community-based programs need to be developed and supported, and access to care and greater sensitization around HIV are needed.

... [S]omething set up where the youth can go and have these classes that teach them about HIV/AIDS and the prevalence, the current status of like HIV prevalence in their community so that they can be aware of it...more testing centers that are not out in the public... obviously provide condoms for people who can't really practice abstinence... [African female]

[I]t is obvious that there are some services here in the city and I don't think the service is for everybody in my view.... Again when I see the health care delivery system I don't find it is geared...like say in this community, on a culturally sensitive area except for Native Canadians. [Caribbean male]

4.3.1.5. Service Providers: Barriers that Prevent Women from Protecting Themselves

Service providers offered a variety of potential reasons for women not protecting themselves. Some said the need for love or acceptance in the context of sexual and marital relationships was a barrier to ACB women protecting themselves from HIV infection. Also, lack of empowerment among women was seen to manifest into lack of ability to negotiate condom use, intimate partner violence, and abuse in general. Other barriers cited included: marital infidelity, ACB women's trust in their sexual partners, and cultural and religious attitudes discouraging condom use and communication about sex and safer sex practices. Lastly, service providers said women's ignorance about HIV in their communities and lack of education about how to protect themselves were potential barriers.

...[T]he need to be accepted, the need to be loved, the need to feel someone wants to be with me, someone thinks I'm attractive and somehow better judgment saying, "I need to take protection", doesn't happen... [Female service provider]

...[M]aybe ignorance if they don't know...that is really a problem. Otherwise I think if any woman would know there is... HIV she would protect herself. [Male service provider]

4.3.1.6. Service Providers: Barriers that Prevent Men from Protecting Themselves

For ACB men, service providers cited lack of condom use as a barrier to protection from HIV infection. Additionally, they said ACB men faced barriers related to the expression of masculinity, such as being less likely to access services than ACB women and believing that they cannot control themselves sexually. The service providers mentioned cultural norms and beliefs dictating that ACB men not disclose information, and they perceived that ACB men generally did not seek information because they were expected to be knowledgeable about everything. They also mentioned barriers for specific groups of men—some male injection drug users sharing drug use equipment, some gay men having a sense of “fatalism”, and the hierarchy of beauty in gay culture preventing some gay men from protecting themselves. Service providers reported that some heterosexual men believe that they cannot become infected. However, these men are generally not reached by HIV prevention messages, and they are unlikely to access HIV/AIDS services due to the underrepresentation of heterosexual ACB male staff in AIDS service organizations.

I think ... that notion hasn't been engrained in them that condoms are important and... I'm not even talking about the transmission through intravenous drug use and sharing of... drug paraphernalia use. [Female service provider]

4.3.2. Phase II

4.3.2.1. Description of the Questionnaire Sample

The characteristics of the 188 participants recruited for Phase II are provided elsewhere.⁴⁶ Their ages ranged from 18 to over 72 years, and 11% did not identify as heterosexual. Half had never been married, and 32% were married or living common-law. The majority (80%) identified as Christian, and 5% identified as Muslim. The sample included a variety of ethnic identities—57% identified with an African ethnicity, 38% identified as Caribbean, 3% were multi-generational Canadians, and 2% had other ethnic identities. Women outnumbered men (60% versus 40%), 70% of participants were above the LICO, over 80% had higher than a high school education, and 42% reported

being in school at the time they completed the questionnaire. The study was conducted during an economic recession, so some people were in school preparing for a “second career,” some were regulated professionals studying for Canadian licenses, some were learning English, and some were completing their educations. Additionally, 15% (29/188) of participants reported that they were born in Canada.

4.3.2.2. Gender

Table 4.1 displays results comparing males and females. Women were more likely to have experienced a history of forced or unwanted sex ($\chi_{RS}^2 = 3.39$, $df=4$, $p=0.033$). On the other hand, women were less likely to ever mix sex with drugs or alcohol ($\chi_{RS}^2 = 3.89$, $df=1$, $p=0.049$) or have two or more sex partners in the last 12 months ($\chi_{RS}^2 = 9.96$, $df=3$, $p=0.019$).

Table 4.1: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Gender

Risk Factors	Female (n= 113)	Male (n= 75)	P-value
	wPrev (95% CI)	wPrev (95% CI)	
<i>Factors Associated with Exposure to HIV</i>			
Age of sexual debut			0.494 ^a
Never had sex	14.1 (8.9, 21.8)	11.0 (4.3, 25.7)	
12 years old or younger	5.3 (1.4, 17.6)	8.9 (3.1, 23.3)	
13 to 15 years old	9.2 (4.7, 17.5)	10.3 (4.4, 22.0)	
16 to 18 years old	34.9 (24.0, 47.6)	22.9 (13.5, 36.2)	
19+ years old	24.4 (16.8, 34.1)	38.7 (23.2, 57.0)	
Engaged in transactional sex	5.5 (2.2, 13.1)	----	0.107 ^b
History of forced/ unwanted sex	31.8 (21.7, 44.0)	10.1 (3.9, 23.7)	0.033^{a*}
Had a sexual partner who injected drugs	3.7 (1.2, 11.2)	0.8 (0.1, 6.3)	0.167 ^a
<i>Factors Associated HIV Exposure and Transmission</i>			
Ever test for HIV	56.5 (44.4, 67.9)	63.0 (47.1, 76.6)	0.706 ^a
HIV test in Canada, past year	15.0 (9.4, 23.3)	22.4 (11.3, 39.7)	0.442 ^a
Shared drug use equipment	1.5 (0.3, 7.9)	----	0.380 ^b
Abstinence, lifetime	14.1 (8.9, 21.8)	11.0 (4.3, 25.7)	0.647 ^a
Abstinence, past year	32.2 (22.5, 43.6)	20.0 (10.5, 34.8)	0.179 ^a
Unprotected sex, cohabiting regular partner, past year	50.9 (39.0, 62.6)	48.5 (32.6, 64.7)	0.644 ^a
Unprotected sex, non-cohabiting regular partner, past year	41.2 (30.2, 53.2)	38.5 (23.7, 55.9)	0.544 ^a
Unprotected sex during last intercourse, regular partner	39.2 (28.4, 51.2)	40.2 (25.2, 57.3)	0.928 ^a
Unprotected sex, casual partner, past year	11.5 (4.8, 25.2)	6.7 (2.0, 20.6)	0.608 ^a
Unprotected sex during last intercourse, casual partner	6.8 (2.1, 19.7)	17.6 (6.3, 40.2)	0.152 ^a
Never using condom, past year	38.4 (27.1, 51.1)	35.0 (22.3, 50.2)	0.730 ^a
Ever mixed sex with drugs or alcohol	26.9 (18.5, 37.4)	43.8 (28.5, 60.3)	0.049^{a*}
Non-monogamous sexual partnership, past year	10.6 (5.4, 19.7)	24.1 (12.2, 42.0)	0.068 ^a

Table 4.1: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Gender

Risk Factors	Female (n= 113)	Male (n= 75)	P-value
	wPrev (95% CI)	wPrev (95% CI)	
History of sexually transmitted infections	27.0 (17.5, 39.0)	17.2 (8.6, 31.2)	0.735 ^a
Number of sex partners, lifetime			0.531 ^a
None	14.1 (8.9, 21.8)	11.0 (4.3, 25.7)	
1	5.8 (2.8, 11.8)	12.3 (3.3, 36.4)	
2 to 4	23.6 (15.9, 33.5)	13.9 (7.6, 24.3)	
5 to 9	18.3 (9.7, 32.0)	18.6 (9.9, 32.3)	
10 to 19	9.2 (4.6, 17.7)	20.2 (9.4, 38.3)	
20 or more	9.7 (4.2, 20.7)	11.5 (4.8, 25.0)	
Number of sex partners, past year			0.019^{a*}
0	32.2 (22.5, 43.6)	20.0 (10.5, 34.8)	
1	44.7 (33.2, 56.7)	30.5 (19.0, 45.0)	
2	12.0 (6.0, 22.6)	30.2 (15.7, 50.2)	
3 or more	5.6 (2.6, 11.7)	16.0 (7.2, 31.7)	

n = column total, not adjusted for nonresponse using sample weights.

^a P-value from Rao-Scott chi-square test.

^b P-value from Rao-Scott chi-square test with assumed design correction of 2 (conservative estimate).

* Statistically significant at p=0.05.

4.3.2.3. Poverty Status

People living at or below the LICO appear to have a lower HIV risk profile compared to those living above the LICO (Table 4.2). People living at or below the LICO were significantly less likely to have a history of forced or unwanted sex ($\chi_{RS}^2 = 6.34$, $df=1$, $p=0.011$) or not use condoms in the past year ($\chi_{RS}^2 = 4.88$, $df=1$, $p=0.027$). When partner types were considered, there was no significant difference in having unprotected sex with casual partners when comparing people living at or below the LICO to people living above it ($\chi_{RS}^2 = 2.51$, $df=1$, $p=0.113$). However, people living at or below the LICO were significantly less likely to have unprotected sex with cohabiting ($\chi_{RS}^2 = 11.97$, $df=1$, $p=0.001$) and non-cohabiting ($\chi_{RS}^2 = 12.96$, $df=1$, $p<0.001$) regular partners. They were also significantly less likely to have had unprotected sex during their last intercourse with a regular partner ($\chi_{RS}^2 = 5.76$, $df=1$, $p=0.016$). In addition to their condom use, people living below the LICO appeared to be at lower risk for HIV exposure and transmission because they were more likely to have never had sex ($\chi_{RS}^2 = 6.00$, $df=1$, $p=0.014$) and abstain from sex in the past year ($\chi_{RS}^2 = 7.55$, $df=1$, $p=0.006$).

Table 4.2: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Poverty Status

Risk Factors	At or Below	Above LICO	P-value
	LICO (n= 53)	(n= 122)	
	wPrev	wPrev	
	(95% CI)	(95% CI)	
<i>Factors Associated with Exposure to HIV</i>			
Age of sexual debut			0.357 ^a
Never had sex	23.9 (11.0, 44.3)	7.5 (4.0, 13.5)	
12 years old or younger	5.6 (1.23, 21.8)	8.9 (3.3, 21.7)	
13 to 15 years old	8.7 (3.6, 19.4)	11.6 (5.8, 21.7)	
16 to 18 years old	30.9 (16.9, 49.6)	25.4 (16.6, 36.7)	
19+ years old	29.3 (13.8, 51.9)	34.0 (21.6, 49.0)	
Engaged in transactional sex	4.1 (1.2, 13.2)	2.2 (0.6, 8.2)	0.583 ^a
History of forced/ unwanted sex	9.8 (4.3, 20.8)	25.0 (15.6, 37.5)	0.011 ^{a*}
Had a sexual partner who injected drugs	1.4 (0.2, 9.2)	2.7 (0.8, 8.5)	0.563 ^a
<i>Factors Associated HIV Exposure and Transmission</i>			
Ever test for HIV	55.0 (35.7, 72.9)	61.2 (48.3, 72.6)	0.702 ^a
HIV test in Canada, past year	22.7 (8.8, 47.1)	16.2 (9.3, 26.8)	0.510 ^a
Shared drug use equipment	---	1.1 (0.2, 6.0)	0.581 ^b
Abstinence, lifetime	23.9 (11.0, 44.3)	7.5 (4.0, 13.5)	0.014 ^{a*}
Abstinence, past year	41.2 (24.1, 60.7)	16.3 (10.5, 24.5)	0.006 ^{a*}
Unprotected sex, cohabiting regular partner, past year	27.9 (15.7, 44.6)	59.9 (46.6, 71.9)	0.001 ^{a*}
Unprotected sex, non-cohabiting regular partner, past year	18.1 (9.0, 33.0)	48.8 (35.7, 62.0)	<0.001 ^{a*}
Unprotected sex during last intercourse, regular partner	24.0 (13.0, 40.1)	46.0 (33.0, 59.6)	0.016 ^{a*}
Unprotected sex, casual partner, past year	4.8 (1.5, 14.2)	11.4 (4.7, 25.1)	0.113 ^a
Unprotected sex during last intercourse, casual partner	6.6 (2.0, 19.3)	16.9 (6.6, 37.0)	0.217 ^a
Never using condom, past year	21.9 (11.3, 38.2)	44.0 (32.4, 56.4)	0.027 ^{a*}
Ever mixed sex with drugs or alcohol	34.3 (17.8, 55.7)	38.8 (27.0, 52.0)	0.664 ^a
Non-monogamous sexual partnership, past year	29.8 (13.8, 53.0)	12.5 (5.9, 24.5)	0.114 ^a
History of sexually transmitted infections	14.3 (6.9, 27.3)	27.4 (17.5, 40.2)	0.109 ^a
Number of sex partners, lifetime			0.312 ^a
None	23.9 (11.0, 44.4)	7.5 (4.0, 13.5)	
1	4.7 (1.5, 14.1)	12.6 (4.1, 32.6)	
2 to 4	21.6 (11.7, 36.5)	16.0 (10.2, 24.2)	
5 to 9	13.9 (5.2, 32.2)	18.7 (10.8, 30.3)	
10 to 19	19.2 (6.2, 45.9)	14.7 (7.7, 26.5)	
20 or more	10.3 (3.8, 25.1)	12.2 (5.7, 24.1)	
Number of sex partners, past year			0.146 ^a
0	41.2 (24.1, 60.7)	16.3 (10.5, 24.5)	
1	25.2 (13.8, 41.5)	42.8 (30.8, 55.8)	
2	20.7 (7.1, 47.0)	23.5 (12.3, 40.2)	
3 or more	12.9 (5.7, 26.7)	11.8 (5.0, 25.4)	

n = column total, not adjusted for nonresponse using sample weights.

^a P-value from Rao-Scott chi-square test.

^b P-value from Rao-Scott chi-square test with assumed design correction of 2 (conservative estimate).

*Statistically significant at p=0.05.

4.3.2.4. Time in Canada

HIV risk may be related to the amount of time a person has lived in Canada (Table 4.3). Overall, immigrants appeared to be at lower risk for HIV exposure and

transmission than Canadian-born persons. For instance, immigrants were significantly less likely to report: having a history of forced or unwanted sex ($\chi_{RS}^2 = 24.73$, $df=3$, $p<0.001$), ever mixing sex with drugs or alcohol ($\chi_{RS}^2 = 15.99$, $df=3$, $p=0.001$), having a history of STIs ($\chi_{RS}^2 = 8.78$, $df=3$, $p=0.032$), having a higher number of sex partners in their lifetimes ($\chi_{RS}^2 = 28.08$, $df=15$, $p=0.021$), or having a higher number of sex partners in the past year ($\chi_{RS}^2 = 25.44$, $df=9$, $p=0.003$). However, as the length of time in Canada increased, immigrants' risk profile more closely mimicked that of born Canadians. As the time spent in Canada increased, immigrants were more likely to report: having a history of forced or unwanted sex, having unprotected sex with a regular or casual partner in the past 12 months, not using a condom in the past 12 months, ever mixing sex with drugs or alcohol, having a history of STIs, ever having sex, or having sex in the past year.

Table 4.3: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Time in Canada

Risk Factors	0-5 years (n= 45)	>5 to 15 years (n= 51)	>15 years (n= 57)	Canadian-Born (n= 29)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
<i>Factors Associated with Exposure to HIV</i>					
Age of sexual debut					0.070 ^a
Never had sex	26.7 (14.5, 43.8)	21.8 (8.4, 45.7)	3.7 (1.1, 12.2)	6.9 (1.9, 21.9)	
12 years old or younger	9.3 (2.2, 32.2)	1.3 (0.2, 9.3)	13.4 (4.3, 34.5)	5.3 (1.0, 23.4)	
13 to 15 years old	8.6 (3.0, 22.4)	8.3 (3.1, 20.2)	10.3 (3.3, 27.7)	17.1 (7.1, 36.0)	
16 to 18 years old	32.7 (17.4, 52.7)	17.8 (8.5, 33.5)	37.7 (23.6, 54.3)	31.3 (14.8, 54.4)	
19+ years old	19.3 (10.4, 33.1)	44.4 (22.8, 68.2)	22.4 (12.8, 36.3)	37.6 (18.2, 62.0)	
Engaged in transactional sex	----	3.0 (0.7, 11.8)	1.3 (0.2, 8.5)	8.5 (2.3, 26.6)	0.425 ^b
History of forced/ unwanted sex	11.5 (4.3, 27.4)	9.4 (3.7, 21.7)	16.0 (8.5, 27.9)	58.5 (37.2, 77.0)	<0.001^{a*}
Had a sexual partner who injected drugs	----	----	1.0 (0.1, 8.0)	11.0 (3.7, 28.8)	0.113 ^b
<i>Factors Associated HIV Exposure and Transmission</i>					
Ever test for HIV	76.1 (60.4, 86.9)	60.1 (37.8, 78.8)	41.5 (26.6, 58.2)	72.0 (51.5, 86.1)	0.131 ^a
HIV test in Canada, past year	21.0 (11.5, 35.0)	15.0 (7.4, 28.0)	17.7 (7.6, 36.0)	7.4 (2.1, 22.6)	0.551 ^a
Shared drug use equipment	----	----	----	4.2 (0.8, 19.5)	0.392 ^b
Abstinence, lifetime	26.7 (14.5, 43.8)	21.8 (8.4, 45.7)	3.7 (1.1, 12.2)	6.9 (1.9, 21.9)	0.001^{a*}
Abstinence, past year	52.0 (34.6, 69.0)	32.9 (16.2, 55.4)	20.4 (10.5, 36.0)	10.0 (3.4, 25.9)	0.011^{a*}
Unprotected sex, cohabiting regular partner, past year	28.7 (16.0, 46.1)	51.6 (29.7, 72.9)	67.0 (49.6, 80.7)	44.9 (25.4, 66.2)	0.090 ^a
Unprotected sex, non-cohabiting regular partner, past year	17.5 (8.0, 34.0)	43.4 (22.0, 67.5)	54.1 (37.7, 69.7)	38.1 (20.6, 59.3)	0.101 ^a
Unprotected sex during last intercourse, regular partner	20.1 (10.2, 35.7)	50.3 (28.5, 72.1)	55.1 (38.6, 70.6)	25.8 (12.5, 45.9)	0.027^{a*}
Unprotected sex, casual partner, past year	3.5 (0.8, 13.4)	2.2 (0.4, 10.7)	15.1 (5.5, 35.2)	5.5 (1.3, 20.0)	0.056 ^a
Unprotected sex during last intercourse, casual partner	----	25.2 (7.3, 59.2)	10.3 (2.9, 30.3)	5.5 (1.3, 20.0)	0.066 ^b
Never using condom, past year	20.6 (10.5, 36.6)	31.1 (17.9, 48.3)	50.8 (34.0, 67.5)	43.6 (23.5, 66.0)	0.103 ^a
Ever mixed sex with drugs or alcohol	14.3 (6.7, 28.0)	19.8 (9.8, 36.0)	43.6 (28.2, 60.4)	63.9 (40.4, 82.1)	0.001^{a*}

Table 4.3: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Time in Canada

Risk Factors	0-5 years (n= 45)	>5 to 15 years (n= 51)	>15 years (n= 57)	Canadian-Born (n= 29)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
Non-monogamous sexual partnership, past year	15.7 (5.7, 36.7)	7.3 (2.2, 21.2)	18.1 (7.7, 37.2)	16.5 (6.5, 36.0)	0.644 ^a
History of sexually transmitted infections	6.1 (2.0, 17.1)	13.3 (5.7, 28.2)	31.4 (17.7, 49.3)	42.3 (23.1, 64.1)	0.032^{a*}
Number of sex partners, lifetime					0.021^{b*}
None	26.7 (14.5, 43.8)	21.8 (8.4, 45.7)	3.7 (1.1, 12.2)	6.9 (1.9, 21.9)	
1	1.1 (0.1, 9.8)	24.2 (6.7, 58.6)	9.2 (4.0, 19.4)	----	
2 to 4	24.3 (13.5, 39.7)	21.9 (11.2, 38.5)	20.7 (11.3, 35.0)	6.6 (1.8, 21.5)	
5 to 9	22.7 (10.0, 43.8)	8.5 (3.3, 20.4)	26.0 (13.4, 44.2)	23.4 (9.2, 48.1)	
10 to 19	3.3 (0.8, 13.2)	8.1 (2.5, 23.3)	8.6 (3.2, 21.2)	34.3 (15.9, 59.1)	
20 or more	7.9 (1.5, 32.4)	3.5 (0.9, 12.6)	18.3 (7.8, 37.3)	14.4 (5.5, 32.6)	
Number of sex partners, past year					0.003^{a*}
0	52.0 (34.6, 69.0)	32.9 (16.2, 55.4)	20.4 (10.5, 36.0)	10.0 (3.4, 25.9)	
1	27.4 (15.3, 44.2)	24.8 (13.0, 42.2)	47.1 (31.4, 63.3)	56.9 (34.6, 76.8)	
2	10.1 (2.6, 32.2)	35.0 (14.7, 62.8)	18.3 (8.5, 34.9)	3.9 (0.7, 17.8)	
3 or more	6.8 (2.0, 20.7)	4.2 (0.8, 20.2)	12.4 (4.3, 31.2)	29.2 (12.2, 55.0)	

n = column total, not adjusted for nonresponse using sample weights.

^a P-value from Rao-Scott chi-square test.

^b P-value from Rao-Scott chi-square test with assumed design correction of 2 (conservative estimate).

*Statistically significant at p=0.05.

4.3.2.5. *Immigration Status*

Immigration status at the time the questionnaire was completed was significantly associated with risk factors for HIV exposure and transmission, as shown in Table 4.4. Immigration status was significantly associated with having a history of forced or unwanted sex ($\chi_{RS}^2 = 27.54$, $df=3$, $p<0.001$), ever testing for HIV ($\chi_{RS}^2 = 8.29$, $df=3$, $p=0.040$), or ever mixing sex with drugs or alcohol ($\chi_{RS}^2 = 10.66$, $df=3$, $p=0.014$). There were also trends with regards to the security of one's immigration status. As security in immigration status increased (i.e. moving from "other" to "naturalized Canadian citizen"), the prevalence of: testing for HIV in the past 12 months increased, never having sex decreased, abstaining in the past 12 months decreased, having unprotected sex with a regular partner in the past 12 months increased, not using a condom in the past 12 months increased, and having a history of STIs increased. Conversely, immigrants with the most unstable and insecure immigration statuses (i.e. those in the "other" category) reported a much higher prevalence of being in a non-monogamous sexual partnership in the past 12 months.

Table 4.4: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Immigration Status

Risk Factors	Other^ (n= 21)	Permanent Resident/ Landed Immigrant or Refugee (n= 38)	Naturalized Canadian Citizen (n= 96)	Canadian-Born (n = 29)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
<i>Factors Associated with Exposure to HIV</i>					
Age of sexual debut					0.516 ^b
Never had sex	28.1 (13.2, 50.1)	19.9 (6.3, 47.6)	10.1 (5.4, 18.2)	6.9 (1.9, 21.9)	
12 years old or younger	21.6 (5.8, 55.2)	----	9.8 (3.3, 25.6)	5.3 (1.0, 23.4)	
13 to 15 years old	16.2 (4.9, 42.1)	5.3 (1.5, 17.3)	9.5 (3.8, 21.9)	17.1 (7.1, 36.0)	
16 to 18 years old	7.4 (1.8, 26.2)	27.4 (12.3, 50.3)	33.1 (22.3, 46.0)	31.3 (14.8, 54.4)	
19+ years old	20.5 (8.6, 41.6)	43.4 (19.8, 70.3)	22.5 (14.5, 33.1)	37.6 (18.2, 62.0)	
Engaged in transactional sex	10.1 (2.9, 29.6)	----	0.9 (0.14, 5.4)	8.5 (2.3, 26.6)	0.205 ^b
History of forced/ unwanted sex	16.7 (5.5, 40.9)	7.8 (2.7, 20.7)	13.7 (7.8, 23.0)	58.5 (37.2, 77.0)	<0.001 ^{a*}
Had a sexual partner who injected drugs	----	----	0.7 (0.1, 5.0)	11.0 (3.7, 28.8)	0.105 ^b
<i>Factors Associated HIV Exposure and Transmission</i>					
Ever test for HIV	61.5 (38.9, 80.0)	80.2 (52.5, 93.7)	41.8 (29.8, 54.9)	72.0 (51.5, 86.1)	0.040 ^{a*}
HIV test in Canada, past year	4.9 (0.9, 22.9)	16.2 (7.6, 31.3)	19.2 (10.7, 32.1)	7.4 (2.1, 22.6)	0.212 ^a
Shared drug use equipment	----	----	----	4.2 (0.8, 19.5)	0.380 ^b
Abstinence, lifetime	28.1 (13.2, 50.1)	19.9 (6.3, 47.6)	10.1 (5.4, 18.2)	6.9 (1.9, 21.9)	0.223 ^a
Abstinence, past year	44.7 (24.2, 67.2)	35.6 (16.1, 61.3)	26.6 (17.2, 38.8)	10.0 (3.4, 25.9)	0.140 ^a
Unprotected sex, cohabiting regular partner, past year	22.6 (9.1, 45.8)	50.9 (26.4, 74.9)	56.2 (42.9, 68.6)	44.9 (25.4, 66.2)	0.314 ^a
Unprotected sex, non-cohabiting regular partner, past year	10.3 (3.0, 29.9)	44.9 (21.1, 71.2)	43.7 (31.4, 56.8)	38.1 (20.6, 59.3)	0.240 ^a
Unprotected sex during last intercourse, regular partner	10.3 (3.0, 29.9)	47.0 (23.0, 72.4)	48.0 (35.3, 61.0)	25.8 (12.5, 45.9)	0.072 ^a
Unprotected sex, casual partner, past year	7.5 (1.8, 26.3)	1.5 (0.2, 11.8)	14.8 (6.3, 31.0)	5.5 (1.3, 20.0)	0.090 ^a
Unprotected sex during last intercourse, casual partner	----	27.7 (7.8, 63.5)	11.5 (4.3, 27.5)	5.5 (1.3, 20.0)	0.143 ^b

Table 4.4: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Immigration Status

Risk Factors	Other^ (n= 21)	Permanent Resident/ Landed Immigrant or Refugee (n= 38)	Naturalized Canadian Citizen (n= 96)	Canadian-Born (n = 29)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
Never using condom, past year	6.9 (1.5, 26.1)	27.4 (13.8, 47.1)	44.0 (31.3, 57.6)	43.6 (23.5, 66.0)	0.081 ^a
Ever mixed sex with drugs or alcohol	33.8 (16.4, 57.2)	18.0 (7.9, 36.1)	31.7 (20.5, 45.6)	63.9 (40.4, 82.1)	0.014^{a*}
Non-monogamous sexual partnership, past year	36.0 (15.3, 63.5)	7.6 (2.1, 23.7)	12.8 (5.4, 27.3)	16.6 (6.5, 36.0)	0.194 ^a
History of sexually transmitted infections	13.3 (4.4, 33.4)	17.0 (7.0, 35.5)	20.8 (11.3, 35.0)	42.3 (23.1, 64.1)	0.358 ^a
Number of sex partners, lifetime					0.135 ^b
None	28.1 (13.2, 50.1)	19.9 (6.3, 47.6)	10.1 (5.4, 18.2)	6.9 (1.9, 21.9)	
1	----	24.0 (5.6, 62.5)	8.4 (4.3, 15.6)	----	
2 to 4	20.2 (8.4, 41.3)	20.4 (9.6, 38.0)	21.9 (13.8, 33.0)	6.6 (1.8, 21.5)	
5 to 9	18.3 (6.5, 41.8)	15.8 (5.6, 37.3)	20.3 (11.0, 34.3)	23.4 (9.2, 48.1)	
10 to 19	7.7 (1.9, 26.6)	4.9 (0.9, 22.6)	7.9 (3.4, 17.1)	34.3 (15.9, 59.1)	
20 or more	18.5 (4.1, 54.6)	2.0 (0.3, 12.5)	13.4 (5.9, 27.7)	14.4 (5.5, 32.6)	
Number of sex partners, past year					0.087 ^a
0	44.7 (24.2, 67.2)	35.6 (16.1, 61.3)	26.6 (17.2, 38.8)	10.0 (3.4, 25.9)	
1	15.5 (5.6, 36.0)	27.3 (13.2, 48.1)	40.0 (28.2, 53.0)	56.9 (34.6, 76.8)	
2	23.9 (7.2, 56.0)	26.0 (6.8, 62.7)	18.8 (10.7, 30.9)	3.9 (0.7, 17.8)	
3 or more	15.9 (5.1, 40.2)	6.1 (1.4, 22.7)	7.9 (2.5, 22.5)	29.2 (12.2, 55.0)	

n = column total, not adjusted for nonresponse using sample weights.

^a P-value from Rao-Scott chi-square test.

^b P-value from Rao-Scott chi-square test with assumed design correction of 2 (conservative estimate).

^Includes temporary workers, visitors, students and non-status individuals.

*Statistically significant at p=0.05.

4.3.2.6. *Employment Status*

Like immigration experience, employment status appears to have an important impact on HIV risk, as shown in Table 4.5. Employment status was significantly associated with: age of sexual debut ($\chi_{RS}^2 = 20.86$, $df=8$, $p=0.008$), never having sex ($\chi_{RS}^2 = 13.03$, $df=2$, $p=0.002$), abstaining in the past 12 months ($\chi_{RS}^2 = 6.28$, $df=2$, $p=0.043$), having unprotected sex with cohabiting regular ($\chi_{RS}^2 = 6.14$, $df=2$, $p=0.047$) and casual ($\chi_{RS}^2 = 9.92$, $df=2$, $p=0.007$) partners, never using a condom in the past year ($\chi_{RS}^2 = 10.45$, $df=2$, $p=0.005$), having a history of STIs ($\chi_{RS}^2 = 8.03$, $df=2$, $p=0.018$), number of lifetime sex partners ($\chi_{RS}^2 = 27.46$, $df=10$, $p=0.002$), and number of sex partners in the last year ($\chi_{RS}^2 = 26.44$, $df=6$, $p<0.001$). Those with lower employment security (i.e. students and those who were not employed or irregularly employed) appeared to be a lower risk for HIV exposure or transmission. Compared to those who held a regular full-time position or were self-employed, they were more likely to have abstained from sex in the past 12 months, less likely to have had unprotected sex in the past year, and less likely to have a history of STIs. However, they also had more sex partners in the past year than those who were self-employed or in regular, full-time employment.

Table 4.5: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Employment Status

Risk Factors	Not Employed or Irregularly Employed^ (n= 43)	Student (n= 78)	Employed in a Regular Full-Time Position, or Self-Employed (n= 66)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
<i>Factors Associated with Exposure to HIV</i>				
Age of sexual debut				0.008^{b*}
Never had sex	9.0 (3.5, 21.2)	29.1 (16.8, 45.6)	----	
12 years old or younger	4.5 (0.8, 21.1)	2.0 (0.5, 8.1)	14.4 (5.3, 33.8)	
13 to 15 years old	5.7 (1.8, 16.9)	8.9 (4.1, 18.5)	12.9 (5.1, 29.1)	
16 to 18 years old	22.1 (9.9, 42.2)	23.6 (13.2, 38.6)	38.9 (25.7, 54.0)	
19+ years old	47.2 (25.9, 69.5)	27.1 (15.6, 42.9)	24.3 (14.4, 38.0)	
Engaged in transactional sex	3.9 (1.0, 14.3)	1.4 (0.3, 7.7)	2.6 (0.5, 13.0)	0.719 ^a
History of forced/ unwanted sex	7.9 (2.8, 19.9)	31.3 (18.0, 48.6)	20.6 (11.8, 33.5)	0.079 ^a
Had a sexual partner who injected drugs	----	2.4 (0.6, 8.7)	3.7 (1.0, 13.4)	0.620 ^b
<i>Factors Associated HIV Exposure and Transmission</i>				
Ever test for HIV	63.3 (42.6, 80.0)	59.4 (43.8, 73.3)	57.2 (41.3, 71.8)	0.403 ^a
HIV test in Canada, past year	22.8 (8.8, 47.7)	18.6 (10.7, 30.2)	15.1 (6.5, 31.4)	0.636 ^a
Shared drug use equipment	----	----	1.9 (0.3, 10.0)	0.557 ^b
Abstinence, lifetime	9.0 (3.5, 21.2)	29.1 (16.8, 45.6)	----	0.002^{b*}
Abstinence, past year	29.7 (15.1, 50.1)	36.8 (23.4, 52.5)	12.2 (6.3, 22.2)	0.043^{a*}
Unprotected sex, cohabiting regular partner, past year	46.1 (25.3, 68.4)	35.3 (23.3, 49.3)	65.3 (48.7, 78.8)	0.047^{a*}
Unprotected sex, non-cohabiting regular partner, past year	39.9 (19.9, 63.9)	26.7 (16.6, 39.9)	51.1 (35.8, 66.2)	0.109 ^a
Unprotected sex during last intercourse, regular partner	43.7 (23.2, 66.7)	20.1 (12.3, 31.1)	53.9 (38.3, 68.7)	0.014^{a*}
Unprotected sex, casual partner, past year	3.2 (0.7, 13.3)	4.2 (1.5, 11.2)	18.4 (7.5, 38.5)	0.007^{a*}
Unprotected sex during last intercourse, casual partner	18.7 (4.6, 52.5)	5.6 (1.7, 16.7)	14.0 (4.8, 34.4)	0.343 ^a
Never using condom, past year	26.6 (13.3, 46.2)	21.9 (11.8, 36.9)	55.2 (39.6, 69.9)	0.005^{a*}
Ever mixed sex with drugs or alcohol	30.0 (14.0, 53.1)	29.2 (17.0, 45.3)	47.7 (32.7, 63.1)	0.305 ^a
Non-monogamous sexual partnership, past year	22.7 (8.5, 48.2)	15.1 (7.5, 28.0)	16.4 (6.8, 34.6)	0.734 ^a

Table 4.5: Weighted Prevalences for Risk Factors for HIV Infection among African, Caribbean, and other Black People in London, Ontario by Employment Status

Risk Factors	Not Employed or Irregularly Employed [^] (n= 43)	Student (n= 78)	Employed in a Regular Full-Time Position, or Self-Employed (n= 66)	P-value
	wPrev (95% CI)	wPrev (95% CI)	wPrev (95% CI)	
History of sexually transmitted infections	9.1 (3.3, 22.8)	14.1 (7.1, 26.1)	38.5 (24.4, 54.8)	0.018^{a*}
Number of sex partners, lifetime				0.002^{b*}
None	9.0 (3.5, 21.2)	29.1 (16.8, 45.6)	----	
1	23.7 (7.7, 53.7)	2.8 (0.8, 9.2)	1.9 (0.3, 10.0)	
2 to 4	17.5 (8.1, 33.7)	19.8 (11.9, 31.1)	18.2 (10.5, 29.7)	
5 to 9	17.3 (6.6, 38.1)	16.6 (7.8, 31.9)	21.5 (11.4, 36.9)	
10 to 19	16.8 (4.9, 44.0)	15.2 (6.0, 33.5)	13.8 (6.5, 26.9)	
20 or more	6.9 (2.0, 21.6)	3.4 (1.1, 10.1)	20.7 (9.9, 38.2)	
Number of sex partners, past year				<0.001^{a*}
0	29.7 (15.1, 50.0)	36.8 (23.4, 52.5)	12.2 (6.3, 22.2)	
1	23.6 (11.8, 41.6)	27.9 (16.7, 42.8)	56.3 (40.4, 71.0)	
2	41.6 (20.6, 66.2)	11.7 (5.8, 22.0)	14.6 (6.5, 29.8)	
3 or more	2.1 (0.4, 11.8)	20.9 (10.1, 38.3)	9.9 (2.9, 28.6)	

n = column total, not adjusted for nonresponse using sample weights.

^a P-value from Rao-Scott chi-square test.

^b P-value from Rao-Scott chi-square test with assumed design correction of 2 (conservative estimate).

[^] Includes those who do not fall in the other three categories, but are: not employed, employed occasionally, employed seasonally, or employed part-time.

*Statistically significant at p=0.05.

4.4. Discussion

Perceptions about risk and actual behavioural risk in the ACB population converge in some areas, and diverge in others. First, while participants saw HIV risk as removed from Canada, quantitative data showed that behavioural HIV risk was higher among immigrants who had been in Canada longer and was higher among born Canadians than among immigrants. The comparatively low overall HIV prevalence in Canada may be responsible for this perception. Second, as per community members' and service providers' perceptions, sexual partner concurrency was fairly common in the ACB population. While there were no significant differences according to the chi-square tests comparing sexual partner concurrency in the different groups, it seems that women and people living at or below the LICO may be more likely to report being in a non-monogamous partnership. Third, abstinence was mentioned as a reason for low perception of risk by women, but Phase II showed that women were not significantly more likely than men to either have never had sex or be abstinent in the past year. In fact, never having sex was associated with poverty status, length of time in Canada, and employment status. Furthermore, past year abstinence was significantly more likely to occur among: people living below the LICO, immigrants who had been in Canada for less time, and people with less stable employment statuses. Fourth, Phase I participants said mixing sex with drugs or alcohol was a risk factor for HIV, and Phase II results show that women, immigrants who had been in Canada for less time, people with more stable immigration statuses, and people with less stable employment statuses were less likely to engage in this behaviour than other groups. Fifth, past year HIV testing was relatively low, and it was not associated with any of the markers of SSP in this paper. However, lifetime HIV testing might be higher than service providers perceived. Sixth, the prevalences of unprotected sex with regular and casual partners were high, thus confirming perceptions about unprotected sex being an issue within the ACB population. People living above the LICO and those who had regular full-time employment or were self-employed were more likely to engage in unprotected sex. Although not statistically significant, the results suggest that people who had been in Canada for more than 5 years and Canadian-born persons are more likely to engage in unprotected sex than new immigrants.

The data from Phase I show that there may be a disconnect between community members' and service providers' perceptions about HIV risk in the ACB population. Both groups agreed that unprotected sex, partner concurrency, and low prevalence of HIV testing were important risk factors within the community. However, while community members spoke about abstinence as a protective factor, service providers did not seem to be aware that past-year and long-term abstinence were fairly common. Also, some of the barriers to protection that service providers cited (e.g. the need to be loved, cultural norms around disclosing information) were not mentioned by community members at all. These discrepancies may reflect service providers adopting a more analytical lens based on their overall observations versus community members sharing their individual experiences. Alternatively, these discrepancies may be due to service providers relying on research from the United States of America and other countries to inform their work. Consequently, they may not have contributed their own experiences and observations, but rather they could be repeating information from other service providers or researchers, or worse, they could be relying on stereotypes to inform their perceptions. Stereotypes and erroneous perceptions can be damaging to HIV prevention and care efforts, as they influence the types of actions that are taken to address HIV.⁸

The data illustrate that poverty status, immigration experience, and employment status are linked to the distribution of HIV risk and protective behaviours. The effect of gender on HIV risk is likely dependent on its interaction with other markers of SSP, as Intersectionality Theory demonstrates.¹² Hence, the link between gender and HIV risk behaviours may be less apparent, because intersectionality was not assessed in this paper. According to the data, those with higher SSP may be at greater risk of HIV exposure or transmission when compared to those with lower SSP. This is not surprising because, the combination of multiple marginalizations can create unique SSPs that simultaneously limit and enhance one's agency.^{13,47} Hence, the combination of ACB identity and low SSP may protect an individual from engaging in particular HIV risk behaviours. Studies have also shown that early in an HIV epidemic, people with higher SSP are at greater risk for infection. However, as the epidemic matures and effective prevention interventions are designed, people with higher SSP are able to access and take advantage of the interventions. Hence people with lower SSP will begin to be at greater risk for infection,

comparatively.⁴⁸ Additionally, the “healthy immigrant effect” may be at play, which could explain why newer immigrants have lower risk than those who have been in Canada longer and Canadian-born persons.⁴⁹ Furthermore, the data on immigration may reflect the effect of immigrants being exposed to HIV prevention messages in their home countries prior to immigration.

Given these findings, HIV prevention interventions should not be based on the assumption that low SSP automatically means high behavioural risk. Illustratively, fairly recent studies from Sub-Saharan Africa have shown that higher income,^{16,19} higher education,⁴⁸ being employed,²⁰ and being male^{24,50} were associated with increased HIV risk, so these findings are not unusual. Paradoxically, British and North American studies show that HIV risk is associated with low income or poverty,^{51,52} low educational level,⁵³ female sex,² and immigration experience.²⁷ These contradictions are not surprising, however, as the impacts of SSP are context-specific and are influenced by governance, policies, cultures, and values.⁹ At minimum, prevention interventions for ACB people locally, and possibly in other parts of Canada, should include consideration of gender, poverty status, immigration experience, and employment status.

4.4.1. Limitations

Since the qualitative analyses were descriptive and more in-depth exploration is beyond the scope of this paper, deeper meanings of, and connections between perceptions were not explored in more detail. Furthermore, social desirability bias may be present when data about sensitive topics, such as HIV risk, are self-reported. This type of bias occurs when participants give inaccurate responses that others will view favourably, and it is more likely to occur when data are collected in less-anonymous ways, such as through in-person interviews.⁵⁴ It could have accounted for some of the discrepancies between service providers’ and community member’s perceptions about HIV risk and protective behaviours within the local ACB population. The interview results should be interpreted cautiously.

As convenience sampling was used, Phase II of the study was subject to selection bias. However, non-response weights were applied to adjust for some of this bias. The sample’s size was smaller than the 384 participants required for a desired precision of 5%. Consequently, the confidence intervals for the prevalence estimates are wide, so the

prevalence estimates should be interpreted in light of these wide ranges of plausible values. However, the study was adequately powered to detect statistically significant relationships, even with the wide confidence intervals. In all, 31% of the χ^2 tests (31/100) were significant at the $p=0.05$ level. The percentage of significant χ^2 tests ranged from 15% for gender and immigration status to 50% for employment status. These percentages show that chance alone does not account for the results. Furthermore, the results demonstrate significant differences between groups and patterns in the distribution of risk behaviours by SSP.

Lastly, even though some aspects of Dillman's "Tailored Design Method" were applied,⁴⁰ only 32% of questionnaires were returned, which may be another source for selection bias. Other steps could have been taken to increase recruitment, such as: providing monetary incentives, further shortening the questionnaire, and having a web-based version of the questionnaire. Participants were given the option to request an interviewer to administer the questionnaire, but none requested one. Notably, the proportion of questionnaires returned is comparable to the proportion of participants who were successfully recruited into a similar study with East Africans in Toronto, Canada that offered monetary incentives and used interviewers.⁵

4.5. Conclusion

These results show that ACB people's and service providers' perceptions about HIV risk differ and may be inconsistent with actual risk among ACB people. Furthermore, HIV risk behaviours are distributed according to markers of SSP, which make these SDOH important factors in the design of effective prevention interventions. Due to these risk perceptions, many HIV prevention interventions for ACB people in Ontario focus on women, low-income people, new immigrants, and students. This study's results suggest that this focus may be misplaced, and prevention interventions should at least target a broader cross-section of ACB people. On the other hand, these data might reflect the effectiveness of current interventions targeting women, students, and new immigrants.

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Chapter 5 : Social and Proximate Determinants of HIV Testing in the Past Year: Results from the BLACCH Study

5.1. Background

HIV testing is an important primary and secondary HIV prevention intervention.¹ It promotes changes in sexual behaviour, which can impact exposure and transmission.¹⁻⁴ Additionally, it impacts HIV transmission by enabling infected individuals to connect to treatments that reduce their viral load, and thus the probability of transmitting the virus.⁴ Moreover, the timely access to treatment made possible through diagnosis can impact quality of life and length of survival for those infected.⁵

Although public health professionals promote annual HIV tests for sexually active individuals, many sexually active African, Caribbean, and other Black (ACB) people in Canada who are HIV-positive are unaware of their status.⁶ HIV testing among ACB people in Canada remains under-researched, and existing statistical models for HIV testing may not apply to this population, because they do not include some relevant factors. For instance, the majority of ACB people in Canada are foreign-born,⁷ so language barriers and HIV testing for immigration purposes may have greater impacts on HIV testing in this population than in the broader Canadian population.^{8,9}

Past research on HIV testing has identified factors that may be associated with HIV testing in Canadian ACB communities. Studies have found that factors related to one's sexual history, such as having a higher number of sex partners in the past year¹⁰ and one's lifetime,¹¹ having a past sexually transmitted infection (STI) diagnosis,¹² and mixing sex with alcohol or drugs¹⁰ were associated with having an HIV test. Access to health care providers was also associated with HIV testing.¹³⁻¹⁵ In addition to these proximate factors, studies have identified social and demographic factors that were associated with having an HIV test—higher education, older age, and having a bisexual identity.¹⁰ To date, no epidemiologic studies focusing on HIV testing in Canadian ACB communities have been conducted.

Social epidemiology is a useful tool for understanding the social context that influences HIV testing, and its conceptual approaches can help to identify social determinants of HIV testing. Markers of social status and position (SSP) are social determinants of health (SDOH) that are explicitly related to social hierarchies, and they

are important variables in social epidemiology.¹⁶ Social production of disease/ political economy of health and Intersectionality theories hypothesize that markers of SSP can act individually or interact to influence human behaviours and therefore vulnerability to disease.^{17,18} Using these theoretical frameworks, this exploratory paper will identify groups of ACB people who may need targeted HIV testing interventions. Since markers of SSP can act individually and in combination to create social positions that impact HIV testing, this paper will also explore interactions between these markers. Lastly, this paper will identify mediators and pathways through which markers of SSP impact HIV testing. Figure 5.1 presents the conceptual framework underlying the analyses in this paper.

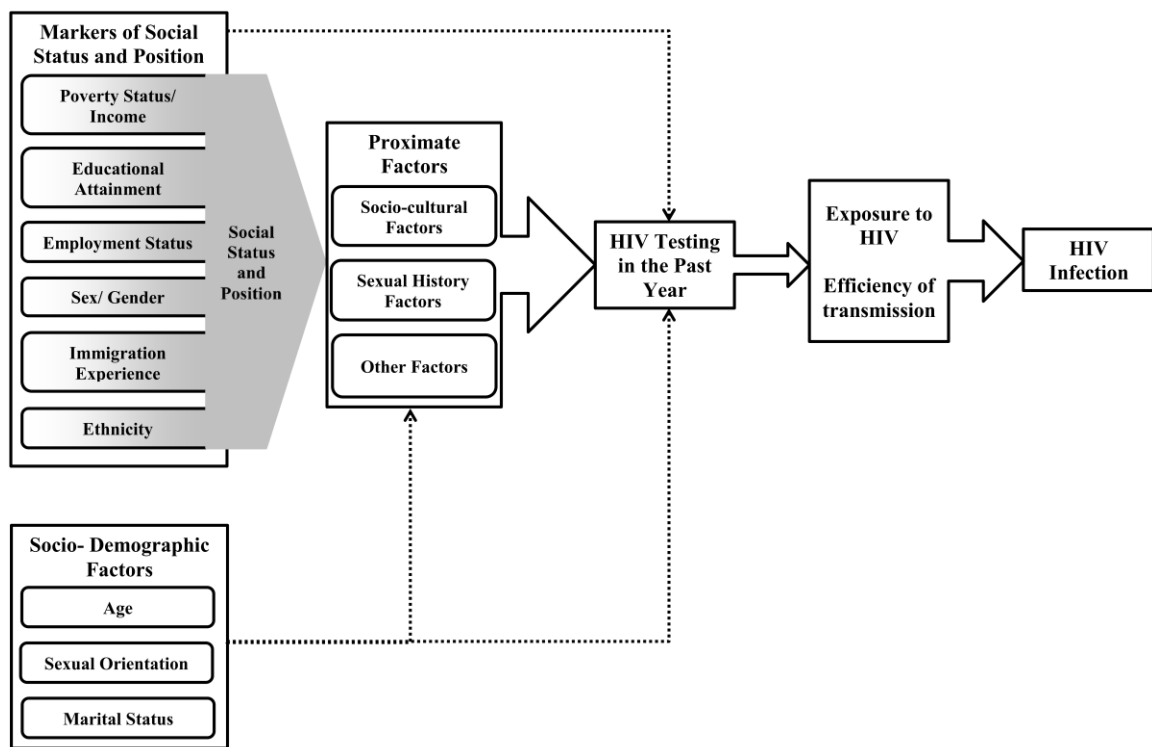


Figure 5.1: Conceptual Framework Depicting the Relationship between Markers of Social Status and Position and HIV Testing in the Past Year

5.2. Methods

This paper is based on Phase II of the Black, African and Caribbean Canadian Health (BLACCH) Study. The survey was conducted from 2010-2011 in London, Ontario, Canada, a city of ~370,000 residents.¹⁹ Approximately 2% of Londoners identify as Black.²⁰ This study's protocol was approved by the Non-Medical Research Ethics Board at The University of Western Ontario.

5.2.1. Sample and Procedures

Eligible participants self-identified as Black, were 18 years or older, and lived or spent most of the past year in London or the surrounding area. The research team combined venue-based sampling, snowballing, and advertising to reach a diverse group of 188 participants. We approached potential participants at libraries, community organizations, festivals, churches, businesses, and soccer tournaments. Most participants were recruited through such direct methods, and six participants were recruited others through snowballing. In keeping with some aspects of the Tailored Design Method,²¹ we gave potential participants an introduction letter, and those who provided contact information received biweekly reminders via telephone or e-mail. Participants returned their completed questionnaires by mail. No monetary incentives were provided.

5.2.2. Measures

All variables were based on self-reported survey items. Receiving an HIV test within the past year was the outcome. *Markers of SSP*—gender, education, poverty status, immigration experience, ethnicity, and employment status—were the main predictor variables.

We derived *poverty status* by combining the midpoints for household income categories (<\$5,000 to \$80,000 or more) with the total number of people supported by that income [range: 1 to 30; mean: 3.7; standard deviation (SD): 3.6]. About half of participants reported sending money to relatives and friends, which accounted for the large number of people supported by some household incomes.²² We used Canada’s low-income cut-off (LICO) to determine if an individual lived in a household above or below the poverty level for a specific household size.²³

Immigration experience included three variables—number of years in Canada, current immigration status, and immigration class upon arrival in Canada. For current immigration status, permanent residents and refugees were combined, because both groups consisted of individuals with legal immigrant statuses who had not yet become naturalized citizens. The “other” category for this variable captured foreign-born people without legal immigrant statuses.

We determined *ethnicity* using three questions that focused on country of birth, self-identified ethnicity, and ancestry. Due to its complexity, we made decisions about

coding ethnicity on a case-by-case basis after combining information from all three questions. We classified those who were concordant on ancestry and self-identification as “Caribbean” or “African”, as appropriate. Ten participants formed the “other” category.

We collapsed *employment status* into three levels. “Irregularly employed” was defined as neither being a student nor self-employed, yet having employment that was not full-time and regular. Participants with seasonal, occasional, and part-time employment fell into this category. Those who were not employed were combined with those who were irregularly employed.

Socio-demographic factors included age, sexual orientation identity, and marital status. Sexual orientation identity was dichotomized as heterosexual and other.

All other variables were proximate determinants and potential mediators of the relationships between markers of SSP and testing for HIV in the past year. They fell into three categories—socio-cultural, sexual history, and other.

Socio-cultural factors included religiosity and English language proficiency. Participants self-reported their level of religiosity. We defined English language proficiency according to the frequency with which participants indicated having problems speaking or understanding English. Those who reported never having problems speaking English or being understood were characterized as having high English language proficiency. We characterized those who always had problems as having low proficiency and assigned all others to one of the three proficiency levels using set criteria that combined responses from both questions.

We defined “sex” as anal or vaginal intercourse. *Sexual history factors* included number of lifetime sexual partners, number of sex partners in the past year, knowing one’s HIV status, knowing one’s main partner’s HIV status, having a past pregnancy or getting a partner pregnant, having unprotected sex with a cohabiting regular partner in the past year, having unprotected sex with a non-cohabiting regular partner in the past year, having unprotected sex with a casual partner in the past year, and having a past STI diagnosis.

“Other” factors were: applying for life insurance since 1990 (when HIV testing became mandatory for applicants), testing for HIV for immigration purposes, seeing a health care provider in the past year, having a primary care provider, frequency of

exposure to HIV prevention messages, perception about the level of HIV risk in the ACB community, and knowledge about HIV transmission. Except for exposure to HIV prevention messages, perceived level of HIV risk in the ACB community, and HIV knowledge, we measured all of these variables dichotomously. Exposure to HIV prevention messages was assessed by self-reported frequency. We determined perceived level of HIV risk in the ACB community based on participants' responses to two questions about HIV in their communities—one asked how concerned they think Black people in Canada should be about contracting HIV, and the other asked how strongly they agreed with the statement that HIV is *not* an important issue in the Black community. We combined responses to these questions using set criteria, and the variable had three response levels. Participants reporting high concern and strong disagreement with the statement were classified as having a low perception of community risk. We determined HIV transmission knowledge using the 18-item HIV Knowledge Questionnaire,²⁴ with two additional items (“HIV can be spread through sharing injection needles”, and “a person can get HIV by sharing food with someone who has it”). We added the first item from the 45-item HIV Knowledge Questionnaire,²⁵ since the 18-item questionnaire did not include questions about injection-related HIV risks. Service providers on the research team had mentioned that some ACB people believed that HIV could be contracted through sharing food. Hence, they recommended adding the second item to improve content validity within local communities. The scale's items were dichotomous and participants received a point for each correct answer.²⁴

5.2.3. Statistical Analyses

We weighted all analyses to reduce selection bias. We calculated non-response weights by comparing the sample to Census data for London, Ontario's ACB population. Using logistic regression, we predicted the probability of being included in the sample based on gender, age, education, and ethnicity.^{26,27} Weights were computed using these predicted probabilities. Those with a lower predicted probability of being included in the sample were up-weighted, and those with a higher predicted probability of being in the sample were down-weighted. We standardized the weights so that their sum was 188, the size of the sample; this ensures accurate standard errors.²⁸

We imputed missing values for variables that were not markers of SSP or our outcome. Continuous and ordinal variables were imputed with the median value, and categorical variables were imputed with the most common value, as is appropriate when a variable has less than 15% missingness.²⁹ The highest degree of missingness was 10.6% for HIV knowledge score. The imputed dataset was used for model building, not for descriptive statistics.

Univariate analyses included calculating sample distributions, and estimating weighted frequencies and associated 95% Wilson confidence intervals for all variables.

Using modified Poisson regression, we estimated crude and adjusted prevalence ratios (PRs). This method provides valid estimates of relative risks even when the binary outcome is common and does not follow a Poisson distribution.^{30–36} We regressed testing for HIV in the past year on each marker of SSP, socio-demographic variable, and potential mediator in the crude modified Poisson regression models. Some markers of SSP tend to mask the effects of others, and Intersectionality Theory posits that interactions between them are just as important as the individual markers.¹⁸ Hence, for the first multivariable regression model (Model 1), we simultaneously entered all markers of SSP, interactions between each marker of SSP and gender, interactions between each marker of SSP and poverty status, and socio-demographic variables into a logistic regression model, as recommended by Harrell.²⁹ Since there were no Canadian-born people in some categories, we excluded immigration experience from the interactions. Automated backward elimination in SAS 9.3,³⁷ with a critical point of 0.15 reduced the number of predictors in the final model and prevented over-fitting.²⁹ We combined predictors from Model 1 with the proximate determinants and performed automated backward elimination, as described previously, to create Model 2. Predictors retained in the multivariable models were entered into multivariable modified Poisson regression models to estimate PRs. Although age was not in the final multivariable logistic regression models, it was included in the modified Poisson regression models because of its relationship with marital status and number of lifetime sex partners, which were in each of the final multivariable logistic regression models. There are no guidelines for calculating model fit statistics and coefficients of determination (R^2) for modified Poisson regression models, so those statistics for the logistic regression model are presented.

We performed mediation analyses using a modified version of Baron and Kenny's Causal Steps approach that accounted for the use of continuous and categorical variables. Markers of SSP from Model 1 and proximate determinants from Model 2 that were independently associated with testing for HIV in the past year were used in the mediation analyses. Recent studies have shown that there is no need to establish the existence of a relationship between the main explanatory variable and the outcome.³⁸ Each proximate determinant was treated as a mediator and was thus regressed on the markers of SSP in the presence of the other potential mediators, age, and marital status to estimate the independent effect of each marker of SSP on each potential mediator (α). We regressed testing for HIV in the past year on all variables to estimate the independent effect of each potential mediator on testing for HIV in the past year (β), and the extent to which each marker of SSP was related to testing for HIV in the past year after controlling for other potential mediators (c'). The indirect effect through each mediator is the product of α and β ($\alpha\beta$).³⁹ Since we built the mediation models using logistic regression and ordinary least squares regression, as appropriate,⁴⁰ we calculated standardized regression coefficients for each path (i.e. z_α , z_β , $z_{\alpha\beta}$, and $z_{c'}$). Mediated proportions (MPs) quantify the amount of effect occurring through individual paths and sets of paths. We calculated them based on the following formula: $MP = \left(\frac{|z_{\alpha_1\beta_1}| + |z_{\alpha_2\beta_2}| + \dots + |z_{\alpha_n\beta_n}|}{|z_{\alpha_1\beta_1}| + |z_{\alpha_2\beta_2}| + \dots + |z_{\alpha_n\beta_n}| + |z_{c'}|} \right)$.^{41,42} The statistical significance of each path was determined using Iacobucci's $Z_{mediation}$ test, which uses standardized regression coefficients to compute a z-statistic that is tested against the standard normal curve.⁴⁰ The $Z_{mediation}$ test is a good choice when categorical variables are included in the mediation analysis.⁴⁰

5.3. Results

5.3.1. Characteristics of the Sample and ACB People in London, Ontario

In the unweighted sample, 21.8% of participants reported having an HIV test in the past year, and the estimated prevalence of testing for HIV in the past year in the adult ACB population in London, Ontario was 20.0% (95% CI: 12.4, 30.5). Table 5.1 shows the distribution of potential determinants of HIV testing in the past year in the sample, and the estimated prevalences for the local adult ACB population. Females comprised 46.5% (95% CI: 36.4, 56.9) of the adult ACB population, and 68.6% (95% CI: 57.3,

78.1) of the adult ACB population did not live in poverty. A large proportion of the population (65.6%) had zero or one sex partners in the past year, and 10.2% (95% CI: 4.9, 20.2) had unprotected sexual intercourse with a casual partner in the past year.

Table 5.1: Distribution of Sample and Population Frequencies for Potential Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Markers of Social Status and Position		
Gender		
Female	113 (60.1)	46.5 (36.4, 56.9)
Male	75 (39.9)	53.5 (43.1, 63.6)
Poverty status		
At or below LICO	53 (30.3)	31.4 (21.9, 42.7)
Above LICO	122 (67.7)	68.6 (57.3, 78.1)
Education		
No post-secondary education	36 (19.1)	46.9 (36.1, 58.0)
Post-secondary up to bachelor's degree	109 (58.0)	44.7 (34.9, 54.8)
Above bachelor's degree	43 (22.9)	8.5 (5.3, 13.3)
Immigration status, current		
Other [^]	21 (11.4)	7.9 (4.6, 13.2)
Permanent Resident or Refugee	38 (20.7)	23.2 (14.1, 35.7)
Naturalized Canadian citizen	96 (52.2)	51.4 (40.8, 61.9)
Canadian-born	29 (15.8)	17.5 (11.0, 26.7)
Immigration class, at time of immigration		
Other [‡]	43 (23.5)	16.9 (11.6, 24.1)
Refugee	46 (25.1)	19.7 (13.8, 27.4)
Immigrant	65 (35.5)	45.8 (35.1, 56.8)
Canadian-born	29 (15.8)	17.6 (11.0, 26.8)
Time in Canada		
0-5 years	45 (24.7)	18.8 (12.9, 26.7)
>5 – 15 years	51 (28.0)	27.4 (18.0, 39.3)
>15 years	57 (31.3)	35.9 (26.5, 46.4)
Canadian-born	29 (15.9)	17.9 (11.3, 27.3)
Ethnicity		
Canadian or Other	10 (5.3)	13.0 (5.7, 26.9)
Caribbean	71 (37.8)	49.1 (38.5, 59.7)
African	107 (56.9)	38.0 (29.3, 47.5)
Employment status		
Not employed or irregularly employed+	43 (23.0)	30.6 (20.6, 42.8)
Student	78 (41.7)	33.5 (24.8, 43.5)
Full-time or self-employed	66 (35.3)	35.9 (26.8, 46.3)
Socio-Demographic Factors		
Age group		
≤24 years old	35 (19.6)	16.4 (10.4, 24.8)
25-34 years old	50 (27.9)	18.1 (12.6, 25.3)
35-44 years old	39 (21.8)	20.1 (12.9, 29.9)
45-54 years old	35 (19.6)	25.1 (15.8, 37.4)
≥55 years old	20 (11.2)	20.3 (12.2, 32.0)
Marital Status		
Married or living common-law	58 (32.2)	35.6 (25.5, 47.2)
Previously married	32 (17.8)	21.1 (14.0, 30.7)
Never married	90 (50.0)	43.2 (33.3, 53.8)
Sexual Orientation Identity		
Sexual orientation minority	20 (10.7)	8.5 (5.0, 13.9)
Heterosexual	167 (89.3)	91.5 (86.1, 95.0)
Proximate Determinants		

Table 5.1: Distribution of Sample and Population Frequencies for Potential Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Religiosity		
Not religious at all	18 (9.9)	12.0 (6.6, 20.9)
Not very religious	39 (21.5)	20.7 (13.6, 30.3)
Religious	87 (48.1)	48.1 (37.5, 58.8)
Very religious	37 (20.4)	19.2 (12.6, 28.2)
English Language Proficiency		
Low	12 (6.4)	16.1 (7.6, 31.0)
Medium	25 (13.3)	12.2 (7.6, 18.9)
High	151 (80.3)	71.7 (59.1, 81.6)
Number of sex partners, lifetime		
Never had sex	30 (16.8)	13.0 (7.7, 21.2)
1 partner	14 (7.8)	9.7 (3.6, 23.7)
2 to 4 partners	48 (26.8)	19.2 (13.5, 26.7)
5 to 9 partners	32 (17.9)	19.3 (12.3, 29.0)
10 to 19 partners	19 (10.6)	15.8 (8.7, 27.0)
20 or more partners	18 (10.1)	11.1 (6.0, 19.8)
Don't know or don't want to answer	18 (10.1)	11.8 (6.7, 20.2)
Number of sex partners, past year		
None	59 (32.8)	26.8 (18.9, 36.5)
1 partner	78 (43.3)	38.8 (29.3, 49.1)
2 partners	27 (15.0)	22.8 (13.3, 36.2)
3 or more partners	16 (8.9)	11.7 (6.1, 21.1)
Knowing one's HIV status		
No	48 (26.5)	31.2 (21.3, 43.2)
Yes	131 (72.4)	64.6 (52.3, 75.2)
Rather not say	2 (1.1)	4.2 (0.9, 18.3)
Knowing one's partner's HIV status		
No	62 (35.6)	41.4 (30.4, 53.2)
Yes	79 (45.4)	40.8 (30.8, 51.6)
Rather not say	9 (5.2)	7.9 (2.9, 19.7)
Not applicable	24 (13.8)	9.9 (5.7, 16.8)
Ever pregnant, or gotten a partner pregnant		
No	77 (44.8)	37.3 (28.8, 47.9)
Yes	95 (55.2)	62.7 (52.1, 72.2)
Unprotected sex, cohabiting regular partner, past year		
No	116 (64.1)	62.0 (50.6, 72.1)
Yes	65 (35.9)	38.0 (27.9, 49.4)
Unprotected sex, non-cohabiting regular partner, past year		
No	153 (84.1)	82.0 (70.0, 90.0)
Yes	29 (15.9)	18.0 (10.0, 30.0)
Unprotected sex, casual partner, past year		
No	161 (93.1)	89.8 (79.8, 95.1)
Yes	12 (6.9)	10.2 (4.9, 20.2)
Diagnosed with an STI, ever		
No	132 (78.1)	73.6 (63.4, 81.7)
Yes	37 (21.9)	26.4 (18.3, 36.6)
Applied for life insurance since 1990		
No	109 (61.9)	65.3 (54.3, 74.9)
Yes	67 (38.1)	34.7 (25.1, 45.7)
Tested for immigration purposes		
No	127 (69.8)	72.4 (60.7, 81.6)
Yes	55 (30.2)	27.6 (18.4, 39.3)
Seen a health care provider, past year		
No	34 (18.1)	16.7 (10.7, 25.1)
Yes	154 (81.9)	83.3 (74.9, 89.3)

Table 5.1: Distribution of Sample and Population Frequencies for Potential Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Has a primary care provider		
No	55 (29.1)	23.6 (16.3, 33.0)
Yes	129 (70.1)	76.4 (67.0, 83.7)
Exposure to HIV prevention messages		
Very rarely	32 (18.0)	13.4 (8.2, 21.3)
Rarely	45 (25.3)	28.1 (19.6, 38.6)
Neither rarely nor often	37 (20.8)	17.9 (11.1, 27.6)
Often	36 (20.2)	17.7 (11.7, 25.8)
Very often	28 (15.7)	18.6 (10.5, 30.7)
Perceived level of community's HIV risk		
Low	2 (1.1)	1.0 (0.3, 3.9)
Medium	26 (14.9)	16.1 (9.8, 25.3)
High	147 (84.0)	82.8 (73.6, 89.3)
HIV knowledge score		
0 to 5	0 (0.0)	---
6 to 10	5 (3.0)	10.0 (3.2, 27.2)
11 to 15	36 (21.4)	27.1 (18.5, 37.9)
16 to 20	127 (75.6)	62.9 (50.3, 74.0)
Tested for HIV, past year		
No	143 (78.1)	80.0 (69.5, 87.6)
Yes	40 (21.8)	20.0 (12.4, 30.5)

^aWeighted for age, ethnicity, education level, and sex.

[^]Includes temporary workers, students and non-status individuals.

[‡]Includes people who arrived on temporary worker, visitor and student visas; non-status individuals; and individuals who did not know their immigration class.

⁺Includes those who do not fall into the other three categories, but are: unemployed, and employed occasionally, seasonally or part-time.

LICO= Low-income cut-off

wPrev= Weighted prevalence

CI= confidence interval

5.3.2. Determinants of HIV Testing in the Past Year

Results from the crude and adjusted modified Poisson regression analyses are presented in Table 5.2. Significant results and those that approach significance (i.e. $p \leq 0.10$) are highlighted here.

5.3.2.1. Crude Models

Several markers of SSP were significantly associated with HIV testing or approached statistical significance in the crude models. Testing for HIV in the past year was significantly associated with one's immigration class. Compared to immigrants who arrived in Canada under a non-refugee or non-immigrant class, those arriving under a refugee class were 3.52 (95% CI: 2.42, 5.12) times as likely to have had an HIV test in the past year, and those arriving under an immigrant class were 4.55 (95% CI: 1.49, 13.92) times as likely to have had an HIV test in the past year. Although not significant,

the relationship between immigration status and HIV testing approached significance ($p=0.063$). The results suggest that those with the most precarious immigration statuses (i.e. those in the “other” category) appeared to have the lowest prevalence of testing for HIV in the past year. However, the difference was only significant when people in the “other” category were compared to naturalized Canadian citizens (PR=5.59; 95% CI: 1.17, 26.79). The crude results also suggest that there was an interaction between gender and African ethnicity ($p=0.073$) in predicting testing or HIV in the past year. Compared to females with non-African ethnicities, both African females and non-African males (but not African males) appeared to be more likely to report having an HIV test in the past year. None of the socio-demographic factors was significantly associated with HIV testing in the crude models.

Based on the crude analyses, only two proximate determinants were associated with HIV testing in the past year—applying for life insurance since 1990 ($p=0.011$) and knowledge about HIV ($p=0.001$). People who had applied for life insurance since 1990 were more likely to have been tested for HIV in the past year (PR=2.73; 95% CI: 1.26, 5.94) than those who had not. Those who were more knowledgeable about HIV were more likely to have been tested for HIV in the past year (PR=1.29; 95% CI: 1.11, 1.50).

5.3.2.2. Adjusted Model 1: Markers of SSP and Socio-Demographic Factors

Model 1 shows that after controlling for other markers of SSP and socio-demographic factors, education ($p=0.033$), immigration class ($p=0.013$), and the amount of time spent in Canada ($p=0.026$) were independently associated with having had an HIV test in the past year. Compared to having more than a bachelor’s degree, having no post-secondary education appeared to be associated with not having an HIV test in the past year (aPR=0.24; 95% CI: 0.05, 1.04). Compared to immigrating under “other” classes, immigrating to Canada as a refugee (aPR=4.51; 95% CI: 1.38, 14.72) or as an official immigrant (aPR=6.10; 95% CI: 1.80, 20.63) were independently associated testing for HIV in the past year. It appeared that being born in Canada was associated with not having an HIV test. When the amount of time spent in Canada was considered, spending more than five years in Canada was associated with not testing for HIV in the past year. Those who had been in Canada for between five and 15 years (aPR=0.37; 95% CI: 0.17, 0.81) and those who had been in Canada for more than 15 years (aPR=0.38; 95% CI: 0.17, 0.81) were independently associated with not testing for HIV in the past year.

CI: 0.16, 0.94) were about 40% as likely to have had an HIV test in the past year as newer immigrants.

The relationship between having an HIV test in the past year and the interaction between African ethnicity and gender still existed in Model 1 ($p=0.066$). Compared to non-African females, it seemed that African females (aPR=6.80; 95% CI: 0.46, 101.40), non-African males (aPR=3.59; 95% CI: 0.94, 13.65), and African males (aPR=6.41; 95% CI: 0.42, 97.32) were more likely to have been tested for HIV in the past year. Marital status also seemed to impact HIV testing ($p=0.079$). Compared to married people and those in common-law partnerships, people who had been married previously but are currently unmarried (aPR=3.86; 95% CI: 1.19, 12.50) and people who had never been married (aPR=3.91; 95% CI: 0.89, 17.18) were more likely to have had an HIV test in the past year.

Nagelkerke's maximum rescaled R^2 in logistic regression indicates that the variables in Model 1 explained 29.73% of the variance in testing for HIV in the past year.

5.3.2.3. Adjusted Model 2: Proximate Determinants and Markers of SSP and Socio-Demographic Factors from Model 1

When the proximate determinants were added to Model 1 to create Model 2, the amount of time spent in Canada and the interaction between poverty status and ethnicity were eliminated from the adjusted model. This indicates that the effects of these factors were completely mediated by the proximate determinants in Model 2. Additionally, none of the markers of SSP and socio-demographic factors from Model 1 that were included in Model 2 was significant or approached significance. Hence, it is evident that most of their effects were mediated by the proximate determinants in Model 2.

The proximate determinants that were independently associated with testing for HIV in the past year were the number of sex partners one had in one's lifetime ($p=0.038$) and the past year ($p=0.045$), reportedly knowing one's HIV status ($p=0.029$), and having more knowledge about HIV/ AIDS ($p<0.001$). Having more than one sex partner in one's lifetime was independently associated with having an HIV test in the past year. Having two to four partners (aPR=7.39; 95% CI: 1.46, 37.56) and having five to nine partners (aPR=8.63; 95% CI: 1.41, 53.00) in one's lifetime were significantly associated with testing for HIV in the past year. The results also showed that compared to having no sex

partners in the past year, having three or more sex partners in the past year was significantly associated having an HIV test (aPR=3.54; 95% CI: 1.07, 11.66). Not surprisingly, knowing one's HIV status (aPR=3.58, 95% CI: 1.16, 11.04) and being more knowledgeable about HIV (aPR=1.51; 95% CI: 1.16, 1.98) were significantly associated with having an HIV test in the past year. Based on the cross-sectional nature of the study, however, it is not possible to determine if people were knowledgeable about HIV prior to testing or as a result of pre- or post-test counselling. Furthermore, reportedly knowing one's HIV status is a result of testing for HIV in the past year. Although the relationship was not significant, the results suggest that being highly proficient in English was associated with not having an HIV test in the past year (aPR=0.43; 95% CI: 0.18, 1.03).

Overall, Model 2 fit the data well. The high value of the Nagelkerke's maximum rescaled R^2 in logistic regression ($R^2=0.6599$) indicates that, together, the variables included in the model provided strong explanatory power.

Table 5.2: Results from Weighted^a Crude and Adjusted Regression Analyses of Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	PR (95% CI)	P-value	R ² d= 0.2973		R ² d= 0.6599	
			aPR (95% CI)	P-value	aPR (95% CI)	P-value
Markers of Social Status and Position						
Gender		0.439				
Female	1.00					
Male	1.38 (0.61, 3.08)					
Poverty status		0.605				
At or below LICO	1.00					
Above LICO	0.76 (0.27, 2.14)					
Education		0.516		0.033**		0.245
No post-secondary education	0.50 (0.14, 1.82)		0.24 (0.05, 1.04)*		0.49 (0.18, 1.36)	
Post-secondary up to bachelor's degree	0.75 (0.38, 1.50)		1.13 (0.47, 2.70)		1.08 (0.46, 2.54)	
Above bachelor's degree	1.00		1.00		1.00	
Immigration status, current		0.063*				
Other [^]	1.00					
Permanent Resident or Refugee	3.31 (0.63, 17.47)					
Naturalized Canadian citizen	5.59 (1.17, 26.79)**					
Canadian-born	1.56 (0.23, 10.65)					
Immigration class, at time of immigration		0.025**		0.013**		0.151
Other [‡]	1.00		1.00		1.00	
Refugee	3.52 (2.42, 5.12)**		4.51 (1.38, 14.72)**		3.91 (0.88, 17.30)*	
Immigrant	4.55 (1.49, 13.92)**		6.10 (1.80, 20.63)**		3.80 (0.99, 14.66)*	
Canadian-born	1.24 (0.26, 5.81)		0.88 (0.15, 5.15)		2.26 (0.30, 16.98)	
Time in Canada		0.513		0.026**		
0-5 years	1.00		1.00			
>5 – 15 years	0.73 (0.29, 1.84)		0.37 (0.17, 0.81)**			
>15 years	0.93 (0.34, 2.54)		0.38 (0.16, 0.94)**			
Canadian-born	0.36 (0.09, 1.42)		0.88 (0.15, 5.15)			
Ethnicity		0.819				
Non-African	1.00					
African	0.91 (0.41, 2.01)					

Table 5.2: Results from Weighted^a Crude and Adjusted Regression Analyses of Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a R ² _d = 0.2973		Model 2 ^c : Adjusted ^a R ² _d = 0.6599	
	PR (95% CI)	P-value	aPR (95% CI)	P-value	aPR (95% CI)	P-value
Employment status		0.701				
Not employed or irregularly employed+	1.70 (0.49, 5.96)					
Student	1.21 (0.45, 3.30)					
Full-time or self-employed	1.00					
Gender x Ethnicity		0.073*		0.066*		0.196
Female						
Non-African	1.00		1.00		1.00	
African	2.00 (0.77, 5.20)		6.80 (0.46, 101.40)		1.99 (0.65, 6.10)	
Male						
Non-African	2.33 (0.71, 7.64)		3.59 (0.94, 13.65)*		2.28 (0.89, 5.81)*	
African	1.25 (0.44, 3.60)		6.41 (0.42, 97.32)		2.06 (0.64, 6.59)	
Poverty status x Ethnicity		0.556		0.212		
At or below LICO						
Non-African	1.00		1.00			
African	0.63 (0.14, 2.85)		6.80 (0.46, 101.40)			
Above LICO						
Non-African	0.61 (0.13, 2.78)		5.82 (0.52, 64.21)			
African	0.64 (0.15, 2.69)		8.30 (0.55, 124.47)			
Socio-Demographic Factors						
Age, Mean (SD): 37.4 (13.1)						
5 year increase	1.10 (0.94, 1.28)	0.229	1.06 (0.88, 1.28)	0.516	1.03 (0.87, 1.23)	0.705
Marital Status		0.255		0.079*		0.101
Married or living common-law	1.00		1.00		1.00	
Previously married	1.76 (0.58, 5.32)		3.86 (1.19, 12.50)**		1.53 (0.54, 4.16)	
Never married	2.38 (0.85, 6.63)*		3.91 (0.89, 17.18)*		2.43 (1.00, 5.95)**	
Sexual Orientation Identity		0.548				
Sexual orientation minority	1.00					
Heterosexual	0.76 (0.30, 1.89)					
Proximate Determinants						
Religiosity		0.127				0.214
Not religious at all	1.00				1.00	
Not very religious	1.47 (0.33, 6.63)				1.16 (0.25, 5.36)	
Religious	3.27 (0.82, 13.08)*				1.75 (0.42, 7.27)	
Very religious	4.09 (0.94, 17.80)*				3.05 (0.66, 14.02)	

Table 5.2: Results from Weighted^a Crude and Adjusted Regression Analyses of Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a R ² _d = 0.2973		Model 2 ^c : Adjusted ^a R ² _d = 0.6599	
	PR (95% CI)	P-value	aPR (95% CI)	P-value	aPR (95% CI)	P-value
English Language Proficiency		0.514				0.057*
Low or medium	1.00				1.00	
High	1.37 (0.53, 3.50)				0.43 (0.18, 1.03)*	
Number of sex partners, lifetime		0.130				0.038**
0 or 1 partner	1.00				1.00	
2 to 4 partners	6.59 (1.59, 27.25)**				7.39 (1.46, 37.56)**	
5 to 9 partners	5.14 (1.13, 23.38)**				8.63 (1.41, 53.00)**	
10 to 19 partners	7.42 (1.08, 50.99)**				0.97 (0.06, 14.81)	
20 or more partners	6.88 (1.04, 45.61)**				5.07 (0.32, 41.35)	
Number of sex partners, past year		0.173				0.045**
None	1.00				1.00	
1 partner	1.77 (0.70, 4.46)				1.15 (0.47, 2.83)	
2 partners	3.14 (0.93, 10.62)*				0.84 (0.29, 2.38)	
3 or more partners	3.35 (0.92, 12.18)*				3.54 (1.07, 11.66)**	
Knowing one's HIV status		0.522				0.030**
No	1.00				1.00	
Yes	1.59 (0.39, 6.51)				3.58 (1.16, 11.04)**	
Knowing one's partner's HIV status		0.226				
No	1.00					
Yes	0.99 (0.98, 1.01)					
Ever pregnant, or gotten a partner pregnant		0.350				
No	1.00					
Yes	1.51 (0.64, 3.58)					
Unprotected sex, cohabiting regular partner, past year		0.478				
No	1.00					
Yes	0.73 (0.30, 1.75)					
Unprotected sex, non-cohabiting regular partner, past year		0.616				
No	1.00					
Yes	0.77 (0.28, 2.10)					
Unprotected sex, casual partner, past year		0.891				
No	1.00					
Yes	1.11 (0.24, 5.12)					

Table 5.2: Results from Weighted^a Crude and Adjusted Regression Analyses of Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a R ² _d = 0.2973		Model 2 ^c : Adjusted ^a R ² _d = 0.6599	
	PR (95% CI)	P-value	aPR (95% CI)	P-value	aPR (95% CI)	P-value
Diagnosed with an STI, ever		0.542				
No	1.00					
Yes	1.36 (0.51, 3.62)					
Applied for life insurance since 1990		0.011**				
No	1.00					
Yes	2.73 (1.26, 5.94)**					
Tested for HIV for immigration purposes		0.905				
No	1.00					
Yes	0.95 (0.40, 2.23)					
Seen a health care provider, past year		0.214				
No	1.00					
Yes	1.95 (0.68, 5.59)					
Has a primary care provider		0.549				
No	1.00					
Yes	1.28 (0.57, 2.90)					
Frequency of exposure to HIV prevention messages		0.636				
Rarely	1.00					
Often	1.25 (0.50, 3.11)					
Perceived level of community's HIV risk		0.790				
Low to medium	1.00					
High	0.85 (0.25, 2.90)					
HIV knowledge score Mean (SD): 15.62 (3.07)						<0.001**
1 unit increase	1.29 (1.11, 1.50)**	0.001**			1.51 (1.16, 1.98)**	

Table 5.2: Results from Weighted^a Crude and Adjusted Regression Analyses of Predictors of Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	PR (95% CI)	P-value	aPR (95% CI)	P-value	aPR (95% CI)	P-value
^a Weighted for age, ethnicity, education level, and sex. ^b Model including just markers of social status and position and socio-demographic factors. ^c Model including variables from Model 1 and proximate factors. ^d Nagelkerke's maximum rescaled R ² for multivariable model (logistic version). [^] Includes temporary workers, students and non-status individuals. [‡] Includes people who arrived on temporary worker, visitor and student visas; non-status individuals; and individuals who did not know their immigration class. ⁺ Includes those who do not fall into the other three categories, but are: unemployed, and employed occasionally, seasonally or part-time. ** Significant at the $\alpha=0.05$ level * Approaches statistical significance at the $\alpha=0.10$ level CI= Confidence interval LICO= Low-income cut-off Score test of global null hypothesis for Model 1 (logistic version): p=0.019 Score test of global null hypothesis for Model 2 (logistic version): p<0.001						

5.3.3. Mediators of HIV Testing in the Past Year

As mentioned previously, the mediation analyses included the significant markers of SSP from Model 1 as the main exposure variables and controlled for the socio-demographic factors in Model 1. The proximate determinants from Model 2 were treated as mediators, and the ones that were not part of the path being explored were controlled for in the mediation analyses. Since knowing one's HIV status is a result of receiving an HIV test in the past year, that proximate determinant was not included as a mediator. The mediation models assumed that all mediators acted in parallel.

Knowledge about HIV appeared to be the strongest mediator of the relationship between markers of SSP and having an HIV test in the past year. It significantly mediated the relationship between having no post-secondary education and having an HIV test in the past year ($z_{\alpha\beta} = -10.520$; $z_{mediation} = -2.240$) (Table 5.3), and it mediated 43.4% of the relationship between the two factors. Knowledge about HIV also mediated the relationships involving arriving in Canada under a refugee class (40.4%), being an immigrant who had lived in Canada for five to 15 years (28.7%), being an immigrant who had lived in Canada for more than 15 years (17.3%), and being an African female (31.7%). With the exception of African females, people falling into these groups tended to have lower knowledge about HIV than the reference groups (i.e. having more than a bachelor's degree, arriving in Canada under an "other" immigrant class, living in Canada for up to 5 years, and being a non-African woman).

A person's level of religiosity and the number of partners a person had in her/ his lifetime were also important mediators of the relationships between markers of SSP and having an HIV test in the past year. Religiosity mediated 23.4% of the relationship involving having no post-secondary education, 29.7% of the relationship involving being born in Canada, and 29.5% of the relationship involving being a non-African male. The number of partners a person had in his/ her lifetime mediated 42.1% of the relationship that involved arriving in Canada under an immigrant class, 32.8% of the relationship involving immigrants who had been in Canada for more than five years but not more than 15 years, and 33.3% of the relationship involving being in Canada for more than 15 years.

The total mediated proportions for all pathways ranged from 0.821 for those who arrived in Canada under an immigrant class to 0.982 for having a post-secondary education that did not exceed a bachelor's degree. Hence, the vast majority of the effects of the markers of SSP on testing for HIV in the past year passed through the mediators included in the analyses.

Table 5.3: Results from Weighted^a Mediation Analyses of Potential Mediators of Relationships Between Markers of SSP and Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

<i>Markers of SSP</i> Mediators	z_{α}^a	z_{β}^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
<i>No post-secondary education versus Above bachelor's degree (Ref)</i>						0.971	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	2.592	-0.302	-0.783	-0.694	0.032		-0.280
Religious	1.821	0.451	0.821	-0.694	0.034		0.386
Very Religious	1.864	2.183	4.069	-0.694	0.168		1.339*
High language proficiency	-0.307	-2.150	0.659	-0.694	0.027		0.276
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	-1.678	1.600	-2.685	-0.694	0.111		-1.063
5 to 9 partners	-0.819	2.126	-1.741	-0.694	0.072		-0.700
10 or more partners	-0.572	0.776	-0.444	-0.694	0.018		-0.320
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	-0.679	1.202	-0.817	-0.694	0.034		-0.479
2 or more partners	-0.728	1.419	-1.034	-0.694	0.043		-0.549
HIV knowledge score	-3.321	3.168	-10.520	-0.694	0.434		-2.240**
<i>Post-secondary up to bachelor's degree versus Above bachelor's degree (Ref)</i>						0.982	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	-0.164	-0.302	0.049	0.170	0.005		0.047
Religious	0.733	0.451	0.330	0.170	0.034		0.250
Very Religious	0.164	2.183	0.357	0.170	0.037		0.148
High language proficiency	-0.532	-2.150	1.143	0.170	0.119		0.470
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	0.965	1.600	1.545	0.170	0.161		0.729
5 to 9 partners	0.576	2.126	1.225	0.170	0.127		0.506
10 or more partners	1.025	0.776	0.796	0.170	0.083		0.488
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	-1.660	1.202	-1.996	0.170	0.207		-0.875
2 or more partners	-0.627	1.419	-0.890	0.170	0.092		-0.482
HIV knowledge score	0.354	3.168	1.120	0.170	0.116		0.335
<i>Refugee class versus Other immigration class‡ (Ref)</i>						0.873	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	2.424	-0.302	-0.732	2.112	0.044		-0.277
Religious	1.859	0.451	0.838	2.112	0.050		0.388
Very Religious	0.099	2.183	0.217	2.112	0.013		0.090
High language proficiency	1.005	-2.150	-2.161	2.112	0.130		-0.839

Table 5.3: Results from Weighted^a Mediation Analyses of Potential Mediators of Relationships Between Markers of SSP and Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

<i>Markers of SSP Mediators</i>	z_u^a	z_p^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
Immigrant class versus Other immigration class‡ (Ref) 0.821							
Religiosity							
Not religious at all	0.000	0.000	----	----	----		
Not very religious	1.093	-0.302	-0.330	2.292	0.026		
Religious	0.991	0.451	0.447	2.292	0.035		
Very Religious	0.565	2.183	1.234	2.292	0.096		
High language proficiency	-0.509	-2.150	1.095	2.292	0.086		0.452
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		
2 to 4 partners	0.075	1.600	0.120	2.292	0.009		0.063
5 to 9 partners	2.113	2.126	4.492	2.292	0.351		1.422*
10 or more partners	0.999	0.776	0.776	2.292	0.061		0.481
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		
1 partner	0.127	1.202	0.152	2.292	0.012		0.097
2 or more partners	-0.576	1.419	-0.818	2.292	0.064		-0.447
HIV knowledge score	0.331	3.168	1.050	2.292	0.082		0.314
Canadian-born versus Other immigration class‡ (Ref) 0.967							
Religiosity							
Not religious at all	0.000	0.000	----	----	----		
Not very religious	-0.034	-0.302	0.010	0.797	0.000		0.010
Religious	-2.328	0.451	-1.049	0.797	0.043		-0.408
Very Religious	-2.803	2.183	-6.118	0.797	0.253		-1.658*
High language proficiency	0.007	-2.150	-0.015	0.797	0.001		-0.006
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		
2 to 4 partners	-0.537	1.600	-0.859	0.797	0.036		-0.438
5 to 9 partners	-0.887	2.126	-1.887	0.797	0.078		-0.751
10 or more partners	0.551	0.776	0.428	0.797	0.018		0.310
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		
1 partner	3.260	1.202	3.920	0.797	0.162		1.084
2 or more partners	3.137	1.419	4.453	0.797	0.184		1.242
HIV knowledge score	-1.458	3.168	-4.619	0.797	0.191		-1.273
>5-15 years in Canada versus 0-5 years (Ref) 0.964							
Religiosity							
Not religious at all	0.000	0.000	----	----	----		
Not very religious	-1.456	-0.302	0.440	-1.015	0.016		0.245
Religious	-1.171	0.451	-0.528	-1.015	0.019		-0.329
Very Religious	0.171	2.183	0.374	-1.015	0.013		0.155
High language proficiency	0.735	-2.150	-1.579	-1.015	0.056		-0.636

Table 5.3: Results from Weighted^a Mediation Analyses of Potential Mediators of Relationships Between Markers of SSP and Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

<i>Markers of SSP</i>	z_u^a	z_p^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
Mediators							
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	-1.803	1.600	-2.885	-1.015	0.102		-1.105
5 to 9 partners	-2.690	2.126	-5.719	-1.015	0.203		-1.601*
10 or more partners	-0.854	0.776	-0.663	-1.015	0.023		-0.434
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	2.441	1.202	2.936	-1.015	0.104		1.012
2 or more partners	2.811	1.419	3.990	-1.015	0.141		1.208
HIV knowledge score	-2.553	3.168	-8.088	-1.015	0.287		-1.930*
>15 years in Canada versus 0-5 years (Ref)						0.971	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	-1.647	-0.302	0.497	-0.816	0.018		0.255
Religious	-1.892	0.451	-0.853	-0.816	0.031		-0.390
Very Religious	-1.327	2.183	-2.896	-0.816	0.105		-1.056
High language proficiency	1.287	-2.150	-2.766	-0.816	0.100		-1.025
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	-1.744	1.600	-2.790	-0.816	0.101		-1.086
5 to 9 partners	-2.648	2.126	-5.631	-0.816	0.203		-1.590*
10 or more partners	-1.029	0.776	-0.798	-0.816	0.029		-0.489
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	2.213	1.202	2.661	-0.816	0.096		0.982
2 or more partners	2.245	1.419	3.187	-0.816	0.115		1.123
HIV knowledge score	-1.515	3.168	-4.798	-0.816	0.173		-1.314*
African females versus non-African females (Ref)						0.931	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	-0.949	-0.302	0.286	1.481	0.013		0.203
Religious	-0.904	0.451	-0.408	1.481	0.019		-0.287
Very Religious	-0.558	2.183	-1.217	1.481	0.057		-0.494
High language proficiency	1.135	-2.150	-2.440	1.481	0.114		-0.928
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	0.000	----	----		----
2 to 4 partners	0.079	1.600	0.127	1.481	0.006		0.067
5 to 9 partners	-1.422	2.126	-3.023	1.481	0.141		-1.101
10 or more partners	-2.222	0.776	-1.725	1.481	0.080		-0.674
Number of sex partners, past year							
0 partners	0.000	0.000	0.000	----	----		----
1 partner	0.642	1.202	0.772	1.481	0.036		0.457
2 or more partners	2.224	1.419	3.157	1.481	0.147		1.119
HIV knowledge score	2.149	3.168	6.808	1.481	0.317		1.721*
Non-African males versus non-African females						0.946	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	-0.359	-0.302	0.108	0.969	0.006		0.098
Religious	-1.966	0.451	-0.886	0.969	0.049		-0.394
Very Religious	-1.986	2.183	-4.335	0.969	0.240		-1.391*
High language proficiency	0.188	-2.150	-0.404	0.969	0.022		-0.170

Table 5.3: Results from Weighted^a Mediation Analyses of Potential Mediators of Relationships Between Markers of SSP and Testing for HIV in the Past Year among African, Caribbean and Other Black People in London, Ontario, Canada

<i>Markers of SSP Mediators</i>	z_u^a	z_p^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	1.518	1.600	2.429	0.969	0.135		1.003
5 to 9 partners	0.506	2.126	1.075	0.969	0.060		0.447
10 or more partners	0.360	0.776	0.280	0.969	0.016		0.213
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	-2.045	1.202	-2.459	0.969	0.136		-0.955
2 or more partners	0.922	1.419	1.308	0.969	0.073		0.666
HIV knowledge score	-1.197	3.168	-3.791	0.969	0.210		-1.074
<i>African males versus non-African females (Ref)</i>						0.835	
Religiosity							
Not religious at all	0.000	0.000	----	----	----		----
Not very religious	-1.353	-0.302	0.408	1.405	0.020		0.239
Religious	-1.122	0.451	-0.506	1.405	0.052		-0.322
Very Religious	-0.050	2.183	-0.109	1.405	0.011		-0.046
High language proficiency	0.410	-2.150	-0.882	1.405	0.090		-0.367
Number of sex partners, lifetime							
0 or 1 partner	0.000	0.000	----	----	----		----
2 to 4 partners	0.251	1.600	0.401	1.405	0.041		0.211
5 to 9 partners	0.141	2.126	0.300	1.405	0.031		0.128
10 or more partners	-0.177	0.776	-0.137	1.405	0.014		-0.107
Number of sex partners, past year							
0 partners	0.000	0.000	----	----	----		----
1 partner	-0.878	1.202	-1.056	1.405	0.108		-0.589
2 or more partners	0.834	1.419	1.184	1.405	0.121		0.615
HIV knowledge score	1.064	3.168	3.370	1.405	0.345		0.966

^a Weighted for age, ethnicity, education level, and sex.

^b Calculated for each mediator.

^T Total mediated proportion. Calculated by including all mediators being assessed in the analysis.

‡ Includes people who arrived on temporary worker, visitor and student visas; non-status individuals; and individuals who did not know their immigration class.

** Significant at the $\alpha=0.05$ level

* Approaches statistical significance at the $\alpha=0.10$ level

5.4. Discussion

This exploratory study found that markers of SSP, socio-demographic factors, sexual history factors, and knowledge about HIV were determinants of testing for HIV in the past year among ACB people. With regards to markers of SSP, immigration status and immigration class upon arrival in Canada were potential determinants of testing for HIV in the past year. In both cases, groups who theoretically had the highest SSP had one of the lower prevalences of testing for HIV in the past year. Hence, these results are incompatible with prevailing perceptions that lower SSP is associated with higher HIV risk. However, they are consistent with the broader literature on HIV testing in ACB

communities and other communities of ethno-racial minorities in the United States of America,^{43–45} United Kingdom,¹⁴ Portugal,^{46,47} the Netherlands,⁴⁸ and South Africa¹³ showing that people with higher SSP are less likely to have an HIV test than people with lower SSP. Furthermore, this study's results are consistent with another that found gradients for HIV risk behaviours and markers of SSP within the local ACB population.⁴⁹ The direction of the gradient might mean that HIV testing efforts targeting ACB immigrants with low SSP have been successful, as evidenced by the higher estimated prevalences of HIV testing among these groups. Alternatively, these results might indicate that efforts to increase HIV testing in ACB communities are not targeting the people who need them most—those with high SSP. Additionally, testing efforts should target non-African females and African males.

Based on Model 1 (the model containing only markers of SSP and socio-demographic factors), ethnicity interacted with gender and poverty status to impact testing for HIV in the past year. It appeared that African males and females were more likely to test for HIV in the past year than non-African males and females. An integrated review of factors associated with HIV testing in Canadian and British heterosexual adults found that being of African descent and being female were separately associated with HIV testing.⁵⁰ The results from this present study show that the combined effect of gender and ethnicity on HIV testing is greater than the sum of their individual effects. This observation is consistent with Intersectionality Theory, which hypothesizes that markers of SSP, even when they are individually associated with disadvantage, when combined, may confer certain advantages to particular groups.⁵¹ In this study's case, Africans appeared to face fewer barriers to, or had greater access to facilitators of, HIV testing than non-Africans. However, the degree of the advantage Africans had differed by gender—non-African males may have faced more barriers to HIV testing than African males. It is important to account for this complexity when designing interventions.

Immigrating to Canada appears to be causally related to having had an HIV test in the past year. Newer immigrants were more likely to have had an HIV test than longer-term immigrants, which suggests that there are factors that may facilitate their access to HIV testing services. However, these factors may not be present among, or available to, longer-term immigrants. For instance, there is an HIV outreach worker in London,

Ontario who provides information about HIV testing and education about HIV to new immigrants. Additionally, while there are health and social services and programs that are targeted to new immigrants, none is targeted to longer-term immigrants. ACB immigrants tend to be from countries where HIV is endemic,⁵² and these countries tend to have HIV prevention initiatives that promote HIV testing to the broader population. It is therefore likely that newer immigrants are bringing HIV testing practices from their countries of origin with them when they immigrate.

Model 2 (the model containing markers of SSP, socio-demographic factors, and proximate determinants) from this study also provided new insights and confirmed the importance of some well-known proximate determinants that mediated relationships between markers of SSP and testing for HIV in the past year. Although this study found that the number of sex partners one had in one's lifetime was associated with testing for HIV in the past year, which is consistent with results from other studies,¹¹ the direction of the relationship is not consistent, however. We found that people who had more than one sex partner in their lifetimes were more likely to have been tested for HIV than those who had no partners or one partner. However, those who had two to nine sex partners in their lifetimes appeared to be more likely to have been tested than those who had 10 or more partners. It is likely that people with a high number of lifetime sex partners perceive their risk to be lower than it actually is. There is evidence that the perception of personal risk is a stronger determinant of HIV testing than number of sex partners.⁵³ Education about HIV is a major component of many prevention efforts for ACB people in Ontario, and this study's findings suggest that education about HIV has a positive impact on HIV prevention in this population. Also, contrary to some service providers' beliefs, having higher English language proficiency appeared to be associated with not having an HIV test in the past year. This may be valuable information for service providers as they design and evaluate their HIV testing interventions.

The inconsistencies between the results from this study and those from others do not reflect poorly on this study. Notably, a limitation in the literature, and probably a major source of inconsistency between this study and others, is that most studies focus on ever testing for HIV rather than on testing for HIV in the past year. Since 2002, people aged 15 years and older who wish to immigrate to Canada have had to undergo

mandatory HIV testing.⁵⁴ Therefore, within the Canadian context, the factors impacting ever testing for HIV and testing for HIV in the past year may differ within populations with a high proportion of newer immigrants, like Canada's ACB population⁷. Furthermore, the inconsistency of results across studies is expected, as the effect of each marker of SSP is specific to a population's social environment, which is partly created by cultural and societal values, public policies, and existing HIV interventions.¹⁶

Some factors impacting the HIV-specific social environment for ACB people locally include stigma and discrimination, the existence of HIV testing sites, and HIV prevalence. Despite knowing of the local AIDS service organization and reportedly wanting more information about HIV prevention, many local ACB people are reluctant to visit the organization or access its services.²² This aversion to being connected to the organization might be a manifestation of HIV-related stigma.⁹ Although there are HIV testing sites locally, they are mainly accessed by those who have access to information or are empowered.²² Locally, the prevalence of HIV infection was estimated to be 0.18% in the broader population and 2.0% in the ACB population in 2008,⁵⁵ which were much lower than the prevalence estimates for most African and Caribbean countries from which many ACB people originated. The low HIV prevalence can give some people a sense of security, which may be partly responsible for the low proportion of HIV-positive people who know their status.

The prevalence of testing for HIV in the past year among London, Ontario's ACB population (20.0%) was relatively high. There are approximately 420,000 HIV tests administered in Ontario annually,⁵⁶ and in 2011, over 9.4 million Ontarians were between 20 and 74 years old.⁵⁶ Thus, at most, approximately 4.5% of Ontarians have been tested for HIV in the past year. Hence, the prevalence of testing for HIV in the past year among ACB people in London, Ontario is much higher than the prevalence in the overall population. Despite this high prevalence of testing for HIV in the past year, it is estimated that only 55.5% of HIV-positive ACB people in Ontario had been diagnosed by 2009.⁵⁸ This indicates that the frequency of testing for HIV in the past year needs to increase in some ACB groups that have lower rates of testing. Furthermore, because the estimated prevalence of HIV infection in London's ACB population is higher than in the broader

London population, ACB Londoners might need to be tested at even higher rates than non-ACB Londoners.

This study used a social epidemiology approach to conceptualize and estimate relationships between markers of SSP and testing for HIV in the past year, and its results should be used to generate hypotheses. The paucity of information about SSP and HIV outside of Sub-Saharan Africa and the limited understanding about how SSP is related to HIV testing show that more research is needed in this area. We recommend conducting more focused studies to expand understanding about how individual markers of SSP impact testing and other HIV-related outcomes. Such studies could attempt to elucidate pathways through which each marker of SSP acts, thus identifying more areas for intervention and providing additional evidence to aid the design of interventions. Other research with this population showed that gender, poverty status, immigration experience, and employment status were related to HIV risk and protective behaviours, too.⁴⁹ Hence, the connection between markers of SSP and HIV prevention in ACB populations should be a priority area for future research. These findings underscore the importance of including multiple markers of SSP and their intersections in analyses. Such complex analyses may yield knowledge that can be used to create more appropriate, targeted interventions to increase yearly HIV testing. Lastly, future research should assess the relationships between markers of SSP and HIV incidence among ACB people. It will be useful to know if the groups that are more or less likely to have tested for HIV in the past year are also the groups that are more or less likely to be diagnosed with HIV.

5.4.1. Limitations

These results suffer from several limitations that may affect their validity and generalizability. For one, our response rate was 31.6%, which while low, was similar to that of a recent study with a comparable population.⁵⁹ That study provided monetary incentives and used interviewers to administer the questionnaire,⁵⁹ however, so this study performed comparatively well. Secondly, the sample was recruited using convenience sampling methods, hence it was not surprising that the sample was not representative of the underlying population. Despite adding weights to reduce this discrepancy, it is likely that there was still some selection bias due to lower participation among people who are at lower risk for HIV infection.⁶⁰ Since people who are less likely to engage in risk

behaviours and people with high levels of HIV stigma are also less likely to participate in these kinds of studies, the prevalences of HIV testing and HIV risk behaviours might be over-estimated in the sample. The study was not adequately powered to detect more statistically significant interactions between the markers of SSP or some main effects, because the sample size was small. In all, seven two-way interactions were assessed, and one approached significance in the crude model and Model 1. As mentioned previously, two-way interactions between immigration experience and gender and poverty status were not explored, but they may have been important.

The small sample size also impacted our ability to detect statistically significant mediation pathways and led to wide confidence intervals. The mediated proportions in this study ranged from 82.1% to 98.2%, which suggests that lack of power, not poor specification, was the reason for not detecting more statistically significant mediation pathways. This study assumed all mediators acted in parallel, but it is possible that some may have acted in series. A review of the literature did not provide insight into how the mediators should be modeled, so further exploratory analyses with complex mediation models may be warranted. Furthermore, some of the mediators might follow HIV testing. For example, pre- and post-test risk counselling that typically take place in conjunction with HIV testing can lead to behaviour changes.³ Such temporality issues are typical in cross-sectional studies.

Lastly, this study does not account for the potential impact of Canada criminalizing non-disclosure of HIV status. There is evidence showing that these punitive measures are disproportionately applied to ACB communities, especially ACB males.⁶¹ Although there are no studies looking at the relationship between criminalization of HIV status non-disclosure to HIV testing, experts in the field hypothesize that these laws might deter some people from testing for HIV infection.⁶²

5.5. Conclusion

The results from this study will be useful for designing more targeted, evidence-informed public health interventions to increase HIV testing among ACB people. Strategies may need to be revised or designed to better identify those who are most likely to be infected and link ACB people to existing HIV testing services. These strategies may be more effective if they recognize the diversity within the population, identify specific

groups in which testing needs to increase, and address population-specific issues related to testing. Efforts to target groups of ACB people and link them to HIV testing services may require the formation of intersectoral partnerships and community-based efforts,^{16,63,64} which can be useful for addressing contextual factors that are related to lower rates of HIV testing and for reaching ACB people with higher SSP. Interventions to promote yearly HIV testing should include components focused on increasing knowledge about HIV transmission, because the evidence suggests that higher knowledge about HIV is associated with HIV testing. Lastly, it is important to stress that the likelihood of being exposed to HIV increases as a person's number of lifetime sex partners increases. The fact that the markers of SSP were almost fully mediated by the proximate determinants suggests that their impacts on HIV testing can be addressed through interventions focused on the proximate determinants.

5.6. References

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Chapter 6 : Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in a Canadian City: Results from the BLACCH Study

6.1. Background

Condoms are biomedical tools that reduce the risk of contracting HIV and other sexually transmitted infections (STIs).¹ They decrease the efficiency with which HIV is transmitted during sexual intercourse,^{2,3} a fact that has been acknowledged by public health officials,^{1,2} and the Supreme Court of Canada.⁴ A systematic review showed that using male condoms leads to an 80% reduction in HIV transmission.² As barriers, condoms lessen exposure to HIV.^{1,2} At about \$0.25 per condom, condom distribution is cost-effective,⁵ and it saves millions of health care dollars.^{1,6} Hence, condoms are important and practical HIV and STI prevention devices in Canada for various population groups.

This paper focuses on the frequency of condom use in an African, Caribbean, and other Black (ACB) population in Canada—an area that has been under-researched. Canadian epidemiologic data show that ACB people are at greater risk for HIV infection than other Canadians, and ACB heterosexuals are approximately 12.6 times as likely to be HIV-positive as other Canadians.⁷ Furthermore, most infections in this population are due to sexual exposures.⁸ It is therefore important to increase the frequency with which condoms are used in this population, which requires an understanding of the factors that are associated with the frequency of condom use amongst ACB people. Increasing the frequency of condom use is important for risk reduction,^{1,2} which entails moving people from higher risk levels to lower ones—it recognizes the continuous nature of risk.

Although not based in Canada, studies focused on condom use amongst ACB people in other countries have identified a number of factors that are associated with condom use. Social factors that were identified include gender and education.^{9,10} Marital status and partnership factors, such as partner type and concurrent partnerships, were also found to be associated with condom use among ACB people.^{11,12} Studies involving ACB people in the United States of America (USA) found that having a past STI diagnosis,

mixing sex with drugs or alcohol, and accessing a health care provider in the past year were associated with condom use.^{9,13} A Canadian study found that condom use was associated with the number of lifetime sex partners a person had and a person's knowledge about HIV transmission, but that study focused solely on Aboriginal communities.¹⁴

Since the literature on social determinants of condom use is sparse, this study uses the World Health Organization's framework for the social determinants of health (SDOH) to identify potential social determinants of condom use. The framework is based on the social production of disease and political economy of health theories.¹⁵ As per the framework, this paper focuses on markers of social status and position (SSP), which are SDOH that are associated with social stratification. The framework is based on the hypothesis that markers of SSP act through proximate factors to impact condom use. According to Intersectionality Theory, markers of SSP can act individually or together to impact proximate factors, so it is important to examine multiple markers of SSP simultaneously, and if possible, look at their interactions/ intersections.^{16,17} The conceptual framework underlying these analyses is shown in Figure 6.1.

Using guidance from the conceptual framework and the literature, this exploratory paper will identify social and proximate determinants of the frequency of condom use within the past year among ACB Canadians. This information can help to identify groups of ACB people in need of targeted interventions to increase condom use. Additionally, this paper will identify pathways through which the social determinants impact the frequency of condom use. Such information is useful for developing effective interventions.

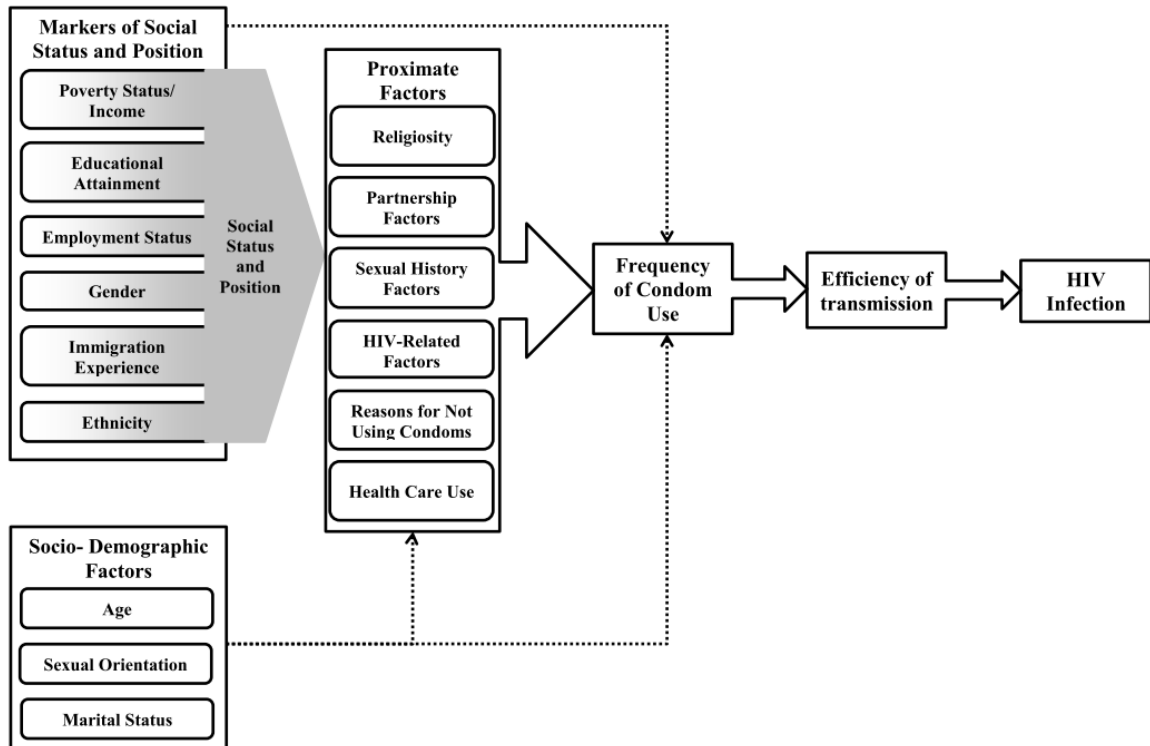


Figure 6.1: Conceptual Framework Depicting the Relationship between Markers of Social Status and Position and the Frequency of Condom Use

6.2. Methods

This study was conducted using a community-based research approach, in which there was an equitable partnership among community members, service providers, and researchers.¹⁸ The research team consisted of ACB people and their allies. The Lead Principal Investigator was an ACB person, and ACB people comprised at least half of the research team. ACB people were involved in all stages of the research.

6.2.1. Sample and Procedures

This research uses data from Phase II of the Black, African and Caribbean Canadian Health (BLACCH) Study—a cross-sectional, self-administered survey about health and HIV.²¹ Convenience sampling (i.e. venue-based sampling, snowballing, and advertising) was used to reach a cross-section of the ACB community. The research team recruited most participants directly through venue-based sampling. Of the 595 French and English questionnaires distributed, 188 (31.6%) were returned. Individuals who declined to participate in the study cited the sensitive nature of some survey questions and the length of the survey as reasons for their non-participation.

Based on Dillman’s Tailored Design Method for mail and Internet surveys, the authors adopted a number of strategies to enhance recruitment.²² Such strategies relied on building relationships between the research team and the ACB community—the project was community-based, participants were recruited directly by the research team or members of their social networks, and each participant received information about how the research would benefit the community. Each potential participant received a survey package containing: the questionnaire, an addressed and stamped return envelope, a postcard for those who wanted to maintain contact with the research team, an information and consent letter, and a letter explaining the contents of the envelope. Those who provided their contact information received bi-weekly reminder phone calls and e-mails.

6.2.2. Measures

The BLACCH Study’s questionnaire was used to collect self-reported information about the frequency of condom use, markers of SSP, and proximate factors related to condom use. The frequency of condom use was the outcome variable for the regression models and mediation analyses.

Markers of SSP were the main predictor variables. They included: gender, poverty status, education, immigration class upon arrival in Canada, current immigration status, amount of time in Canada, employment status, and ethnicity. The low-income cut-off (LICO) score, which is based on household income and the number of people supported by it, was used to determine poverty status.²³ We created four categories for immigration status. We grouped permanent residents and refugees, because they had legal status as immigrants. People with legal temporary resident statuses and people without legal status were combined in the “other” category. Respondents were assigned to an ethnicity grouping based on identity, birthplace, and ancestral origins. Decisions about ethnicity were made on a case-by-case basis. Non-students who were not regularly employed full-time or self-employed were defined as “irregularly employed”, and they were grouped with non-students who were not employed.

Socio-demographic factors included: age, sexual orientation identity, and marital status.

Religiosity and all other variables were proximate factors, which we treated as potential mediators of the relationships between markers of SSP and the frequency of

condom use. *Partnership factors* were: partner type, having a high risk partner (i.e. a partner who had concurrent partners or used injection drugs), having concurrent partners, having a partner who did not want to use condoms, wanting to have a child, and partners' ethnicities. Sex was defined as intercourse. *Sexual history factors* were: numbers of past-year and lifetime sex partners, previous STI diagnosis, using a contraceptive other than condoms, having a history of transactional sex, having a history of forced or unwanted sex, and mixing sex with drugs or alcohol. *HIV-related factors* were: knowing one's HIV status, knowing one's partner's HIV status, knowledge about HIV transmission, frequency of exposure to HIV prevention messages, and perceived level of HIV risk within the local ACB community. Knowledge about HIV transmission and prevention was assessed using the 18-item HIV Knowledge Questionnaire with two additional items.²⁴ HIV knowledge score was calculated by summing the correct responses to the questionnaire's items. The frequency of exposure to HIV prevention messages was dichotomized as rarely (rarely, very rarely) and often (all other categories) for the regression analyses. *Reasons for using or not using condoms* were: sex was too exciting, not having a condom, condoms being unaffordable, not knowing where to buy condoms, embarrassment about using condoms, disliking condoms, having sex with a regular partner, not having HIV or an STI, and not thinking one's partner had HIV or an STI. *Health care use* was defined as having contact with a health care provider in the past year.

6.2.3. Statistical Analysis

All analyses were weighted and performed using SAS 9.3.²⁵ The weights helped to reduce selection bias, and they were calculated based on sex, age, education, and ethnicity data from the Census for London's ACB population. These were non-response weights that were based on the probability of being included in the sample.^{26,27} They were normalized so that they summed to the size of the sample, thus ensuring accurate standard errors.²⁸

Respondents for whom data on markers of SSP and condom use were missing were excluded from the analyses. When data were missing for proximate factors, they were imputed with the median value or most frequent categorical value, as appropriate. Variables with the greatest degree of missingness (7.2%) also had low cell counts and

were excluded from the regression analyses. The imputed dataset was not used for descriptive analyses.

Univariate frequencies and weighted prevalence estimates were calculated for the sample and local population, respectively. Dichotomous variables with fewer than 10 respondents per category were excluded from further analyses. The frequency of condom use was regressed on all the other variables for the crude proportional odds ordinal logistic regression analyses using maximum likelihood estimation. The adjusted analyses were conducted in two stages. In the first stage, all markers of SSP and socio-demographic variables were entered into a proportional odds ordinal logistic regression model, as Harrell recommends,²⁹ and automated backward elimination with a critical point of 0.15 reduced the number of variables in the model and prevented over-fitting.²⁹ The sample size was too small to assess interactions/ intersectionality. The p-value for the Score test for the proportional odds assumption for this model (Model 1) was 0.215. In the second stage, Model 2 was created by adding the predictors from Model 1 and the proximate determinants to a proportional odds logistic regression model and performing automated backward elimination with a critical point of 0.15. The proportional odds assumption for the remaining model was valid, based on the results from the corresponding Score test (p=0.567).

The markers of SSP and socio-demographic factors from Model 1 and the proximate determinants from Model 2 were used in mediation analyses, which followed a version of Baron and Kenny's Causal Steps approach that was adapted to use categorical variables.³⁰ The proximate determinants were treated as mediators and regressed on all markers of SSP and socio-demographic variables from Model 1 and all proximate determinants from Model 2 to estimate the effect of each marker of SSP on each mediator (α). The frequency of condom use was regressed on all predictors to estimate the effect of each mediator on the outcome (β), and the extent to which the markers of SSP were related to the frequency of condom use after controlling for the mediators, other markers of SSP, and socio-demographic factors (c'). The product of α and β ($\alpha\beta$) estimated the indirect effect through each path.³⁰ Standardized regression coefficients for each path (i.e. z_{α} , z_{β} , $z_{\alpha\beta}$, and $z_{c'}$) were used to assess mediation. Although having a partner who did not want to use condoms and not having condoms were controlled for in the mediation

analyses, mediation pathways passing through these two factors were not examined. They had zero cell counts for some markers of SSP, so the estimated effects of some markers of SSP on them (α) had very large standard errors. Mediated proportions (MPs), which quantify the amount of effect occurring through individual and combined paths, were calculated using the following formula: $MP = \left(\frac{|Z_{\alpha_1\beta_1}| + |Z_{\alpha_2\beta_2}| + \dots + |Z_{\alpha_n\beta_n}|}{|Z_{\alpha_1\beta_1}| + |Z_{\alpha_2\beta_2}| + \dots + |Z_{\alpha_n\beta_n}| + |Z_{c'f}|} \right)$.^{31,32}

Statistical significance was determined from the $Z_{mediation}$ test that Iacobucci developed—it uses standardized coefficients to compute a z-statistic that can be tested against the standard normal curve.³³ Mediation was assessed using binary and ordinal logistic regression.³³ It must be noted that the first step in the traditional Baron and Kenny was not followed because recent studies have proven it unnecessary.³⁴

The Non-Medical Research Ethics Board at The University of Western Ontario approved the study's protocol.

6.3. Results

6.3.1. Descriptive Characteristics

The 125 participants included in these descriptive analyses were very diverse. Among them, 53.5% reported never using condoms during sexual intercourse in the last year, 31% reported using condoms sometimes, and 15.5% reported using condoms all the time. The weighted prevalence estimates for the three frequencies of condom use in the population were 58.9% (95% CI: 45.1, 71.5) for never, 20.6% (95% CI: 13.4, 30.2) for sometimes, and 20.5% (95% CI: 10.7, 35.6) for always. Additional information about the sample and weighted prevalence estimates is provided in Table 6.1.

Table 6.1: Unweighted and Weighted Descriptive Statistics for Potential Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Markers of Social Status and Position		
Gender		
Female	70 (56.0)	43.2 (31.5, 55.8)
Male	55 (44.0)	56.8 (44.2, 68.5)
Poverty status		
Below LICO	31 (26.3)	24.8 (15.0, 38.1)
Above LICO	87 (73.7)	75.2 (61.9, 85.0)
Education		
No post-secondary education	23 (18.4)	47.6 (34.6, 61.0)
Post-secondary education up to bachelor's degree	72 (57.6)	43.6 (32.0, 56.0)
Above bachelor's degree	30 (24.0)	8.7 (4.9, 15.0)

Table 6.1: Unweighted and Weighted Descriptive Statistics for Potential Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Immigration status, current		
Other [^]	10 (8.3)	6.1 (2.7, 13.2)
Permanent Resident or Refugee	24 (19.8)	21.0 (10.8, 36.9)
Naturalized Canadian citizen	65 (53.7)	50.9 (37.9, 63.8)
Canadian born	22 (18.2)	22.0 (13.3, 34.3)
Immigration class, at time of immigration		
Other ‡	21 (17.4)	12.7 (7.2, 21.2)
Refugee	33 (27.3)	20.3 (13.1, 30.0)
Immigrant	45 (37.2)	45.0 (32.1, 58.6)
Canadian born	22 (18.2)	22.0 (13.3, 34.3)
Time in Canada		
0-5 years	22 (18.3)	12.7 (7.4, 21.0)
>5 – 15 years	34 (28.3)	25.4 (14.4, 40.6)
>15 years	42 (35.0)	39.2 (27.5, 52.3)
Canadian-born	22 (18.3)	22.7 (13.7, 35.2)
Ethnicity		
Canadian or Other	8 (6.4)	13.6 (5.2, 30.9)
Caribbean	49 (39.2)	53.7 (40.7, 66.2)
African	68 (54.4)	32.7 (23.3, 43.7)
Employment status		
Not employed or irregularly employed+	26 (21.0)	28.9 (17.0, 44.7)
Student	45 (36.3)	28.6 (19.3, 40.3)
Full-time or self-employed	53 (42.7)	42.5 (30.5, 55.4)
Socio-Demographic Factors		
Age group		
≤24 years old	17 (14.2)	9.0 (5.1, 15.5)
25-34 years old	28 (23.3)	15.5 (9.5, 24.1)
35-44 years old	31 (25.8)	22.6 (13.7, 34.9)
45-54 years old	29 (24.2)	31.0 (19.0, 46.2)
≥55 years old	15 (12.5)	21.9 (12.1, 36.5)
Marital status		
Married or living common-law	55 (46.2)	46.5 (33.6, 59.8)
Previously married	21 (17.7)	20.3 (12.2, 31.8)
Never married	43 (42.7)	33.3 (22.6, 45.9)
Sexual orientation identity		
Sexual orientation minority	13 (10.5)	8.7 (4.6, 15.7)
Heterosexual	111 (89.5)	91.3 (84.3, 95.4)
Proximate Factors		
Religiosity		
Not religious at all	15 (12.7)	11.7 (6.5, 20.2)
Not very religious	29 (24.6)	21.4 (12.8, 33.4)
Religious	54 (45.8)	48.3 (35.3, 61.6)
Very religious	20 (17.0)	18.6 (10.6, 30.6)
Having a cohabiting regular partner, past year		
No	50 (40.0)	43.9 (31.5, 57.1)
Yes	75 (60.0)	56.1 (42.9, 68.5)
Having a non-cohabiting regular partner, past year		
No	82 (65.6)	63.4 (49.1, 75.7)
Yes	43 (34.4)	36.6 (24.3, 50.9)
Having a casual partner, past year		
No	88 (70.4)	62.4 (48.7, 74.3)
Yes	37 (29.6)	37.6 (25.7, 51.3)
Having a high risk partner, past year		
No	58 (48.7)	41.1 (29.1, 54.2)
Yes	7 (5.9)	5.6 (2.4, 12.2)
Don't know	54 (45.4)	53.4 (40.1, 66.2)

Table 6.1: Unweighted and Weighted Descriptive Statistics for Potential Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Having concurrent partners, past year		
No	95 (79.2)	71.7 (57.3, 82.6)
Yes	19 (15.8)	23.1 (13.0, 27.5)
Don't know	3 (2.5)	1.7 (0.5, 5.9)
Rather not say	3 (2.5)	3.6 (0.9, 13.7)
Having a partner who did not want to use condoms, past year		
No	91 (88.4)	84.4 (70.9, 92.3)
Yes	12 (11.7)	15.6 (7.7, 29.1)
Wanting to have a child, past year		
No	98 (95.2)	94.8 (81.2, 98.7)
Yes	5 (4.9)	5.2 (1.3, 18.8)
Partners' ethnicities, past year		
No ACB partners	23 (20.0)	26.9 (15.5, 42.5)
Some ACB partners	11 (9.6)	16.5 (8.2, 30.3)
All ACB partners	76 (66.1)	47.2 (34.3, 60.4)
Rather not say	5 (4.4)	9.5 (3.1, 25.8)
Number of sex partners, past year		
1 partner	78 (63.9)	52.9 (39.4, 66.0)
2 partners	27 (22.1)	31.0 (18.6, 46.8)
3 or more partners	17 (13.9)	16.1 (5.6, 28.3)
Number of sex partners, lifetime		
1 partner	10 (8.6)	10.9 (3.3, 30.2)
2 to 4 partners	48 (41.0)	34.3 (23.7, 46.7)
5 to 9 partners	27 (23.1)	19.8 (11.8, 31.1)
10 to 19 partners	16 (13.7)	20.4 (10.9, 34.8)
20 or more partners	16 (13.7)	14.8 (7.7, 26.4)
Diagnosed with an STI, ever		
No	75 (68.2)	62.3 (49.5, 73.6)
Yes	35 (31.8)	37.7 (26.4, 50.5)
Using a birth control other than condoms		
No	22 (21.2)	19.4 (10.8, 32.2)
Yes	82 (78.9)	80.6 (67.8, 89.2)
Having a history of transactional sex		
No	114 (95.8)	96.2 (90.7, 98.5)
Yes	5 (4.2)	3.8 (1.5, 9.3)
Having a history of forced or unwanted sex		
No	86 (72.3)	63.8 (50.1, 75.5)
Yes	30 (25.2)	27.2 (17.7, 39.4)
Don't know	1 (0.8)	0.4 (<0.1, 3.9)
Rather not say	2 (1.7)	8.5 (2.3, 26.7)
Mixing sex with drugs or alcohol, ever		
No	64 (53.3)	52.3 (38.9, 65.4)
Yes	56 (46.7)	47.7 (34.6, 61.1)
Knowing one's HIV status		
No	32 (26.5)	32.7 (20.5, 47.6)
Yes	87 (71.9)	61.8 (46.8, 74.8)
Rather not say	2 (1.7)	5.6 (1.1, 23.3)
Knowing one's partner's HIV status		
No	45 (40.2)	44.3 (30.7, 58.9)
Yes	62 (55.4)	46.7 (33.4, 60.5)
Rather not say	5 (4.5)	9.0 (2.7, 25.7)
HIV knowledge score		
0 to 5	0 (0.00)	
6 to 10	3 (2.8)	9.5 (2.2, 32.6)
11 to 15	25 (22.9)	31.7 (20.4, 45.7)
16 to 20	81 (74.3)	58.8 (43.5, 72.5)

Table 6.1: Unweighted and Weighted Descriptive Statistics for Potential Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Potential Predictors	Sample Distribution n (%)	Population Distribution wPrev ^a (95% CI)
Frequency of exposure to HIV prevention messages		
Very rarely	22 (19.0)	15.5 (8.5, 26.5)
Rarely	31 (26.7)	26.0 (16.5, 38.5)
Neither rarely nor often	20 (17.2)	16.7 (8.6, 29.9)
Often	25 (21.6)	19.7 (11.9, 30.8)
Very often	18 (15.5)	22.1 (11.4, 38.5)
Perceived level of community's HIV risk		
Low	2 (1.7)	1.4 (0.4, 5.7)
Medium	18 (15.7)	17.7 (9.9, 29.8)
High	95 (82.6)	80.8 (68.8, 89.0)
Did not use condoms because the sex was too exciting, past year		
No	97 (94.2)	95.5 (89.5, 98.1)
Yes	6 (5.8)	4.5 (1.9, 10.5)
Not having a condom, past year		
No	92 (89.3)	88.9 (77.1, 95.0)
Yes	11 (10.7)	11.1 (5.0, 22.9)
Not able to afford a condom, past year		
No	103 (100.0)	---
Yes	0 (0.0)	
Not knowing where to get a condom, past year		
No	103 (100.0)	---
Yes	0 (0.0)	
Embarrassed about getting condoms, past year		
No	103 (100.0)	---
Yes	0 (0.0)	
Disliking condoms		
No	90 (87.4)	82.3 (62.9, 92.7)
Yes	13 (12.6)	17.7 (7.3, 37.1)
Having sex with a regular partner		
No	14 (13.6)	14.5 (7.2, 26.9)
Yes	89 (86.4)	85.5 (73.1, 92.8)
Not having HIV or an STI		
No	82 (79.6)	79.0 (66.4, 87.7)
Yes	21 (20.4)	21.0 (12.3, 33.6)
Not thinking partner had HIV or an STI		
No	74 (71.8)	80.3 (70.1, 87.6)
Yes	29 (28.2)	19.7 (12.4, 29.9)
Saw a health care provider, past year		
No	19 (15.5)	11.3 (6.5, 18.9)
Yes	104 (84.6)	88.7 (81.2, 93.5)
Frequency of condom use, past year		
Never	62 (53.5)	58.9 (45.1, 71.5)
Sometimes	36 (31.0)	20.6 (13.4, 30.2)
Always	18 (15.5)	20.5 (10.7, 35.6)
wPrev ^a Population prevalence weighted for age, ethnicity, education level, and sex.		
^ Includes temporary workers, students and non-status individuals.		
‡ Includes people who arrived using temporary worker, visitor, and student visas; non-status individuals; and individuals who did not know their immigration class.		
+ Includes those who do not fall into the other three categories, but are: unemployed; or employed occasionally, seasonally, or part-time.		
LICO= low-income cut-off		
wPrev= Weighted prevalence		
STI= sexually transmitted infection		

6.3.2. Determinants of the Frequency of Condom Use

Results from the crude and adjusted ordinal logistic regression analyses are presented in Table 6.2. These adjusted models included 111 individuals who had complete data for the markers of SSP and the frequency of condom use. This section highlights statistically significant results (i.e. $p \leq 0.05$) and those that approach significance (i.e. $p \leq 0.10$).

6.3.2.1. Crude Models

The markers of SSP that were significantly associated with the frequency with which condoms were used were gender ($p=0.050$), poverty status ($p=0.001$), immigration status ($p=0.006$), the amount of time spent in Canada ($p=0.005$), and employment status ($p=0.006$). The odds of using condoms sometimes or all the time was twice as high among males as among females (95% CI: 1.00, 4.29), people who were not living in poverty used condoms less frequently (POR=0.26; 95% CI: 0.12, 0.58), and students (POR=3.86; 95% CI: 1.60, 9.31) and people who were irregularly employed or not employed (POR=3.02; 95% CI: 1.25, 7.29) used condoms more frequently than people who had full-time employment or were self-employed. When immigration experience was considered, new immigrants and people with precarious immigration statuses used condoms more frequently than other groups. New immigrants (five years or less in Canada) used condoms more frequently than those who had been in Canada for five to 15 years (POR=0.14; 95% CI: 0.04, 0.53) and those who had been in Canada for over 15 years (POR=0.15; 95% CI: 0.06, 0.56). People with precarious immigration statuses used condoms more frequently than people who were born in Canada (POR=0.12; 95% CI: 0.02, 0.76), naturalized Canadian citizens (POR=0.07; 95% CI: 0.01, 0.39), and people who were permanent residents or refugees (POR=0.04; 95% CI: 0.01, 0.27).

All of the socio-demographic factors included in the analyses impacted the frequency of condom use. For each five-year increase in age, condom use became less frequent (POR=0.78; 95% CI: 0.66, 0.91). Similarly, condom use was least frequent among people who were married (reference), followed by those who had previously been married (POR=2.12; 95% CI: 0.68, 6.62). It was most frequent among those who had never been married (POR=7.97; 95% CI: 3.33, 19.04). The results also suggested that

heterosexuals used condoms more frequently than sexual orientation minorities (POR=5.00; 95% CI: 0.85, 29.31).

Most partnership factors were associated with the frequency of condom use in the crude models. Having cohabiting regular partners was associated with less frequent condom use ($p < 0.001$). However, having non-cohabiting regular partners ($p = 0.003$), casual partners ($p < 0.001$), and concurrent partners ($p < 0.001$) were associated with more frequent condom use. Partners' ethnicities were also associated with the frequency of condom use ($p < 0.001$)—people with ACB partners appeared to use condoms more frequently than people with no ACB partners. Compared to people who had no ACB partners, the frequency of condom use was highest among people who had both ACB and non-ACB partners (POR=8.92; 95% CI: 3.06, 25.98).

As with partnership factors, most factors related to one's sexual history were associated with the frequency of condom use in the crude models. The frequency of condom use was significantly higher among those with: more than one sex partner in the past year ($p = 0.001$), more than one sex partner in their lifetimes ($p < 0.001$), a history of forced or unwanted sex ($p < 0.001$), and a history of mixing sex with drugs or alcohol ($p < 0.001$). For people who had a history of forced or unwanted sex, the odds of using condoms sometimes or all the time was five times that of those who had no such history (95% CI: 2.41, 11.05).

Regarding HIV-related factors, knowing one's partner's HIV status was associated with less frequent condom use (POR 0.48; 95% CI: 0.24, 0.98), and more frequent exposure to HIV prevention messages was associated with higher frequency of condom use (POR 2.71; 95% CI: 1.30, 5.65) in the crude models.

Common reasons for not using condoms (i.e. not having a condom, disliking condoms, not having HIV or an STI, and not thinking one's partner had HIV or an STI) were not significantly associated with the frequency of condom use in the crude models, but disliking condoms approached significance ($p = 0.099$)—those who disliked condoms seemed less likely to use them.

6.3.2.2. Adjusted Model 1: Markers of SSP and Socio-Demographic Factors

When only markers of SSP and socio-demographic factors are considered, the same markers of SSP that were significantly associated with the frequency of condom use

in the crude models were independently associated with the frequency of condom use in the first adjusted model, Model 1. In the adjusted model, the strengths of relationships between the frequency of condom use and gender and employment status increased—the odds of using condoms sometimes or always was 16 times as high among males as among females (aPOR=16.47; 95% CI: 4.60, 59.05), and people who were not employed or who were employed irregularly used condoms even more frequently than those who were employed full-time or self-employed (aPOR=7.52; 95% CI: 1.71, 33.00). The relationship between poverty status and condom use was reversed in Model 1. After the adjustments, people who were not living in poverty used condoms more frequently than people who were (aPOR=4.50; 95% CI: 1.08, 18.83). The magnitudes of relationships between the frequency of condom use and the different dimensions of immigration experience went into different directions. While the relationship between immigration status and the frequency of condom use moved closer to the null (i.e. the PORs increased; $p=0.044$), the relationship between the frequency of condom use and the amount of time spent in Canada appeared to move further from the null (i.e. the PORs decreased; $p=0.074$).

Among the socio-demographic factors, age and marital status remained associated with the frequency of condom use in Model 1, but sexual orientation identity was eliminated from the model. The relationship between age and the frequency of condom use became more pronounced in the adjusted model than it was in the crude model—as age increased by five years, the odds of using condoms more frequently decreased by half (aPOR=0.48; 95% CI: 0.34, 0.69). In the adjusted model, compared to people who were married or living common-law, people who had previously been married used condoms more frequently (aPOR=17.61; 95% CI: 3.16, 98.05), and this estimate was larger than what had been observed in the crude model. However, in the adjusted model, while people who had never been married used condoms more frequently than those who were married or living common-law (aPOR=4.51; 95% CI: 1.09, 18.73), the estimated effect was closer to the null.

6.3.2.3. Adjusted Model 2: Proximate Determinants and Markers of SSP and Socio-Demographic Factors from Model 1

After adding proximate factors to Model 1 to create Model 2, gender and employment status were the only markers of SSP that remained in the model. However, while gender remained significant ($p=0.001$), and males still used condoms more frequently than females (aPOR=15.76; 95% CI: 2.94, 84.46), employment status was no longer significant or approached significance. The effects of the other markers of SSP appear to have been fully mediated by the proximate factors in Model 2.

While age remained in Model 2 and its relationship with the frequency of condom use became stronger (aPOR=0.39; 95% CI: 0.27, 0.57), marital status was eliminated from the model. This suggests that other variables in the model mediated the effect of marital status on the frequency with which condoms were used.

The partnership factors that were significant in Model 2 were having a cohabiting regular partner and having a partner who did not want to use condoms. Having a cohabiting regular partner was independently associated with a lower frequency of condom use (aPOR=0.05; 95% CI: 0.01, 0.30), but having a partner who did not want to use condoms was associated with using condoms more frequently (aPOR=7.54; 95% CI: 1.04, 54.62).

Among factors that are related to one's sexual history, the frequency of condom use was associated with the number of sex partners one had in her/ his lifetime ($p=0.009$) and having a history of forced or unwanted sex ($p=0.017$). Having one sex partner in one's lifetime appeared to be associated with more frequent condom use than having more than one sex partner in one's lifetime. Furthermore, having a history of forced or unwanted sex was associated with less frequent condom use than having no such history (aPOR=7.10; 95% CI: 1.43, 35.39). Although not significant, the results suggest that using other contraceptives was associated with less frequent condom use (aPOR=0.29; 95% CI: 0.07, 1.23).

Two commonly given reasons from not using condoms were significantly associated with the frequency of condom use in Model 2. Condom use was less frequent among those who reported that they did not use condoms because they had none on hand (aPOR=0.01; 95% CI: <0.01, 0.09). The frequency of condom use was also lower among

those who reported that they did not use condoms because they disliked them (aPOR=0.07; 94% CI: 0.01, 0.68).

Table 6.2: Results from Weighted^a Bivariate and Multivariable Regression Analyses of Predictors of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	POR (95% CI)	P-value	aPOR (95% CI)	P-value	aPOR (95% CI)	P-value
			R²_d = 0.5780		R²_d = 0.7808	
Markers of Social Status and Position						
Gender		0.050**		<0.001**		0.001**
Female	1.00		1.00		1.00	
Male	2.07 (1.00, 4.29)*		16.47 (4.60, 59.05)**		15.76 (2.94, 84.46)**	
Poverty status		0.001**		0.039**		
Below LICO	1.00		1.00			
Above LICO	0.26 (0.12, 0.58)**		4.50 (1.08, 18.83)**			
Education		0.652				
No post-secondary education	1.54 (0.40, 6.04)					
Post-secondary education up to bachelor's degree	1.14 (0.29, 4.49)					
Above bachelor's degree	1.00					
Immigration status, current		0.006**		0.044**		
Other [^]	1.00		1.00			
Permanent Resident or Refugee	0.04 (0.01, 0.27)**		0.08 (0.01, 1.13)*			
Naturalized Canadian citizen	0.07 (0.01, 0.39)**		0.59 (0.03, 14.01)			
Canadian born	0.12 (0.02, 0.76)**		0.21 (0.02, 2.61)			
Immigration class, at time of immigration		0.165				
Other [‡]	1.00					
Refugee	0.33 (0.09, 1.15)*					
Immigrant	0.37 (0.13, 1.08)*					
Canadian born	0.70 (0.21, 2.28)					
Time in Canada		0.005**		0.074*		
0-5 years	1.00		1.00			
>5 – 15 years	0.14 (0.04, 0.53)**		0.07 (0.01, 0.63)**			
>15 years	0.18 (0.06, 0.56)**		0.06 (<0.04, 0.97)**			
Canadian-born	0.51 (0.15, 1.70)		0.21 (0.02, 2.61)			
Ethnicity		0.728				
Non-African	1.00					
African	1.14 (0.55, 2.34)					

Table 6.2: Results from Weighted^a Bivariate and Multivariable Regression Analyses of Predictors of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	POR (95% CI)	P-value	aPOR (95% CI)	P-value	aPOR (95% CI)	P-value
			R² = 0.5780		R² = 0.7808	
Employment status		0.006**		0.025**		0.127
Not employed or irregularly employed+	3.02 (1.25, 7.29)**		7.52 (1.71, 33.00)**		2.58 (0.44, 15.26)	
Student	3.86 (1.60, 9.31)**		2.15 (0.63, 7.28)		0.35 (0.06, 2.05)	
Full-time or self-employed	1.00		1.00		1.00	
Socio-Demographic Factors						
Age, Mean (SD): 43.24 (12.47)						
5 year increase	0.78 (0.66, 0.91)**	0.002**	0.48 (0.34, 0.69)**	<0.001**	0.39 (0.27, 0.57)**	<0.001**
Marital status		<0.001**		0.004**		
Married or living common-law	1.00		1.00			
Previously married	2.12 (0.68, 6.62)		17.61 (3.16, 98.05)**			
Never married	7.97 (3.33, 19.04)**		4.51 (1.09, 18.73)**			
Sexual orientation identity		0.075*				
Sexual orientation minority	1.00					
Heterosexual	5.00 (0.85, 29.31)*					
Proximate Factors						
Religiosity		0.330				0.130
Not religious at all	1.00				1.00	
Not very religious	0.81 (0.23, 2.89)				0.20 (0.02, 1.81)	
Religious	0.46 (0.15, 1.43)				0.10 (0.01, 0.72)**	
Very religious	0.38 (0.09, 1.50)				0.07 (0.01, 1.04)*	
Having a cohabiting regular partner, past year		<0.001**				<0.001**
No	1.00				1.00	
Yes	0.07 (0.03, 0.17)**				0.05 (0.01, 0.30)**	
Having a non-cohabiting regular partner, past year		0.003**				
No	1.00					
Yes	2.93 (1.43, 6.01)**					
Having a casual partner, past year		<0.001**				
No	1.00					
Yes	7.40 (3.40, 16.08)**					
Having concurrent partners, past year		<0.001**				0.110
No	1.00				1.00	
Yes	7.51 (3.28, 17.20)**				4.36 (0.72, 26.48)	

Table 6.2: Results from Weighted^a Bivariate and Multivariable Regression Analyses of Predictors of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	POR (95% CI)	P-value	aPOR (95% CI)	P-value	aPOR (95% CI)	P-value
Having a partner who did not want to use condoms, past year		0.211				0.046**
No	1.00				1.00	
Yes	0.49 (0.16, 1.49)				7.54 (1.04, 54.62)*	
Partners' ethnicities		<0.001**				
No ACB partners	1.00					
Some ACB partners	8.92 (3.06, 25.98)**					
All ACB partners	2.13 (0.80, 5.70)*					
Number of sex partners, past year		0.001**				
1 partner	1.00					
2 partners	3.45 (1.54, 7.75)**					
3 or more partners	6.02 (2.19, 16.54)**					
Number of sex partners, lifetime		<0.001**				0.009**
1 partner	1.00				1.00	
2 to 4 partners	4.67 (0.71, 30.56)*				0.63 (0.03, 13.83)	
5 to 9 partners	7.03 (1.03, 47.95)**				0.42 (0.02, 10.70)	
10 to 19 partners	41.49 (5.85, 294.39)**				11.58 (0.46, 289.41)	
20 or more partners	3.18 (0.42, 24.33)				0.22 (0.01, 6.20)	
Diagnosed with an STI, ever		0.207				
No	1.00					
Yes	0.59 (0.25, 1.35)					
Using a birth control other than condoms		0.193				0.092*
No	1.00				1.00	
Yes	0.62 (0.31, 1.27)				0.29 (0.07, 1.23)*	
History of forced or unwanted sex		<0.001**				0.017**
No	1.00				1.00	
Yes	5.16 (2.41, 11.05)**				7.10 (1.43, 35.39)**	
Mixing sex with drugs or alcohol, ever		<0.001**				
No	1.00					
Yes	3.82 (1.83, 7.97)**					
Knowing one's HIV status		0.223				
No	1.00					
Yes	0.64 (0.31, 1.31)					

Table 6.2: Results from Weighted^a Bivariate and Multivariable Regression Analyses of Predictors of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	POR (95% CI)	P-value	aPOR (95% CI)	P-value	aPOR (95% CI)	P-value
Knowing one's partner's HIV status		0.043**				
No	1.00					
Yes	0.48 (0.24, 0.98)**					
HIV knowledge score Mean (SD): 15.69 (2.94)						
1 unit increase	1.09 (0.95, 1.25)	0.202				
Frequency of exposure to HIV prevention messages		0.008**				
Rarely	1.00					
Often	2.71 (1.30, 5.65)**					
Perceived level of community's HIV risk		0.234				
Low to medium	1.00					
High	1.79 (0.69, 4.64)					
Not having a condom, past year		0.321				<0.001**
No	1.00				1.00	
Yes	0.52 (0.15, 1.80)				0.01 (<0.01, 0.09)**	
Dislike condoms		0.099*				0.022**
No	1.00				1.00	
Yes	0.34 (0.09, 1.23)*				0.07 (0.01, 0.68)**	
Having sex with a regular partner		<0.001**				
No	1.00					
Yes	0.13 (0.06, 0.30)**					
Not having HIV or an STI		0.788				
No	1.00					
Yes	0.88 (0.35, 2.23)					
Does not think partner had HIV or an STI		0.774				
No	1.00					
Yes	1.15 (0.45, 2.94)					
Saw a health care provider, past year		0.233				
No	1.00					
Yes	0.53 (0.19, 1.50)					

Table 6.2: Results from Weighted^a Bivariate and Multivariable Regression Analyses of Predictors of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Predictors	Crude ^a		Model 1 ^b : Adjusted ^a		Model 2 ^c : Adjusted ^a	
	POR (95% CI)	P-value	aPOR (95% CI)	P-value	aPOR (95% CI)	P-value
			R² ^d= 0.5780		R² ^d= 0.7808	

^a Weighted for age, ethnicity, education level, and sex.
^b Model including just markers of social status and position and socio-demographic factors.
^c Model including variables from Model 1 and proximate factors.
^d Nagelkerke's maximum rescaled R² for multivariable model.
[^] Includes temporary workers, students and non-status individuals.
[‡] Includes people who arrived using temporary worker, visitor, and student visas; non-status individuals; and individuals who did not know their immigration class.
⁺ Includes those who do not fall into the other three categories, but are: unemployed; or employed occasionally, seasonally, or part-time.
****** Significant at the $\alpha=0.05$ level
***** Approaches significance at the $\alpha=0.10$ level
CI= Confidence interval
LICO= low-income cut-off
STI= sexually transmitted infection
Score test of global null hypothesis for Model 1: $p<0.001$
Score test of global null hypothesis for Model 2: $p<0.001$

6.3.3. Mediators of the Frequency of Condom Use

The mediation results presented in Table 6.3 show that some proximate determinants from Model 2 mediated the relationships between the frequency of condom use and the markers of SSP from Model 1. Based on the number of relationships in which they approached statistical significance (i.e. $|z_{mediation}|$ of $z_{\alpha\beta} \geq 1.282$, which corresponds to $p \leq 0.10$), having a cohabiting regular partner, using another form of contraceptive, and having a history of forced or unwanted sex were important mediators of the relationships between markers of SSP and the frequency of condom use. The relationship between gender and the frequency of condom use was mediated by having 10-19 sex partners in one's lifetime, using another form of contraceptive, and having a history of forced or unwanted sex. Using another form of contraceptive and having a cohabiting regular partner mediated the relationships between poverty status and the frequency of condom use. The relationships involving spending between five and 15 years in Canada and not being employed or being employed irregularly were mediated by having a cohabiting regular partner. The impact of being a student on the frequency of condom use was mediated by having a cohabiting regular partner and having a history of forced or unwanted sex. The mediators in the analyses accounted for 85.7% to 97.6% of the effects markers of SSP had on the frequency of condom use.

Table 6.3: Results from Weighted Mediation Analyses with Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Markers of SSP Mediators	z_{α}^a	z_{β}^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{mediation}$
Male versus Female (Ref)						0.872	
Having a cohabiting regular partner, past year	-1.092	-2.903	3.171	3.221	0.126		0.973
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	1.795	-0.794	-1.425	3.221	0.056		-0.647
10 to 19 partners	2.041	2.608	5.323	3.221	0.211		1.539*
20 or more partners	0.383	-1.501	-0.575	3.221	0.023		-0.312
Using a birth control other than condoms	-3.041	-1.659	5.044	3.221	0.200		1.399*
History of forced or unwanted sex	-2.190	2.581	-5.652	3.221	0.224		-1.601*
Dislike condoms	0.433	-1.900	-0.823	3.221	0.033		-0.376
Above LICO versus At or below LICO (Ref)						0.976	
Having a cohabiting regular partner, past year	-2.483	-2.903	7.206	-0.478	0.363		1.825*
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	0.553	-0.794	-0.439	-0.478	0.022		-0.315
10 to 19 partners	0.599	2.608	1.563	-0.478	0.079		0.547
20 or more partners	-0.588	-1.501	0.882	-0.478	0.044		0.465
Using a birth control other than condoms	-2.581	-1.659	4.282	-0.478	0.216		1.327*

Table 6.3: Results from Weighted Mediation Analyses with Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Markers of SSP Mediators	z_a^a	z_β^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
History of forced or unwanted sex	0.733	2.581	1.893	-0.478	0.095		0.661
Dislike condoms	1.645	-1.900	-3.125	-0.478	0.157		-1.155
>5 – 15 years versus 0-5 years (Ref)						0.881	
Having a cohabiting regular partner, past year	1.705	-2.903	-4.948	-1.429	0.410		-1.409*
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	0.178	-0.794	-0.141	-1.429	0.012		-0.109
10 to 19 partners	0.601	2.608	1.568	-1.429	0.130		0.549
20 or more partners	-0.106	-1.501	0.159	-1.429	0.013		0.088
Using a birth control other than condoms	0.869	-1.659	-1.442	-1.429	0.120		-0.679
History of forced or unwanted sex	-0.277	2.581	-0.716	-1.429	0.059		-0.257
Dislike condoms	0.870	-1.900	-1.653	-1.429	0.137		-0.713
> 15 years versus 0-5 years (Ref)						0.901	
Having a cohabiting regular partner, past year	-0.228	-2.903	0.662	-0.786	0.084		0.215
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	1.512	-0.794	-1.200	-0.786	0.151		-0.606
10 to 19 partners	0.516	2.608	1.344	-0.786	0.170		0.473
20 or more partners	0.654	-1.501	-0.982	-0.786	0.124		-0.512
Using a birth control other than condoms	0.786	-1.659	-1.303	-0.786	0.164		-0.624
History of forced or unwanted sex	-0.104	2.581	-0.267	-0.786	0.034		-0.096
Dislike condoms	-0.726	-1.900	1.379	-0.786	0.174		0.608
Canadian-born versus 0-5 years (Ref)						0.857	
Having a cohabiting regular partner, past year	-0.813	-2.903	2.361	-2.067	0.164		0.743
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	-1.318	-0.794	1.046	-2.067	0.073		0.570
10 to 19 partners	1.029	2.608	2.682	-2.067	0.186		0.901
20 or more partners	-0.283	-1.501	0.425	-2.067	0.029		0.233
Using a birth control other than condoms	0.692	-1.659	-1.148	-2.067	0.080		-0.558
History of forced or unwanted sex	0.482	2.581	1.244	-2.067	0.086		0.443
Dislike condoms	1.817	-1.900	-3.453	-2.067	0.239		-1.227
Permanent Refugee Class versus Other immigration status[^] (Ref)						0.897	
Having a cohabiting regular partner, past year	0.464	-2.903	-1.346	-1.212	0.115		-0.433
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	-1.807	-0.794	1.434	-1.212	0.122		0.648
10 to 19 partners	-0.634	2.608	-1.653	-1.212	0.141		-0.577
20 or more partners	-1.055	-1.501	1.583	-1.212	0.135		0.758
Using a birth control other than condoms	0.226	-1.659	-0.375	-1.212	0.032		-0.192
History of forced or unwanted sex	-0.789	2.581	-2.036	-1.212	0.173		-0.707
Dislike condoms	1.108	-1.900	-2.105	-1.212	0.179		-0.871
Naturalized Canadian citizen versus Other immigration status[‡] (Ref)						0.913	
Having a cohabiting regular partner, past year	0.415	-2.903	-1.204	-0.793	0.133		-0.389

Table 6.3: Results from Weighted Mediation Analyses with Social and Proximate Determinants of the Frequency of Condom Use among African, Caribbean, and Other Black People in London, Canada

Markers of SSP	z_{α}^a	z_{β}^a	$z_{\alpha\beta}^a$	z_c^a	MP ^b	MP ^T	$z_{\text{mediation}}$
Mediators							
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	-1.859	-0.794	1.475	-0.793	0.163		0.654
10 to 19 partners	-0.689	2.608	-1.798	-0.793	0.198		-0.625
20 or more partners	-0.548	-1.501	0.822	-0.793	0.091		0.436
Using a birth control other than condoms	0.621	-1.659	-1.030	-0.793	0.114		-0.506
History of forced or unwanted sex	-0.682	2.581	-1.761	-0.793	0.194		-0.618
Dislike condoms	0.100	-1.900	-0.189	-0.793	0.021		-0.088
Not Employed or Irregularly employed+ versus Full-time or self-employed (Ref)						0.968	
Having a cohabiting regular partner, past year	-2.170	-2.903	6.299	0.677	0.297		1.676*
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	-2.058	-0.794	1.634	0.677	0.077		0.674
10 to 19 partners	-1.139	2.608	-2.970	0.677	0.140		-0.985
20 or more partners	-1.436	-1.501	2.155	0.677	0.102		0.935
Using a birth control other than condoms	-1.351	-1.659	2.241	0.677	0.106		0.949
History of forced or unwanted sex	0.854	2.581	2.205	0.677	0.104		0.761
Dislike condoms	1.576	-1.900	-2.995	0.677	0.141		-1.124
Student versus Full-time or self-employed (Ref)						0.911	
Having a cohabiting regular partner, past year	-2.171	-2.903	6.300	-1.802	0.311		1.676*
Number of sex partners, lifetime							
1 to 4 partners	0.000	0.000	----	----	----		----
5 to 9 partners	-0.290	-0.794	0.230	-1.802	0.011		0.176
10 to 19 partners	0.523	2.608	1.364	-1.802	0.067		0.480
20 or more partners	-2.261	-1.501	3.393	-1.802	0.167		1.173
Using a birth control other than condoms	0.144	-1.659	-0.239	-1.802	0.012		-0.123
History of forced or unwanted sex	2.375	2.581	6.131	-1.802	0.302		1.681*
Dislike condoms	0.430	-1.900	-0.816	-1.802	0.040		-0.373

^a Weighted for age, ethnicity, education level, and sex.
^b Calculated for each mediator.
^c Calculated by including all mediators being assessed in the analysis.
[^] Includes temporary workers, visitors, students and non-status individuals.
[‡] Includes people who arrived using temporary worker, visitor, and student visas; non-status individuals; and individuals who did not know their immigration class.
⁺ Includes those who do not fall into the other three categories, but are: unemployed; or employed occasionally, seasonally, or part-time.
****** Significant at the $\alpha=0.05$ level
***** Approaches statistical significance at the $\alpha=0.10$ level

6.4. Discussion

The goal of this exploratory study was to identify social determinants of the frequency of condoms use, and in doing so, help to identify ACB people to whom interventions to increase the frequency of condom use should be targeted. This study also identified proximate determinants that mediate the relationships between social determinants and the frequency of condom use. Since little is known about condom use in ACB Canadians, there is not much research to which the results of this study can be compared.

Approximately 80% of sexually active local ACB adults used condoms inconsistently or not at all in the past year. A study of East Africans in Toronto, Ontario found that 72% of their respondents never used condoms or used them inconsistently in the past year,³⁵ which is consistent with what we found. Another study, one of Haitian-descent people in Quebec, Canada, found that 25.8% of participants used condoms infrequently, 25.4% of participants used condoms half of the time or more, and 48.8% of participants did not answer the question about the frequency with which condoms were used.³⁶ It is possible that many of the non-respondents used condoms infrequently. As a result of wanting to give a socially desirable answer, people may underreport low frequency of condom use or skip questions on the topic altogether.³⁷ All in all, this study's results on condom use appear to be valid, as they are consistent with those from studies applying different data collection methods.

In our bivariate results, we observed that the frequency with which condoms were used was related to several markers of SSP. The frequency of condom use was distributed on the bases of gender, poverty status, number of years spent in Canada, immigration status, and employment status. With the exception of gender, in each case, the frequency of condom use was higher among those with lower SSP. For instance, new immigrants were significantly more likely to use condoms than longer-term immigrants and born Canadians. New immigrants are usually socially disadvantaged when compared to longer-term immigrants and Canadian-born persons, because they face greater social exclusion, which sometimes manifests as difficulty finding employment,³⁸ securing housing,³⁹ and gaining access to health care.^{40,41} However, these results might provide evidence of the “healthy immigrant effect”, a phenomenon in which new immigrants are

healthier than the Canadian population and have healthier practices, but over time, their health and health behaviours become more similar to those of Canadians.²¹ Additionally, in this study, we observed that people in the most stable employment category (i.e. regular full-time employment or self-employment) used condoms least frequently when compared to students, and people who were not employed or employed irregularly. This result might be explained by students and those who are not employed or employed irregularly using condoms as contraceptives. Data on this study population show that, among respondents who used condoms at least once in the past 12 months, the two most common reasons for using condoms were preventing pregnancy and HIV and STI infections.²¹ Lastly, with regards to poverty status, we found that people who were not living in poverty used condoms less frequently than people who were. This appears to be another example of people with higher SSP being more vulnerable to HIV and STI infection. Paradoxically, most efforts to prevent HIV and STI infection are targeted to people with low SSP, but these results suggest that people with higher SSP should be the targets.

Notably, after adjustment for other markers of SSP and socio-demographic factors (Model 1), the list of markers of SSP that were significantly associated with the frequency of condom use and the magnitudes and directions of their relationships changed somewhat. The change in the list suggests that the impact of each marker of SSP is dependent on the impacts of other markers of SSP, which is a cornerstone of Intersectionality Theory.⁴² A person's SSP creates the social context surrounding decisions about condom use and other matters.¹⁵ However, most studies on condom use fail to fully account for social context. Based on Intersectionality Theory, it is important to consider multiple dimensions of SSP without prioritizing one dimension over others. This helps to contextualize analyses, focus on diversity within groups, and highlight the complexities in people's daily lives.^{42,43} Hence, analyses that do not include multiple markers of SSP provide an incomplete picture of the context surrounding condom use. It is therefore necessary to move beyond bivariate relationships when attempting to identify areas for intervention. However, intersectionality is best assessed through the inclusion of interaction terms, which was not possible in this analysis because of the sample's small size.

In Model 1, we found that gender, poverty status, immigration status, the amount of time spent in Canada, and employment status were independently associated with the frequency with which condoms were used. In some cases, people with higher SSP used condoms more frequently than people with lower SSP. For instance, men used condoms more frequently than women, and people who were living in poverty used condoms less frequently than those who were not. The results also showed that condom use was less frequent among immigrants who had been in Canada for more than five years. People who were born in Canada also appeared to use condoms less frequently than new immigrants. Previous research has also found that males^{9,14,44,45} and wealthier people⁴⁶ were more likely to use condoms than women and poorer people, respectively. Other studies have also shown that students are more likely to use condoms than non-students.^{44,47} None of the studies located included all of these markers of SSP in their analyses, and the authors were unable to find studies comparing condom use on the basis of immigration experience.

These results show that, depending on the marker of SSP under consideration, lower SSP might create a social context that is related to more or fewer barriers to condom use. These SSP-related barriers should be addressed by interventions to increase the frequency of condom use. In the case of gender, for example, men appear to face fewer barriers to condom use than women, which has been documented in the literature on Canadian ACB populations. For instance, it is difficult for married women to discuss condom use with their spouses, and cultural and religious practices discourage ACB women from using condoms.^{48,49} A study found that while ACB women emphasized condom use for STI prevention, men emphasized condom use for preventing unwanted pregnancies. Women also talked about condoms causing vaginal irritation, bacterial infections, and yeast infections. Men said condoms caused them to lose their erections.⁵⁰ This present study's mediation results suggest that male gender is associated with not using other forms of birth control, having more lifetime sex partners, and not having a history of forced or unwanted sex.

With regard to poverty status, studies from sub-Saharan Africa have found that lower income is associated lower levels of condom use.^{46,51} It is unlikely that the affordability of condoms impacted their use in this population, because no one in the

sample reported that condoms were unaffordable. We found that being poor was associated with using other forms of birth control and having a cohabiting regular partner—both of which are associated with less frequent condom use.

The relationship between employment status and the frequency of condom use changed when other markers of SSP were included in the model. After adjustment in Models 1 and 2, students appeared to use condoms less frequently than what was observed in the crude model. In the fully adjusted model, Model 2, students seemed to use condoms as frequently as people who were employed full-time or self-employed. This finding seems inconsistent with those from a population-based study of Canadian adults that found students were more likely to use condoms during their last sexual intercourse than non-students, after adjusting for social and proximal factors.⁴⁴ A study of 1,230 ACB college students in the USA found that, 64% of students reporting multiple sexual partners in the past year did not use condoms during their last sexual encounter.⁵² Hence, the results observed in this study are not completely inconsistent with those observed in others. Students tends to have a low perception of HIV and STI risk, which might be related to lower condom use among them.⁵³ In our study, we found that student status was related to not having a cohabiting regular partner and having a history of forced or unwanted sex, which were both associated with more frequent condom use.

In this study, we found that the frequency of condom use was more strongly related to social factors than to proximate factors. While five of the eight markers of SSP we explored were significant determinants of the frequency with which condoms were used in Model 1, only six of the 23 proximate factors were significant. After conducting the mediation analyses, it was evident that most of the effect of the markers of SSP on the frequency of condom use was mediated by the proximate factors. However, some of the markers of SSP (e.g. gender, being a new immigrant, being born in Canada, and being a student) still impacted the frequency of condom use after accounting for mediation. These mediation results support the hypothesis that social context is an important factor in decisions about condom use, and its importance is sometimes independent of socio-demographic characteristics, partnership factors, sexual history, HIV-related factors, and health care access. It was difficult to locate studies that focused on social and proximate determinants of condom use, but the authors found a Zimbabwean study that looked at

the social and proximate determinants of HIV serostatus. That study found that social determinants of HIV serostatus remained significant even after adjusting for proximate determinants.⁵⁴ Even though the study's outcome was not condom use, its findings lend credence to those from this study, and the frequency with which condoms are used impacts HIV serostatus (Figure 6.1). Although not focused on ACB people, a study using national population-based data from Canada found that social factors are important determinants of last-time condom use after adjusting for proximate factors,⁴⁴ which further supports the findings from this study.

The mediation results show that proximate determinants mediate much of the effects that markers of SSP have on condom use. The proximate determinants that were independently associated with the frequency of condom use and were important mediators of the relationships between markers of SSP and the frequency of condom use included having a cohabiting regular partner, lifetime number of sex partners, having a history of forced or unwanted sex, and using contraceptives other than condoms. The results of the analyses suggest that the mediators in the model fully mediated the effects of poverty status, being in Canada for more than 15 years, being a permanent resident or refugee, being a naturalized Canadian citizen, and being unemployed or irregularly employed at the $p=0.10$ level. All other relationships between markers of SSP and the frequency of condom use were only partially mediated by the proximate determinants included in the analyses, but those proximate determinants mediated upwards of 85% of the relationships between markers of SSP and the frequency of condom use.

Interventions aimed at increasing condom use among ACB people can be successful if they target specific groups with comparatively low levels of condom use and include tailored strategies to address context-specific barriers and mediating factors within those groups. Based on the crude models, interventions should target women, people who are wealthier, immigrants who have lived in Canada for more than five years, people born in Canada, and people who are regularly employed full-time or self-employed. Since the frequency of condom use was lower among people with cohabiting regular partners, and 56.1% (95% CI: 42.9, 68.5) of ACB adults have cohabiting regular partners, prevention efforts should include strategies focused on condom use in stable relationships. Furthermore, it is important to promote condom use to couples, because an

individual's decisions about condom use are impacted by his/ her partner. In the adjusted model, frequent condom use was most prevalent among people with only one sex partner in their lifetimes, so efforts to increase condom use must clearly convey that the likelihood of exposure to HIV and STIs increases as the number of sex partners increases. Only 10.9% (95% CI: 3.3, 30.2) of ACB adults had one lifetime sex partner, so highlighting this message is worthwhile. About 20% of ACB adults said they did not use condoms because they disliked them. This might be an opportunity to promote condoms and introduce community members to the diverse styles and types of condoms that are available. No HIV-related factors were associated with the frequency of condom use in Model 2, which suggests that, after other things are considered, HIV does not impact decisions about using condoms. This is therefore an area in which more awareness and interventions are needed. Lastly, the frequency of exposure to HIV prevention messages was significantly associated with condom use in the crude model, but only about 20% of ACB people in London, Ontario had been exposed to such messages often or very often. HIV prevention messages therefore need to be more widespread.

6.4.1. Limitations

The study design contributed some limitations. For instance, since the study was cross-sectional, we are cautious about inferring causality. Additionally, convenience sampling methods were used to recruit study participants. Although nonresponse weights were used to improve the representativeness of the sample, it is likely that some selection bias still remained. Selection bias could have led to overestimation of the prevalence of risk behaviours, because people who participate in study's about sexual health, like the BLACCH Study, may engage in more sexual risk behaviours than those who do not, as was seen in another study.⁵⁵ On the other hand, social desirability bias could have led to participants underreporting their risk behaviours, such as infrequent condom use.³⁷ Hence, the magnitude and direction in which bias impacted the results is unclear. Furthermore, our data collection strategy yielded a low response rate, which likely increased selection bias. This study had a response rate of 32%, which while low, is comparable to that of a study with an ACB population in Toronto, Ontario. The length of the questionnaire in that study was similar to that of the one used in this study, and the study in Toronto used interviewers to administer their survey, and the researchers

provided monetary incentives to the participants.³⁵ It is therefore remarkable that the response rates of the two studies were comparable, even though monetary incentives and the use of interviewers have been shown to increase response rates.^{22,56,57}

The small sample size was a major limitation of this study. Since the sample was small, we were unable to assess intersectionality by looking at interactions between markers of SSP in our analyses. Hence, we were not able to completely follow the conceptual framework when conducting the analyses for this paper. Interactions add another dimension of understanding about how intersectionality impacts the relationship between markers of SSP, proximate factors, and the frequency of condom use. Furthermore, because of the small sample, confidence intervals for the effect estimates were imprecise. Sparse-data bias, which inflates the size of a significant effect,⁵⁸ may have been an issue; the point estimates must also be interpreted cautiously. Mediation usually requires large sample sizes, so it is possible that some mediation pathways were not detected. However, the large mediated proportions suggest that the appropriate proximate determinants were included in the mediation analyses. Lastly, this study was originally designed to identify factors associated with the frequency of using condoms with different types of partners. However, this was not possible with such a small sample, and we had to create one outcome variable for overall frequency of condom use, regardless of partner type. Hence, some valuable information was lost.

6.5. Conclusion

This is the first analysis aimed at identifying social and proximate determinants of condom use in Canada, and possibly in North America. The results provide valuable information that adds to a small but growing body of literature concerning HIV and STI prevention for ACB people. Since condoms are an important component of primary and secondary HIV and STI prevention, identifying factors related to the frequency with which condoms are used is important for risk reduction. Furthermore, results from this exploratory analysis can help generate hypotheses about how markers of SSP impact condom use, and develop and evaluate programs and policies aimed at increasing condom use.

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Chapter 7 : Summary and Discussion

7.1. Introduction

This chapter focuses on interpreting and synthesizing the results presented in Chapters 4, 5, and 6 to yield new conclusions. This chapter allows for a longer, more in-depth discussion, which is not usually possible with journal articles due to length limits on them. The purpose of the chapter is to summarize the thesis and discuss its main findings. The research reported in this thesis may act as a resource that service providers, program planners, and policymakers can use as a guide when designing public health programs, services, and policies to address HIV among African, Caribbean, and other Black (ACB) people. As such, in addition to highlighting statistically significant (i.e. $p \leq 0.05$) results and those that approached significance ($p \leq 0.10$), this chapter presents information about relationships that did not approach significance. This information can help policymakers, program planners, and service providers to recognize factors that do not need to be considered when designing HIV-related interventions for ACB people.

The overall goal of this doctoral research was to help guide HIV prevention programs, services, and policies for ACB people. This goal was met through satisfying three objectives in which markers of social status and position (SSP; i.e. gender, poverty status/ income, education, immigration experience, ethnicity, and employment status) were the primary exposure variables. Objective 1 was to present perceptions that some service providers and ACB people have about HIV risk in ACB populations, and use markers of SSP to describe the distribution of proximate risk factors for HIV among ACB people. Objective 2 was to identify markers of SSP that are social determinants of HIV testing in the past year. Similarly, the third objective was to identify markers of SSP that are social determinants of the frequency of condom use in the past year. All of the data used to meet these objectives were collected through the Black, African, and Caribbean Canadian Health (BLACCH) Study, a community-based research project about health and HIV within London, Ontario's adult ACB population.

Although this research was exploratory, it was guided by an integrated conceptual framework that combines the social determinants of health framework, social production of disease/ political economy of health theories, Intersectionality Theory, and the

proximate determinants of health framework. The integrated conceptual framework was presented in Chapter 2, and a literature review supporting it was presented in Chapter 3. Based on the literature, it is evident that markers of SSP impact the distribution of HIV risk behaviours, as well as the distribution of HIV infection. The scarcity of research on this topic, especially research from North America, highlighted the need for this doctoral research.

7.2. Summary of Key Findings

7.2.1. Sample Characteristics

7.2.1.1. Phase I: Semi-Structured Interviews

The sample for Phase I included 30 ACB people and service providers with ACB clients. The ages of the 22 ACB community members in the sample ranged from 16 to 57 years, with a median of 41 years. Less than half of the participants (45%) had African ethnicity, and 55% were women. Among the eight service providers, the median age was 49 years old. Half of the service providers had African ethnicity, and 75% of the service providers were women.

7.2.1.2. Phase II: Self-Administered Questionnaire

In all, 188 ACB people were recruited into Phase II of the BLACCH Study and used in this doctoral research. The sample was diverse, with ages ranging from 18 to 72 years. Over half (57%) of the participants identified with an African ethnicity, and 38% identified with a Caribbean ethnicity. Women comprised 60% of the sample. About 22% of the participants reported being tested for HIV in the past year. Over half (53.5%) of the participants reported that they had never used condoms during sexual intercourse in the past year, 31.0% reported using condoms sometimes, and 15.5% reported that they always used condoms.

7.2.2. Perceptions about HIV Risk

Community members and service providers talked about the sexual nature of HIV risk within the ACB population. ACB community members believed that ACB people's HIV risk was mainly due to sexual practices, and called for more information about HIV in Canada. Almost unanimously, they believed that their personal risk of contracting HIV

was low, but acknowledged that ACB people were generally at higher risk for infection. On the other hand, while service providers mentioned individual-level sexual factors associated with HIV risk, such as condom use, they also cited cultural and structural factors like conceptions of masculinity and lack of female empowerment. The risk profile for the population confirmed community members' and service providers' perceptions that sexual practices posed the greatest HIV risk for ACB people.

There were also areas in which community members and service providers held different perceptions about HIV risk within the ACB population. Both groups agreed that concurrent sexual partnerships, low frequency of HIV testing, and unprotected sexual intercourse were important risk factors. However, service providers did not seem to know that past-year and lifetime abstinence, two important protective factors cited by community members, were common within the ACB population. When asked about barriers to ACB people protecting themselves against HIV infection, service providers mentioned the need to be loved and cultural norms around disclosing health information, neither of which was mentioned by community members. These discrepancies suggest that service providers might have used a more analytical lens, while community members told their stories devoid of analyses. An alternate view might be that, rather than using information from the local ACB population to inform their work, service providers were basing their practices on research from other countries. It has been documented that, due to lack of trust, ACB might not be forthcoming with non-ACB service providers and might provide incomplete information to these service providers.¹ With such little research and information about ACB people in Canada, service providers might be relying on what they believe is best evidence available to them, or worse, stereotypes.

The findings about risk perceptions suggest that a fair bit of work needs to be done to address them. Perceptions about risk influence attitudes, which in turn influence behaviours and practices.² Hence, perceptions underlie the success of HIV prevention efforts. If service providers do not perceive the community as engaging in protective behaviours, they may not focus on understanding why people engage in these behaviours or look into strategies for promoting them. An important piece of knowledge about HIV prevention will therefore be missing. On the other hand, if community members do not think they are personally at risk for HIV infection, they will not take steps to protect

themselves. Based on health behaviour models, including the Health Belief Model, perceptions form an important component of behaviour change.³

7.2.3. Distribution of Proximate Factors Related to HIV Risk

The analyses describing the distribution of proximate factors related to HIV risk did not include education or ethnicity as markers of SSP. Including these factors would have made the paper presented in Chapter 4 too long, so SB and the dissertation advisory committee decided to exclude them from the paper.

7.2.3.1. Gender

Gender was not associated with many of the proximate factors related to HIV risk. Of the 20 factors explored, gender was only significantly associated (i.e. $p \leq 0.05$) with having a history of forced or unwanted sex, mixing sex with drugs or alcohol, and number of sex partners in the past year. Having a history of forced or unwanted sex was more common among women than among men (31.8% versus 10.1%). Other studies from Sub-Saharan Africa found that the prevalence of forced sex in women was at least two times the prevalence in men.^{4,5} Based on the prevalence estimates, men were more likely than women to mix sex with drugs or alcohol (43.8% versus 26.9%), and they reported having more sex partners in the past year. A review of over 68 epidemiological studies conducted in Sub-Saharan Africa found that men reported having more sex partners than women,⁶ so these results were consistent with theirs.

7.2.3.2. Poverty Status/ Income

In bivariate analyses, poverty status/ income appeared to be associated with many proximate factors that are related to HIV risk. People living in households that were below the low-income cut-off (LICO) had higher prevalences of lifetime and past-year abstinence. On the other hand, people living in households that were above the LICO reported higher prevalences of unprotected sex with all partner types, and they were more likely to have experienced forced or unwanted sexual intercourse. These results were consistent with others from Sub-Saharan Africa that suggested that wealthier people were at greater risk for HIV infection.⁷ Qualitative Canadian studies based on interviews with ACB people, however, suggested that the opposite was true.^{8,9}

7.2.3.3. Immigration Experience

Immigration experience, defined by the number of years spent in Canada and legal immigration status, appeared to be associated with the distribution of proximate factors related to HIV risk. Compared to immigrants, Canadian-born persons were more likely to be exposed to HIV or transmit HIV if it were contracted. In terms of protective factors, Canadian-born persons had lower prevalences of past-year and lifetime abstinence. In addition to being less likely to engage in protective behaviours, Canadian-born persons reported risk factors more frequently. They had higher prevalences of forced or unwanted sex, mixing sex with drugs or alcohol, and past sexually transmitted infection (STI) diagnoses than immigrants. They also reported having more sex partners in their lifetimes and in the past year. These results suggested that Canadian-born ACB people were at greater risk for contracting and transmitting HIV than foreign-born ACB people. Most theories and studies about HIV and immigration experience conclude that immigrants are at greater risk for HIV than members of the host population,¹⁰⁻¹² and one study from the United States of America (USA) suggested that ACB immigrants were at greater risk for HIV infection than USA-born ACB people.¹³ These results were from outside of Canada, however, and they may not reflect the Canadian reality.

Among immigrants, more time in Canada was associated with greater risk. The risk profile of longer-term immigrants was more similar to that of Canadian-born persons than newer immigrants. This suggests that the “healthy immigrant effect” is at play.¹⁴ Living in Canada for a greater number of years was associated with lower prevalence of abstinence in the past year and in one’s lifetime. It was also associated with having a history of forced or unwanted sex, mixing sex with drugs or alcohol, having a past STI diagnosis, and having more sex partners. This might be related to having increased sexual freedom,¹¹ longer separation from family,¹¹ and a sense of security.^{15,16}

An immigrant’s current immigration status seemed to also be related to the distribution of risk and protective behaviours. Permanent residents/ landed immigrants seemed to be at lower risk for HIV exposure than naturalized Canadian citizens and people with non-immigrant legal statuses (i.e. temporary workers, visitors, students and non-status individuals). They had lower prevalences of forced or unwanted sex and mixing sex with drugs or alcohol. They also had the highest prevalence of ever testing for

HIV. Immigrants who have not transitioned to Canadian citizenship tend to be newer immigrants, a group that is at comparatively lower risk for HIV infection, as discussed above. People with non-immigrant legal statuses had the second highest prevalence of HIV testing, which might have been due to testing to obtain student or work visas.

7.2.3.4. Employment Status

Employment status was also significantly associated with HIV risk in bivariate analyses. The results suggested that students were at the lowest risk when compared to people who were not employed or employed irregularly and those who were regularly employed full-time or self-employed. Students had the highest prevalence of lifetime abstinence and the lowest prevalence of sexual debut at age 12 or younger. They were also more likely to report abstaining from sex in the past year, less likely to report unprotected sex with any type of regular partner, and less likely to report not using a condom at all in the past year. It should be noted that the analyses were bivariate, and did not control for age. However, the students in the sample were at various levels in their education, and the majority were over the age of 24,¹ so it is unlikely that the patterns observed were related to youth.

People who were not employed or employed irregularly were not the groups with the greatest risk. In terms of their risk profile, they appeared to fall between students and people with regular full-time employment or self-employment. They had the highest prevalence of sexual debut at age 19 or older, and they were least likely to have a history of STIs, which were indicative of lower risk. However, on all other factors, they fell between students and people who were regularly employed full-time or self-employed.

Those with regular full-time employment or self-employment seemed to have the greatest risk for HIV infection. They had younger ages of sexual debut, and they had the highest prevalence of sexual debut at age 12 or younger. Additionally, none of them reported lifetime abstinence. They had the lowest prevalence of past-year abstinence, the highest prevalence of unprotected sex with regular and casual partners, and the highest prevalence of past STI diagnoses. Although employment generally has a positive impact on health,^{17,18} these results suggest that employment may have an adverse impact on sexual health for this population. Other studies with ACB people have found this relationship as well.^{19,20} However, a qualitative study with ACB people in Toronto,

Canada suggests that unemployment increases HIV risk,⁹ which is the opposite of what was observed here.

7.2.4. Markers of SSP and HIV Testing in the Past Year

According to the results from this research, approximately 20% of ACB people have been tested for HIV in the past year. The corresponding proportion for adults in Ontario is about 4.5%.^{21,22} HIV testing is known to promote behaviour change, which reduces the likelihood of HIV exposure or transmission.²³ However, data on the incidence of HIV diagnoses in Ontario show that although ACB people comprise about 4% of Ontario's population,^{24,25} they account for about 20% of new HIV diagnoses each year.^{26,27} Since ACB people are much more likely to be at risk for HIV infection than other adults in Ontario,^{28,29} it is important for them to be tested much more frequently than other groups of Ontarians.

7.2.4.1. Proximate Determinants of Testing for HIV in the Past Year

In the multivariable model, sexual history factors and HIV knowledge score emerged as the strongest independent proximate determinants of testing for HIV in the past year. The number of sex partners a person had in his/ her lifetime was also a strong predictor of receiving an HIV test in the past year, more so than the number of sex partners that person had in the past year. Several studies had also found that the number of lifetime sex partners impacts HIV testing.^{30,31} One's HIV knowledge score was also a strong proximate predictor of HIV testing in the past year. Results from this study showed that people who were more knowledgeable about HIV transmission were more likely to have received an HIV test in the past year. These results were consistent with those from other studies.³² A person's level proficiency in English approached significance ($p \leq 0.10$) as a proximate determinant of testing for HIV in the past year—people who were more proficient in English appeared to be less likely to have been tested.

The study also found that some factors that were usually associated with HIV testing may not have been important determinants of testing for HIV in the past year in this population. Factors related to one's sexual history, like past pregnancies, having unprotected sexual intercourse with any kind of partner, and past STI diagnoses, were not

significant in the bivariate analyses and were eliminated from the final multivariable model. Similarly, a person's level of religiosity was not significantly associated with having an HIV test in the past year in the crude or multivariable analyses. Although applying for life insurance was significantly related to HIV testing in the past year in the bivariate analyses, it eliminated from the final model. HIV testing for immigration purposes, health care use, perceptions about HIV risk in the local ACB population, and exposure to HIV prevention messages were not significantly associated with HIV testing in the crude models, and they were also removed from the multivariable model during backward elimination.

7.2.4.2. Gender

Although gender was not significant in the bivariate model, the interaction or intersection of gender with ethnicity was associated with testing for HIV in the past year in the crude three-variable model ($p=0.073$). The importance of gender as a determinant of HIV testing is documented in other studies,^{30,31,33} but to date, no quantitative studies have assessed the interaction between/ intersection of gender and ethnicity.

7.2.4.3. Poverty Status/ Income

Like gender, poverty status was not significantly associated with being tested for HIV in the past year in the bivariate model, and its interaction with ethnicity was not significant in the three-variable crude model or any of the adjusted models.

7.2.4.4. Education

Education was not significantly associated with HIV testing in the bivariate model, but it was independently associated with having an HIV test in the past year in the model that only adjusted for markers of SSP and socio-demographic factors. People with no post-secondary education seemed less likely to have tested for HIV in the past year when compared to people whose education exceeded a bachelor's degree. Other studies have also shown that higher education was associated with HIV testing.^{30,34-36} Education was not significantly associated with HIV testing in the model including the proximate determinants, however, which indicates that its effect was mediated by the proximate determinants. The mediation models showed that education may have impacted HIV testing in the past year through religiosity and impacting knowledge about HIV

transmission. Moreover, the vast majority of the impact of education on HIV testing was mediated by the proximate determinants included in the mediation models.

7.2.4.5. Immigration Experience

Having experience with immigration was strongly related to having had an HIV test in the past year. The amount of time spent in Canada was not associated with HIV testing in the bivariate model, but it was significantly associated with having an HIV test in the multivariable model that included markers of SSP and socio-demographic factors. It was eliminated from the multivariable model including proximate determinants, however, which suggests that much of its impact on having an HIV test in the past year was mediated by the proximate determinants in the model. The effect of the amount of time spent in Canada was mediated by the number of sex partners a person had in her/ his lifetime and a person's knowledge about HIV. These findings were consistent with those from other studies that showed that the length of time spent in a host country was not associated with HIV testing in multivariable models.³⁴ Immigration class was associated with having an HIV test in the past year in the crude model, and it was also significant in the model that adjusted for other markers of SSP and socio-demographic factors. It was the only dimension of immigration experience that appeared in the multivariable model that included the proximate determinants, but it was not significant. This indicated that much of its effect on HIV testing was mediated by the proximate determinants. The mediators through which it acted were knowledge about HIV and the number of sex partners a person had in her/ his lifetime. While some studies assessed the relationship between immigration status and HIV testing,³⁴ none was found that assessed immigration class and HIV testing.

7.2.4.6. Ethnicity

There was no evidence to suggest that ethnicity impacted HIV testing in the past year in the bivariate analyses, and in the multivariable analyses, its effect depended on gender and poverty status. In the crude model, the prevalence of HIV testing was lowest among non-African females, followed by African males, African females, and non-African males. Based on the model that was adjusted for other markers of SSP and socio-demographic factors, compared to non-African females, African females seemed to be

680% as likely to have had an HIV test in the past year, non-African males were 359% as likely to have had an HIV test in the past year, and African males may have been 641% as likely to have tested for HIV in the past year. However, none of the comparisons was significant, and only the comparison between non-African females and non-African males approached significance. Based on the mediation analyses, the combined impact of gender and ethnicity was mediated by knowledge about HIV and religiosity. Although the interaction between ethnicity and poverty status was not eliminated from the model that only adjusted for social factors, it was not significant.

7.2.4.7. Employment Status

There was no evidence of an association between employment status and testing for HIV in the past year in the bivariate or multivariable analyses. However, other studies have shown that people who were employed were less likely to get tested than those who were unemployed.³⁷

7.2.5. Markers of SSP and Frequency of Condom Use in the Past Year

This research found that the majority of sexually active ACB adults did not use condoms in the past year. Only about 20.5% of ACB people always used condoms during sexual intercourse in the past year. Another 20.6% of ACB people used condoms sometimes, and 58.9% never used condoms in the past year. Since the prevalence of HIV infection among ACB adults is higher than in the broader adult population of Ontario, and the vast majority of HIV infections among ACB people occur through sexual contact,³⁸ it is important to reduce the sexual risk of HIV transmission through increasing condom use.

7.2.5.1. Proximate Determinants the Frequency of Condom Use

The results from this study showed that, even after adjusting for multiple markers of SSP and socio-demographic factors, some proximate factors remained important determinants of the frequency with which condoms were used in the past year. Statistically significant partnership factors included having a cohabiting regular partner and having a partner who did not want to use condoms. People who had cohabiting regular partners used condoms less frequently than those who did not. These findings were consistent with those from other studies that showed that having a stable partner was associated with

lower condom use.^{39,40} The number of sex partners one had in one's lifetime and having a history of forced or unwanted sex both impacted the frequency of condoms use. Having multiple partners in one's lifetime was associated with less frequent condom use than having just one partner in one's lifetime, and people who had a history of forced or unwanted sex used condoms more frequently than those with no such experience. Other studies had similar findings with the regards to the relationship between number of sex partners and condom use.^{31,41} Disliking condoms was associated with less frequent condom use.

As seen in the results pertaining to HIV testing in the past year, there were some well-known and documented proximate factors that were not important determinants of the frequency of condom use in this study. Partner type, having concurrent sexual partnerships, and partners' ethnicities were associated with the frequency of condom use in the bivariate models, but having a cohabiting regular partner was the only partner-related factor that was included in the final multivariable model. Factors that were not significant in the bivariate models and did not appear in the final multivariable model included: past STI diagnoses, knowledge's of one's own HIV status, and the perceived level of HIV risk in the local ACB population. There was no evidence to suggest that HIV-related factors were associated with condom use in the multivariable model.

7.2.5.2. Gender

Gender was associated with the frequency of condom use in the crude and adjusted models, and men used condoms more frequently than women. This result was consistent with those from other studies.⁴²⁻⁴⁴ Notably, the relationship between gender and condom use was present in the bivariate analysis, but it was weaker than the relationships found in the multivariable analyses. The impact of gender on the frequency of condom use appeared to be mediated by the use of contraceptives other than condoms, the number of partners one had in one's lifetime, and having a history of forced or unwanted sex.

7.2.5.3. Poverty Status/ Income

The bivariate analyses showed that living in poverty was associated with a higher frequency of condom use, but after adjusting for other markers of SSP, living in poverty

was associated with less frequent condom use. The proximate determinants mediated the majority of the relationship between poverty status and the frequency of condom use. These mediators included having a cohabiting regular partner and using other forms of birth control. While some studies have shown that poverty status/ income was associated with condom use,⁴⁵ others that adjusted for multiple markers of SSP and proximate factors have shown no such relationship.^{41,43,44}

7.2.5.4. Education

Education was not related to the frequency of condom use in the crude model, and it was eliminated from the adjusted models. While some studies have shown that higher condom use was associated with higher education, and lower condom use was associated with lower education,³⁹ other studies have also shown that education is not associated with condom use, however.^{44,45}

7.2.5.5. Immigration Experience

This study found that immigration experience impacted condom use. In the bivariate analyses, immigration status and the amount of time spent living in Canada were significantly associated with the frequency with which condoms were used, but immigration class upon arrival in Canada was not. Within the model that had adjusted for social factors alone, the only significant determinant was immigration status, and the amount of time spent in Canada approached significance. Condom use was highest among people arriving in Canada as temporary workers, students or visitors, and people without legal status. The results also showed that the frequency of condom use was highest among immigrants who had lived in Canada for five years or less. These results provide another instance in which more privileged groups were at greater risk for HIV infection than the less privileged groups. There has not been much research on immigration experience and condom use, so there were no studies to which these results could be compared. Having a cohabiting regular partner was the only proximate determinant that mediated the relationship between having immigration experience and the frequency of condom use.

7.2.5.6. Ethnicity

Neither the bivariate nor multivariable results showed a relationship between ethnicity and condom use. However, a study that looked at condom use within an ethnically diverse ACB population found that ethnicity was associated with condom use.⁴⁶ Another study showed mixed results.⁴⁷

7.2.5.7. Employment Status

Bivariate and multivariable results showed that employment status was significantly associated with the frequency of condom use. In the bivariate analyses, condom use was most frequent among students and least frequent among people who were employed full-time or self-employed. In the multivariable analyses that adjusted for markers of SSP and socio-demographic factors, the frequency of condom use was highest among people who were irregularly employed or not employed and lowest among those who were regularly employed full-time or self-employed. The lower frequency of condom use among students was inconsistent with results from other studies that showed condom use being higher among students than non-students.^{41,43} Based on this study, the mediators of the relationship between employment status and the frequency of condom use were having a cohabiting regular partner and having a history of forced or unwanted sex.

7.3. Broader Meaning of the Findings

In addition to providing useful information that can guide the development of public health interventions, the findings from this study confirmed the premises of this dissertation's integrated conceptual framework. First, it demonstrated the diversity of HIV risk within the ACB population. Too often, racial identity is presented as a homogeneous category, ignoring that race interacts or intersects with other aspects of one's social identity to impact health practices and outcomes. By looking at the diversity within the ACB population, this study showed that the combination of identities, not just singular identities, was important for health.^{48,49}

Second, the inconsistency between these results and those from studies in other countries demonstrated that patterns of risk might change from population to population and across time.⁵⁰ As intersectionality theory scholars have noted,⁵¹ when conducting

research into how social factors and identities impact human health and experiences, it is important to avoid making assumptions based on prevailing theories. Such theories use frameworks that were created based on the experiences of dominant groups,⁵¹ and they may not reflect the realities of minorities and socially disadvantaged groups. Hence, it is not surprising that, for this population, household poverty or low income was associated with behaviours that protected individuals from HIV infection when the majority of the theories would indicate otherwise. In fact, there is mounting evidence suggesting that in Sub-Saharan Africa, wealthier people are at higher risk for HIV infection compared to poorer people.⁵² The evidence also suggests that prevailing theories about factors driving HIV infection in Sub-Saharan Africa are incorrect. For instance, the evidence showed that: women were not being infected by “sugar daddies”; women engaged in transactional sex to gain access to material wants, not just for survival; having multiple partners was a route to upward mobility for women and a demonstration of status for men; stigmatizing polygamy had led to riskier informal sexual networks; economic migration led to men and women having multiple partners; and, the demand for consumer goods coupled with aspirations for social mobility might be the underlying reasons for the spread of HIV.⁵²

Third, the results from this present study showed that risk behaviours and other proximal determinants occur within a broader social context,⁵³ which is partly determined by SSP. The regression models to identify determinants of HIV in the past year and the frequency of condom use included markers of SSP and proximate factors that were identified in the literature and from the interviews in Phase I. In both cases, the final multivariable models included about half of the markers of SSP, but only one-third of the proximate factors that were investigated. Conceptually, markers of SSP are further removed from HIV testing and condom use than the proximate determinants, so one would expect that fewer of them would be included in the final model that included social and proximate factors, as was observed in this study. The literature indicates that proximate determinants should be treated as mediators,^{54,55} so they were included as mediators in the mediation analyses. The results from these analyses suggested that the vast majority of the effects of markers of SSP on HIV testing in the past year and the frequency of condom use were mediated by the proximate determinants. The inclusion of markers of SSP in the final models and the results of the mediation analyses showed that

it is important to consider the social context when designing interventions to address HIV, because proximate determinants do not exist in a vacuum.⁵³

Fourth, the results supported the premise that services must be inclusive of multiple aspects of a person's identity or social context.^{48,56} The differences between the bivariate and multivariable analyses revealed that it is not always possible to see the effects of some markers of SSP unless multiple markers are analyzed simultaneously. Individuals cannot be broken into categories, and aspects for our lives should not be broken into separate categories either. It is important to recognize the individual and combined effects of multiple markers of SSP and attend to the complexities they create within individuals' lives and the diversity they create within groups. By embracing this complexity, we are not privileging one aspect of SSP over others. Instead, we are focusing on the importance of context and acknowledging the interdependence between factors.⁵⁷

7.4. Potential Implications for Public Health Programs and Policies

7.4.1. Public Health Programs and Services

Based on this study's results there are a number of ways in which public health programs and services aimed at reducing HIV risk in ACB populations can be improved. For one, the results show that, due to the degree of heterogeneity of risk within the ACB population, simply providing interventions designated for ACB people may not yield the greatest benefits. It is important to close the gaps between ACB people who have different levels of risk. Planners should create inclusive programs for ACB people, and within those programs, higher risk groups should be targeted with prevention messages and services that are tailored to their social contexts and the proximate determinants that impact their levels of risk. Such programs can reduce overall HIV risk in the population by reducing risk in comparatively higher risk groups.^{54,58} By being inclusive and focusing on multiple aspects of social context and the interdependence between factors, such programs have a good chance of being successful.^{48,57} Additionally, if a program is targeted to a specific group, it should be inclusive of all members of that group. For instance, a program focused on increasing condom use and HIV testing among ACB women should be inclusive of all ACB women and sensitive to the diversity among them. It cannot ignore that ACB women's experiences and decisions to get tested for HIV or

use condoms are impacted by other markers of SSP. Ignoring the diversity and the complexities it creates only exacerbates inequities and causes tensions between ACB women, which may also inhibit their ability to form coalitions and advocate for better prevention programs and public health policies.⁴⁸

HIV prevention messages and education about HIV transmission should be specific to the Canadian context. Based on the interviews in Phase I, knowledge about HIV in the Canadian context is low. Furthermore, when asked about HIV in ACB communities in Canada, community members and service providers cited information from other countries, which may not be applicable. On the other hand, community members demonstrated fairly high levels of knowledge about HIV transmission. Community members asked for more information about HIV in ACB populations in Canada, and such information should be provided. Concrete information about the Canadian context may enhance the importance of HIV prevention messages in reducing HIV risk. A study of Ethiopian and Eritrean immigrants in the United Kingdom (UK) found that the participants were knowledgeable about HIV transmission, but they had misconceptions about HIV in the UK, which led to risky sexual practices.¹⁶ The situation with ACB people in Canada might be similar. Health behaviour theories such as the Health Belief Model and the Social Cognitive Theory highlight the importance of perceived susceptibility and perceptions about the risk environment in producing changes in behaviour that lower disease risk.³ Although these theories may not be entirely applicable to the ACB population in Canada, they may be useful as a starting point for designing prevention messages and interventions. Additionally, information that is specific to the Canadian context can help service providers to better understand and meet the HIV prevention needs of their ACB clients.

Programs and services to prevent HIV infection should combine biomedical (i.e. HIV testing and condoms), proximate, and social interventions. HIV vulnerability occurs at multiple levels,⁵⁹ so interventions addressing HIV at a singular level have a low potential for effectiveness. At the structural level, healthy public policies are needed to address HIV vulnerability, and such policies are discussed later, in Section 7.4.2. At the social level, programs and services need to be targeted to particular social groups. An understanding about the relationship between SSP and proximate risk factors, such as

behaviours, can help tailor programs and services for specific social groups. Experts in the field of social epidemiology recommend that programs and services should also focus on proximate determinants that mediate relationships between SSP and biomedical interventions.^{54,55,60} These proximate determinants are key points for intervention. For instance, programs focused on increasing yearly HIV testing should focus on increasing knowledge about HIV, and they should focus on contextual factors that impact a person's knowledge about HIV. Such contextual factors include a person's level of education, the immigration class under which a person arrived in Canada, the number of years a person has been in Canada, and the combination of her/ his gender and ethnicity. Specific recommendations for improving the rates of HIV testing and the frequency of condom use among ACB people can be found in Chapters 5 and 6, respectively.

Once social and proximate determinants are addressed, public health programs and services can effectively promote the uptake of biomedical interventions. The success of prevention programs improves when they employ a multilevel approach, because they are targeting people who need the intervention, and they are addressing behavioural and other proximate factors that are related to the biomedical intervention instead of targeting the biomedical intervention alone.⁵³

Finally, any public health intervention for ACB people should employ a participatory framework. Service providers and community members participating in the BLACCH Study indicated that it is important to meaningfully involve and engage ACB people in the design, implementation, and evaluation of programs and services.¹ For instance, one community member said:

Well, first I think that cultural programs to me need to be run by people that have a cultural mindset. Having said that, I think that the cultural programs specifically in regards to Black people should be headed up by Black persons, right? And I think that is a significant thing, whether it's understood or not, it's something that I think is a vital and valuable thing if people are going to gain ground and learning through information and education programs. (Black Canadian Male)^{1(p16)}

Additionally, an ACB service provider talked about providing services using a participatory framework that engaged key people and received support from the community.¹ Employing a participatory framework promotes social participation and empowerment for ACB people. In addition to being ethical and consistent with human

rights, such an approach is pragmatic because it adds to the long-term sustainability of these programs and services.⁵⁴ There are five levels of social participation—informing, consulting, involving, collaborating, and empowering.⁵⁴ At the minimum, efforts should involve ACB people by working directly with them to understand and consider their concerns and aspirations during the planning, implementation, and evaluation processes. A second level of meaningful participation is collaborating with ACB people by including them in all aspects of decision-making. The ideal level of meaningful participation, however, is empowering, which means giving ACB people control over all key decisions pertaining to their health. Groups and organizations that can participate at the local level include the ACB Committee at the Regional HIV/AIDS Connection, the Diaspora Black Men's Group, the Congress of Black Women of Canada- London Chapter, and the African Canadian Federation of London and Area (an umbrella organization comprised of several African community organizations). At the provincial level, important groups include the African and Caribbean Council on HIV/AIDS in Ontario, which is responsible for the provincial strategy to address HIV/AIDS within the ACB population in Ontario. Nationally and internationally, there is the African Black Diaspora Global Network, which focuses on addressing HIV in ACB communities in the Diaspora. The infrastructure needed to apply a participatory framework to the design, implementation, and evaluation of HIV programs and services for ACB people is in place.

7.4.2. Policies at All Levels of Government

To address inequities in the distribution of HIV risk, governments need to promote programs that target particular social groups and pursue policies that target structural factors (i.e. governance, macroeconomic policies, social policies, public policies, culture and societal values, and the availability of intervention programs). Simply targeting behaviours or proximate determinants are unlikely to reduce inequities, because such programs tend to be most beneficial to people who are already at an advantage.⁵⁴ Targeting disadvantaged groups and focusing on the proximate factors, and targeting structural factors are the best methods for reducing inequities.^{55,60} Although targeted programs and policies focused on equity are advantageous for disadvantaged groups and society as a whole, they can be politically costly for politicians. For instance,

some mistakenly believe they can: undermine politics of solidarity; and lead to political weakness because of their precision and the fact that they benefit disadvantaged, marginalized or minority groups.⁵⁴ However, potential political costs are mitigated through building coalitions of ACB people, allies to ACB communities, and groups committed to social justice and human rights. In the end, the benefits for society outweigh the costs.

Public health resources should be expanded to address the markers of SSP, and this expansion should include support for addressing HIV through the markers of SSP. Public health practitioners in Ontario have begun focusing on the social determinants of health and equity issues related to health, and they feature these topics in their annual public health convention.⁶¹ However, the *Ontario Public Health Standards* do not mention social factors at all when outlining the requirements for public health programs addressing infectious diseases. In fact, inequities are only mentioned in the foundational standards and in the standards for chronic disease programs. Furthermore, surveillance systems are not required to capture information about health inequities, but the foundational standards encourage collection of such information.⁶² The *Ontario Public Health Standards* should make it mandatory for all public health programs to address markers of SSP, or at the minimum, require all surveillance systems to collect information on markers of SSP. Secondly, when these requirements are made, additional resources must be provided to support these new directives. This will ensure that markers of SSP are part of the public health approach to addressing HIV and other diseases.

Finally, health should be considered and incorporated into all public policies. Action on the markers of SSP requires collaborations between policymakers in the health sector and other sectors. Some of the policies required to address them will fall into the health domain, and others will fall into the other policy domains. It is therefore imperative for health policymakers and policymakers from other sectors to collaborate. While intersectoral collaborations can be challenging due to political factors, policy issues, and structural factors, they can also create new opportunities.⁵⁴ By working collaboratively, policymakers will be able to share resources, find creative solutions to shared problems, and build new relationships. While it is widely recognized that intersectoral approaches to health policy and practice are important,⁵⁴ they are rife with

challenges that should not be underestimated,⁶³ but the challenges should not be insurmountable barriers either. To help intersectoral collaborations succeed, it is important to identify successful examples of intersectoral collaborations and action, and political contexts in which such collaborations thrive.⁵⁴

7.5. Limitations

The study's sample size in Phase II was small. Hence, the prevalence and ratio estimates were not as precise as we would have liked. Furthermore, there is the possibility that the effect estimates might have been exaggerated due to sparse data bias.⁶⁴ The research team handed out 595 questionnaires, so the small sample was due to a low response rate. This study did not provide any monetary incentives and none of the questionnaires was completed with the help of an interviewer, both of which have been shown to increase response rates for mail surveys.⁶⁵ In spite of this, however, the BLACCH Study had a response rate of 32%, which was comparable to that of a community-based study with a similar population that used interviewers and provided \$25 in monetary incentives.⁶⁶ An Australian study looking at response rates to a community-based survey found that their personalized telephone survey produced the highest response rate, which was 30.2%. Their generic mail survey had a response rate of 7.5%, and their personalized mail survey had a response rate of 10.5%.⁶⁵ Had we provided incentives or administered all of the surveys by interview, it is likely that the response rate would have increased substantially. Furthermore, we had no data on the people who did not respond, so it was impossible to compare them to responders. Beyond the characteristics on which the sample was weighted, there is a possibility that the people who did not respond were fundamentally different from those who did. Thus, such a comparison could have provided valuable information as we adjusted for selection bias.

Additionally, the sample for Phase II was recruited using convenience sampling methods, which were a source of selection bias. Although the sample was weighted against the Census for the local ACB population to reduce selection bias and increase the generalizability of the results, there is still the possibility that some selection bias remained. Furthermore, the characteristics used to weight the sample were age, education level, ethnicity, and gender. Although these variables are typically associated with survey

non-response,⁶⁷ it is probable that additional variables should have been included when calculating the weights.

The study used a cross-sectional design, so the results have limited value in supporting causal inferences. The results merely showed that there were relationships between markers of SSP and HIV risk and protective behaviours. The mediators were proximate factors that were related to the markers of SSP and the outcomes under study. They provided insight about proximate determinants through which markers of SSP impacted the outcomes, but a temporal relationship should not be inferred. A longitudinal study would have been a stronger design for examining causation.

Lastly, the study could have benefitted from a second qualitative phase. A qualitative phase following Phase II could have potentially provided a deeper understanding about how markers of SSP acted directly and through mediators to impact HIV testing in the past year and the frequency of condom use. Such information would have added to this dissertation's utility as a resource to guide the design of HIV prevention interventions for ACB people in London and similar locales.

7.6. Future Research

Since this population was previously unresearched and the topics of this dissertation had not been explored before, there are still many unanswered questions. This exploratory study should be treated as a starting point from which hypotheses can be formulated and tested.

Future research with ACB populations in Canada should focus on exploring the relationships between markers of SSP, proximate factors, and biomedical factors more deeply. Such research is best done using qualitative methods, which are able to delve more deeply into a topic and are better able to handle complexities than quantitative methods. Furthermore, using grounded theory approaches and qualitative content analysis can help to mitigate the effect of presumptions based on existing theories that may not be applicable to the population. Such studies can provide a richness of detail that can help guide or modify programs and services aimed at decreasing HIV risk for ACB people.

Overall, there needs to be more research on HIV in ACB communities in Canada. As mentioned previously, there is a lot of misinformation and a dearth of real information about HIV in Canada's ACB population. This problem exists because there is not enough

research being done in this area, and the results of the research that is conducted is not reaching ACB communities or service providers. It is imperative to conduct research and distribute the findings widely because the information impacts HIV risk among ACB people and the practices of service providers.²

Research should be conducted to determine if existing health behaviour theories are applicable to ACB people, or how they can be modified to be more applicable. Health behaviour theories are useful for understanding how people make decisions about engaging in practices that impact their health.³ They are therefore important tools for disease prevention, and they have been used to develop interventions focused on reducing HIV risk. Efforts should be made to include these tools in responses to HIV among ACB people, but these tools should be applied cautiously, because the populations on which they were developed may not be comparable to ACB people. Hence, they may lead to erroneous conclusions when applied to ACB people. It is therefore important to study these theories and research their applicability to ACB populations. This will help to determine which theoretical constructs are applicable, which ones need to be modified, and which ones are inappropriate for ACB people.

A variation of the BLACCH Study should be repeated with a larger, provincial sample. Since Phase II of the BLACCH Study used a fairly small sample with 188 people, there were small sample issues that impacted the precision of the results. Repeating the study with a much larger sample will resolve this issue. A larger sample will also make it possible to perform more complex quantitative analyses, like multilevel modelling, which will produce important information. Furthermore, a provincial sample will make the results more generalizable to the broader ACB population in the province of Ontario.

7.7. Conclusion: Key Message

Markers of SSP impact the distribution of HIV risk, and they must be an integral part of programs and services designed to address HIV. Hence, programs and services must employ a multilevel approach that links biomedical interventions to proximate factors and SSP. Additionally, policy changes are required address structural factors that contribute to HIV vulnerability or hinder effective responses to it.

7.8. References

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Appendix A: Details about Research Methods

A.1. Overview of Study Design

This dissertation uses data from the Black, African, and Caribbean Canadian Health (BLACCH) Study. The BLACCH Study is a community-based research project that collected information about general health, HIV, health care use and needs, and the social determinants of health (SDOH) from members of the African, Caribbean, and other Black (ACB) population in London and Middlesex County, Ontario. Phase I of the project consisted of semi-structured interviews that were used to gather qualitative data, and Phase II consisted of a self-administered questionnaire that was employed for quantitative data collection. The results from Phase I guided the content and methods included in Phase II. Data from both phases were triangulated to meet Objective 1 of this dissertation.

A.2. Phase I: Semi-Structured Interviews

Data from Phase I indirectly supported the three objectives of this dissertation by serving as the foundation on which Phase II was designed and corroborating the findings from Phase II. These data were also used to directly fulfill Objective 1 of this dissertation (page 14). This dissertation is primarily based on the data from Phase II of the BLACCH Study.

A.2.1. Target Population

Phase I targeted two types of participants—employees from organizations providing services to ACB communities in London and Middlesex County, Ontario and ACB people residing London or Middlesex County. Both groups were chosen because of their abilities to provide a range of responses and insights related to HIV, health, and the SDOH among ACB communities in London and Middlesex County. Community members residing outside of London, Ontario were particularly difficult to reach due to the population being very small and lack of connection to existing organizations and groups in these locales. As such, no one outside of London was included in the interviews. However, since the service providers included in these interviews have clients in those locations, they were able to speak about some of these clients' needs and experiences.

A.2.2. Phase I Questionnaire Development

Topics and questions for the interviews were based on the informational needs of the research partners (organizations serving ACB communities) and the research team. Interview topics were generated during the research team's brainstorming sessions, and redundant or irrelevant topics were subsequently dropped during the vetting process, which included several research team members. Following these meetings, this dissertation's author (SB) wrote potential interview questions, which were sent to the rest of the research team to review and revise as needed. This was an iterative process that continued from May through July of 2009. Two sets of interview questions were written—one for service providers and another for community members.

After the interview questions were developed, SB created two interview packages to facilitate conducting the interviews. The packages provided structure and uniformity to interview procedures, and the interviewers provided feedback at each stage of the packages' development. The interview packages are included in Appendices B and C, and both outline the procedures followed when conducting interviews. Appendix B contains the interview package administered to all community member participants, and Appendix C contains the interview package for service providers. Topics covered in the community member interviews were: general health and community, migration, SDOH, health behaviours, service utilization, HIV/AIDS, social networks, gendered experiences, and research methods. Service providers were asked about: philosophy about health and service provision, knowledge of ACB communities, types of services their organization provided, service use trends in ACB communities, barrier and facilitators to ACB people accessing services, HIV/AIDS, and research methods.

Interview packages for community members contained: a list of pre-determined, open-ended interview questions; an information and consent form; a demographics questionnaire; a list of local service providers; and a receipt to document that \$10 were received as a token of appreciation. Since service providers did not receive a monetary token of appreciation, the receipt was not included in their interview packages. They did not receive a list of service providers either, and a separate information and consent form was written for them.

A.2.3. Participant Recruitment

All interview participants were recruited using purposive sampling, which is an accepted sampling method in qualitative research. In purposive sampling, units are not selected randomly; rather they are selected to satisfy the purpose of the research.¹ In the case of the BLACCH Study, a purposive sample was selected to yield a final sample that was diverse and representative of a breadth of experiences. As a result, this purposive sample is believed to have yielded information and led to inferences that would have been impossible had a convenience or theoretical sample been selected.² In the case of the BLACCH Study, purposive sampling likely yielded findings that are more generalizable to the ACB population in London and Middlesex County, Ontario than would be expected had another strategy been chosen.

Participants were selected based on a number of characteristics, and minimum targets were arbitrarily set for each characteristic. The characteristics on which sampling of community members was based and the corresponding targets are described in Table A.1. Service providers were selected based on the organizations for which they worked. Since women are over-represented in the service professions, efforts were made to interview males from each organization whenever possible and appropriate for the purposes of the research project. One employee was selected from each of the following organizations: Muslim Resource Centre, London Cross Cultural Learner Centre, Middlesex-London Health Unit, AIDS Committee of London/ Regional HIV/AIDS Connection, Infectious Diseases Care Program at St. Joseph's Hospital, Options Clinic for Anonymous HIV Testing, Association Canadienne-français de l'Ontario London-Sarnia, and the London Inter-Community Health Centre. Each organization was chosen due to its client base and services. They each met at least one of these criteria: provides services specifically for ACB people, has a relatively large ACB client base, or provides HIV/AIDS services.

Table A.1: Targets for Community Member Participants

Characteristic	Target	Actual
Age		
16-21	3-4	3
22-30	4-5	5
31-40	4-5	5
41-50	4-5	10
51+	4	4
Parents	10	15

HIV-positive individuals	0-2	2
Injection drug users	1-3	1
Sexual orientation minority (e.g. gay, lesbian, bisexual)		
Male	1-3	1
Female	1-3	1
Homeless/ under-housed/ no fixed address	2	0
No income/ unemployed	2-3	3
High income (\$80,000 +)	1-2	3
Immigration experience		
Newcomers (0-5 years in Canada)	2-3	4
Canadian-born	4-5	6
Religion		
Christian	2-4	20
Muslim	2-4	3
Other	2-4	3
Ethnicity		
African	5-7	13
Caribbean	5-7	7
Other	3-7	7
Geographic dispersion		
Urban	19	27
Rural	4	0
Sex		
Male	7-10	12
Female	9-13	15

A.2.4. Interview Procedures

Interviews were audio-recorded and conducted following procedures outlined below and detailed in Appendices B and C. These procedures were similar for service providers and community members. Prior to starting each one-on-one interview, the interviewer gave the participant an information and consent form, explained it, and answered the participant's questions regarding it, if any arose. After consenting to the interview, each participant completed a demographics questionnaire on her/ his own or with the help of the interviewer. The interviewer: informed the participant about the range of topics that would be covered; asked the participant if there was anything s/he would like to "code" or leave out due to concerns about identification; and informed the participant that all identifiable information, like names, would automatically be coded (i.e. anonymized or left out of the transcript). During the interview, the interviewer documented: the participant's demeanour, triggers, what questions worked or did not work, the type of language used, expressions, gestures, and other non-verbal cues. The interviewer asked questions in the order in which they were listed and asked each participant to elaborate on her/his answers when necessary. At times, the interviewer reworded questions to make them more understandable to the participant while

preserving the intended meaning, which is a conventional practice in qualitative research.³

Following the interview, community member participants received the list of service organizations and \$10, regardless of whether or not they completed the interview. The notes taken during the interviews were used to compose field notes, which became part of the data and were linked to the corresponding interviews in the database. Interviewers met every three weeks to debrief (i.e. discuss the interviews that had been conducted).

Each interviewer was a member of the research team who had received interview training in a workshop designed specifically for the research team. None of the interviewers had prior experience with interviewing for research purposes. All three (3) interviewers were university-educated ACB women who were 20 to 40 years old.

A.2.5. Data Analysis

A professional transcriptionist transcribed all of the interviews, and members of the research team compared the transcripts to the audio-recordings to check their accuracy. Whenever inaccuracies occurred, the transcripts were corrected based on the audio recordings. Members of the research team entered the field notes and transcripts into a database created using NVivo 8.0, software, which assists with qualitative data analysis.

A qualitative content analysis (QCA) approach was used to analyze the data. This approach is particularly suitable when resources and time are limited, and it is very useful in mixed methods research.⁴ Additionally, purposive sampling is the most appropriate sampling method for QCA,^{4,5} especially when it is based on maximizing the variation in the sample.⁴ Furthermore, semi-structured interviews using open-ended questions is the best data collection method for QCA.^{4,5}

QCA makes it possible for researchers to sift through a large volume of textual data and gain information from participants' words without imposing their biases on the interpretation of this information.⁵⁻⁷ It focuses on the content or contextual meaning of narrative or text data obtained through qualitative research methods.⁶ QCA is not concerned with counts and frequencies; rather it focuses on systematically identifying themes and patterns in data in order to produce knowledge and increase understanding of

the topic being studied.^{6,7} QCA is particularly useful when little data are available in an area as it does not rely on existing knowledge or theories,^{5,6} and it provides an opportunity for researchers to immerse themselves in the data and gain new insights.⁶ Rather than create the categories, researchers allow the categories to emerge from the data.^{4,6,7} QCA is the first step for many other qualitative research methods, and it is useful for concept development and model building.⁶

The six (6) analytic strategies in QCA were followed in this analysis.^{4,6,7} First, the data were coded from the field notes and transcripts.^{6,7} SB and another interviewer completed this initial coding independently by summarizing the points made during each interview in bullet-style, and comparing and revising these summaries during their debriefing sessions. Summaries were finalized when there was agreement between both interviewers, the field notes, and the transcripts. During these sessions, the interviewers also completed the second analytic strategy by recording their reflections on the data and the insight gained from the data.⁴ Third, they identified phrases, patterns, and themes in the data by focusing on participants' responses to each question and documenting them.^{4,6} SB completed the next three steps alone to satisfy the requirements of this dissertation. Fourth, she stratified the data based on several of the participants' characteristics—this was done for community member and service provider interviews—and looked for commonalities and differences within the stratified data.^{4,6} Fifth, she identified some generalizations based on the patterns observed in the data. Finally, she re-examined these generalizations based on new and existing knowledge.^{4,6}

QCA is a qualitative descriptive method, and it is therefore not typically appropriate for developing a complete understanding of the concept being studied. Consequently, it relies heavily on the quality of the underlying data, so steps must be taken to ensure that the data are valid. Purposive sampling, asking open-ended questions, accurate transcription, and data-driven coding enhanced the authenticity of the data.⁴ The credibility of the data was enhanced by the study's focus on capturing participants' lived experiences.⁴ Furthermore, the data's integrity was enhanced through the debriefing sessions the interviewers used to compare and check the data, data collection methods, and interpretation of the data.^{4,6}

A.3. Phase II: Self-Administered Questionnaire

Data from Phase II were used to directly satisfy the three objectives of this dissertation (page 14), which are presented in Chapters 4, 5 and 6, respectively.

A.3.1. Target Population and Sample Size

The target population for the quantitative survey was ACB people who resided or spent the majority of the past year in London or Middlesex County. Participation was limited to persons who were 18 years or older—persons who were mentally incompetent, unconscious, or institutionalized were not included in the sample. At approximately 2% of the population (8,260 people), Blacks are the largest visible minority group in the London Census Metropolitan area.⁸ They comprise 2.2% (7,620 people) of the population in the city of London.⁸ The sample size achieved in this study was 188, which is approximately 4% of the local adult Black population. In all, 595 questionnaires were distributed, so 31.6% of them were returned.

A.3.2. Development of the Self-Administered Questionnaire

The questionnaire used in Phase II of the research was developed over the course of one year with input from a variety of sources, as outlined below. Knowledge gained from the interviews in Phase I was used to identify important topics, questions, and response choices to include in the questionnaire. Additionally, development of the questionnaire involved consultations with research teams in Ontario and Quebec that had previously conducted HIV/AIDS research with ACB populations. The researchers from the East African Health Study in Toronto (EAST) team shared their survey questionnaire, information about difficulties they had with their questionnaire during data collection, and ways in which questions could be reworded to improve their understandability.⁹ Additionally, upon learning about the BLACCH Study, the Public Health Agency of Canada connected SB with a researcher in Quebec who had collected detailed information about HIV risk and condom use among Quebeckers of Haitian origin.¹⁰ This researcher later shared his questionnaire with SB.

Since the findings from the interviews indicated that the questionnaire should include questions about general health, health care access, and the SDOH, the survey was broadened to cover topics beyond HIV/AIDS-related risk behaviours. Consequently, questionnaires for the Trans PULSE Project,¹¹ the Canadian Community Health Survey,¹²

and the Black Women's Health Study¹³ were obtained and items were selected from these questionnaires for inclusion in the BLACCH Study's questionnaire. Additionally, when relevant questions were not identified in other questionnaires, questions and response choices were written specifically for the current study.

Some of the questions identified in these questionnaires were not appropriate for the ACB population in London and Middlesex County due to issues with language and content, so they were revised to better fit local ACB communities. For instance, questions were reworded to omit jargon, and sexually explicit and derogatory terms were replaced with more commonly used words. Attempts were made to reduce the reading level needed for the questionnaire, and use simple English to account for language proficiency and literacy issues that could serve as barriers to participating in the survey for some members of the local ACB community.

The questionnaire was reviewed by the research team and community members, and pre-tested by 10 ACB people. Seven research team members and five community members received copies of the questionnaire and were advised to time themselves while they completed the questionnaire then provide feedback about the questionnaire as a whole or on specific questions. They were asked to pay close attention to the order, format, wording, and length of the questionnaire. The questionnaire was then revised based on these comments and suggestions, and the revised version was pre-tested in a group of 10 ACB people using the respondent debriefing method.¹⁴ This entailed respondents completing the questionnaire then meeting with a member of the research team to provide their interpretations of the questions and feedback about their experience participating in the survey project as a whole. The questionnaire was shortened based on the results of the pre-testing.

The final questionnaire covered topics related to health status, health behaviours, and health care use. Specific topics included: demographics, ethnicity, immigration experience, education, income, employment, health rating, physical health diagnoses, mental health diagnoses, health care use, testing and screening for health conditions, health information access, health and life insurance, drug use, alcohol and tobacco use, HIV testing, condom use, sexual history, birth control use, and HIV prevention and care

needs. It was divided into seven sections corresponding to the various topics, as seen in Appendix D.

The questionnaire was translated into French by a member of the research team, and the translation was edited by a professional translator. The translator was chosen because of his experience translating health and HIV/AIDS materials from English into French for ACB communities and for research projects. The edited translation was shared with three bilingual Francophone individuals who volunteered to review its grammar and assess its accuracy by comparing the content and meaning of the French version to the English one. All three reviewers reported that the French translation was true to the English version.

Members of the research team prepared survey packages that included the questionnaire, instructions for completing the questionnaire, a letter of information and consent, a postcard, a list of resources, and an addressed and stamped return envelope. Except for the questionnaire, all components of the survey packages were translated from English into French by an Anglophone volunteer, and the aforementioned Francophone volunteers checked them for accuracy and edited them as needed.

With the exception of the HIV/AIDS section (Section G), SB developed every section of the questionnaire. Although she was not primarily responsible for developing Section G, she played a large role in its development by reviewing, commenting on, and writing questions and response choices. She developed the other sections of the questionnaire with feedback, suggestions, and editing from the research team, her thesis advisory committee, and her thesis proposal examination committee.

A.3.3. Data Collection

A.3.3.1. Participant Recruitment

A random sample of the ACB population in London was not feasible due to financial and time constraints,¹⁵ so a convenience sampling strategy was used. Venue-based sampling, snowballing, and a media campaign were used in combination to recruit participants. These methods have been successful in recruiting ethno-racial minorities into health surveys.¹⁶⁻¹⁸ The venues from which participants were recruited by research team members included: community-based conferences, libraries, summer festivals,

community organizations, churches, sports tournaments, businesses, public spaces, and other community events. Due to its large, positive impact on recruitment within populations similar to London's and Middlesex County's ACB communities,^{16,17,19} snowballing was employed in recruitment as well. Network sampling methods, like snowballing, can introduce selection bias during recruiting, so efforts were made to limit the number of individuals any one participant could recruit into the study to five. Since people are usually networked with others similar to themselves, setting these limits likely prevented individuals similar to the enthusiastic recruiters from being overrepresented in the sample.²⁰ Fewer than five individuals from diverse backgrounds recruited members of their social networks, which helped to decrease the likelihood of selection bias and increase the sample's diversity. The media campaign made it possible to reach individuals who did not attend the venues mentioned above and were not connected to the community. It also helped inform potential participants about the project before they interfaced with research team members at the different venues. The media campaign included: interviews on radio shows that cater to ACB audiences, advertisements on local radio stations, press releases, posters, a newspaper advertisement, and articles in magazines and local newspapers.

Despite its likelihood of increasing selection bias when compared to random sampling, convenience sampling appears to be the only sampling method that has been used to successfully recruit a general population sample of ACB people in Canada and the United Kingdom.²⁰⁻²² In order to assess and account for selection bias, participants were asked how they were recruited into the study and the sample was compared to the 2006 Census results for the Black population in the London Census Metropolitan Area, as described later in the subsection titled "Weighting" (A.3.6).

No monetary incentives were provided for recruitment into, or participation in, the BLACCH Study's survey, so the success of the project depended heavily on social exchange theory as applied in the Tailored Design Method that was specifically designed for self-administered mailed-in questionnaires.²³ Rewards, costs, and trust predict whether or not an individual participates in a survey.²³ Non-monetary rewards that have been successful in other studies and were used in the BLACCH Study were: showing positive regard through making face-to-face contacts with community members and

giving them information sheets that contained SB's direct, personal contact information; e-mailing participants with updates about the project, if they indicated an interest in this; providing the results of the study to ACB community members in the form of a final project report; asking participants for advice and feedback along the way; and allowing participants to become more involved in the research process if they expressed an interest in doing so.^{17,18,23} Social costs to participating in the research project were reduced by using methods suggested by Dillman, such as: using language that was not subordinating; avoiding embarrassment by using simple questions and not requiring respondents to have background knowledge of the subject matter; reducing inconvenience through providing stamped and addressed return envelopes; providing the questionnaire in a portable format that does not require Internet access; designing the questionnaire in a manner that facilitates participants breaking it up in smaller, more convenient chunks; shortening questions; and maintaining consistency in question types and formats throughout the questionnaire.²³ Additionally, trust was established through seeking support and partnership from businesses and organizations serving ACB clients. One-on-one contact with individuals within the community and using direct recruitment methods also helped to establish trust. Additionally, efforts were made to collect names and e-mail addresses or phone numbers from all persons who were given copies of the questionnaire. This made it possible to send them biweekly reminders to complete the questionnaire and provided opportunities for them to ask questions or raise concerns about the survey. Returning the completed questionnaire indicated consent.

A.3.3.2. Questionnaire Administration

The questionnaire was self-administered and paper-based. This format was chosen to make it accessible for the majority of people in the population, regardless of whether they had consistent Internet access. Furthermore, this format made it easy for participants to complete the questionnaire whenever it was convenient for them because it made the questionnaire portable. The self-administration of the questionnaire reduced the anxiety and discomfort participants would face when answering highly personal questions included in the questionnaire, such as those about sexual behaviours. Had participants completed the questionnaire with the help of interviewers, this discomfort could have reduced the quality of the data for sensitive questions.^{24,25}

Based on estimates gathered from the pre-testing, most participants took between 25 minutes and one hour to complete the questionnaire, with most saying it took them about 35 minutes to finish the questionnaire in one sitting.

Upon completing the questionnaire, respondents mailed it, brought it to the university, or gave it to a member of the research team. Most respondents chose to mail their questionnaire, which further concealed their identities. Furthermore, all respondents received postcards to return if they wanted to receive the project’s final report, electronic bulletins with updates about the project, or invitations to events related to the project. Only 55 individuals took advantage of these opportunities. By not returning the postcard participants were further able to conceal their identities.

A.3.4. Measures

The following table (Table A.2) provides the variables used in each analysis contained in this dissertation, along with the corresponding questionnaire items. Details about how each variable was coded and analyzed are provided in the chapters corresponding to the analyses in which the variables were used.

Table A.2: Description of Variables

Objectives	Variables (Questionnaire Items)
<p>Chapter 4</p> <p><i>Objective 1:</i> To describe the distribution of HIV risk and protective behaviours among ACB people based on an individual’s social status and position (SSP)</p>	<p><i>Markers of SSP:</i> gender (A2), poverty status/ income (B8 and B12), immigration experience [Canadian birth (A3), time spent in Canada (A18), and immigration class upon arrival in Canada (A20)], and employment status (B2 and B3)</p> <p><i>Risk Factors:</i> age of sexual debut (F2), ever engaging in transactional sex (F29), history of forced/ unwanted sex (F26), having a partner who had used injection drugs (F24), ever testing for HIV (C14), testing for HIV in Canada in the past 12 months (C16), ever sharing drug use equipment (E12), lifetime abstinence (F1), abstinence in past 12 months (F6), unprotected sex with a cohabiting regular partner in the past 12 months (F10), unprotected sex with a non-cohabiting regular partner in the past 12 months (F13), condom use during last intercourse with a regular partner (F14), unprotected sex with casual partner in the past 12 months (F16), condom use during last intercourse with a casual partner (F17), never using a condom in the past 12 months (F18), mixing sex with drugs or alcohol (F23), being in a non-monogamous sexual partnership in the past year (F21 and F22), having a history of other STIs (F25), lifetime number of sex partners (F3), number of sex partners in past 12 months (F7)</p>
<p>Chapter 5</p> <p><i>Objective 2:</i> To identify which markers of social status and position (SSP) are associated with</p>	<p><i>Outcome:</i> Having an HIV test in Canada in the past year (C16)</p> <p><i>Markers of SSP:</i> gender (A2), poverty status/ income (B8 and B12), education level (B1), immigration experience [Canadian birth (A3), time spent in Canada (A18), current immigration status (A19), and immigration class upon arrival in</p>

Table A.2: Description of Variables

Objectives	Variables (Questionnaire Items)
<p>ACB people being tested for HIV infection in the last 12 months</p>	<p>Canada (A20)], ethnicity (A4 and A5), employment status (B2 and B3)</p> <p><i>Socio-demographic Factors:</i> age (A1), marital status (A15), sexual orientation identity (A14_3)</p> <p><i>Socio-Cultural Factors:</i> religiosity (A16), English language proficiency (A10 and A11)</p> <p><i>Sexual History:</i> number of lifetime sex partners (F3), number of sex partners in the past year (F7), knowing one's HIV status (C21), knowing one's partner's HIV status (C22), having a past pregnancy or getting a partner pregnant (F5), having unprotected sex with a cohabiting regular partner in the last year (F11), having unprotected sex with a non-cohabiting regular partner in the last year (F13), having unprotected sex with a casual partner in the last year (F16), having a history of other STIs (F25)</p> <p><i>Other factors:</i> applying for life insurance since 1990 (D15), testing for HIV for immigration purposes (C17), seeing a health care provider in the last 12 months (D6), having a primary care provider (D3), being exposed to HIV prevention messages (G1), perception of HIV risk in the ACB community (G17 and G19_1), knowledge about HIV transmission (G24)</p>
<p>Chapter 6</p> <p>Objective 3: To determine which markers of social status and position (SSP) are associated the frequency of condom use among ACB people in the last 12 months</p>	<p><i>Outcome:</i> Levels of condom use during the past 12 months (F11, F13 and F16)</p> <p><i>Markers of SSP:</i> gender (A2), poverty status/ income (B8 and B12), education level (B1), immigration experience [Canadian birth (A3), time spent in Canada (A18), current immigration status (A19), and immigration class upon arrival in Canada (A20)], ethnicity (A4 and A5), employment status (B2 and B3)</p> <p><i>Socio-demographic Factors:</i> age (A1), marital status (A15), sexual orientation identity (A14_3)</p> <p><i>Socio-Cultural Factors:</i> religiosity (A16)</p> <p><i>Partnership factors:</i> having a cohabiting regular partner in the past year (F10), having a non-cohabiting regular partner in the past year (F12), having a casual partner in the past year (F15), having a high risk partner (i.e. partner has other partners, partner injects drugs) (F21 and F24), having concurrent partners in the past year (F22), having a partner who wants to use condoms (F19_1_4, F19_2_4 and F20_2), wanting to have a child (F20_12), partner's ethnicity (F8)</p> <p><i>Sexual History:</i> number of sex partners in past year (F7), number of lifetime sex partners (F3), having a history of other STIs (F25), using birth control other than condoms (F28), ever engaging in transactional sex (F29), ever engaging in forced/ unwanted sex (F26), ever mixing sex with drugs or alcohol (F23),</p> <p><i>HIV Related Factors:</i> knowing own HIV status (C21), knowing partner's HIV status (C22), knowledge about HIV transmission (G24), being exposed to HIV prevention messages (G1), perception of HIV risk in the ACB community (G17 and G19_1)</p> <p><i>Reasons for not using condoms in the past year:</i> sex was too exciting (F20_4), not having a condom (F20_8), not able to afford a condom (F20_9), not knowing where to get a condom (F20_16), embarrassed about getting condoms</p>

Table A.2: Description of Variables

Objectives	Variables (Questionnaire Items)
	(F20_10), disliking condoms (F20_1) <i>Other factors:</i> having contact with health care provider in the last 12 months (D6)

A.3.5. Data Management

A.3.5.1. Codebook Design

After the questionnaire was completed, a research assistant created a codebook to serve as a resource for database design, design of the data entry interface, data cleaning, and data analysis. For each variable, the codebook included the variable's name, the corresponding question in the survey, a brief description of the variable, a description of the individuals who were asked to complete the question, the type of question, and the values and descriptions for each response choice. The codebook also included special instructions for coding and analyzing particular items, such as articles containing information about scoring scales. When scales were used, the source from which the scale was obtained was cited in the codebook. Revisions made to scales were recorded in the codebook as well. SB checked the codebook for accuracy and corrected errors identified within it.

A.3.5.2. Data Entry

SB designed the data entry interface as an electronic replica of the survey questionnaire using Microsoft InfoPath, which is a software application for designing and utilizing functional data entry forms. InfoPath is based on the XML paradigm, which makes it possible to separate the data in the form from the form's formatting and content. InfoPath can also be used to define data structures, and generate databases to house the data entered into forms.²⁶ The forms can also be programmed to include features not offered through InfoPath,²⁶ thus allowing forms to be multi-functional and multi-faceted. The InfoPath data entry form for the BLACCH Study included controls (i.e. checkboxes, drop-down lists, text fields, etc.) to facilitate data entry and mimic the options available in the paper version of the survey instrument. Additionally, SB programmed the form so that variable names and values were consistent with the codebook.

Data entry was performed by a group of eight research team members. SB trained each person individually in data entry techniques using InfoPath and provided them with a manual she created about data entry processes and procedures for the BLACCH Study. In addition to entering questionnaire data into the InfoPath data entry form, a data entry log file was created for making notes about inconsistencies in respondents' answers and differences between the paper questionnaire and its unique data entry form. This log file assisted with data cleaning and analysis. Upon entering the data into the InfoPath form, the form was saved for further viewing and quality assurance checks. SB checked each data entry form against the original paper questionnaire and the log file. After making corrections when necessary, the underlying data in the form were exported to the Microsoft Excel database. The data from every third form were then checked in the database to ensure that they were exported correctly and remained true to the information entered into the forms. SB also reviewed every entry in the log file to ensure the log file's accuracy.

A.3.5.3. Database Design

The database for the BLACCH Study's survey was created by Microsoft InfoPath. Once the data entry form was created using InfoPath, the form was coded to match the codebook and the data structure was defined. Using this information, InfoPath generated a rectangular database in Microsoft Excel. This database was reviewed and checked for accuracy to ensure that the database that was generated was identical to the one that would have been created manually.

A.3.5.4. Data Cleaning

Checking Data Values

During data checking, raw data are scrutinized for errors, and errors are corrected whenever possible; it is a routine part of data management.²⁷ SB performed data checking using graphical and statistical methods, such as those put forth by Cody.²⁸ For categorical data, she used the PROQ FREQ procedure in SAS to list variables and the SAS data step to revise invalid values.²⁹ Descriptive statistics obtained from SAS PROC UNIVARIATE helped her to identify outliers, skewness, peaks, and gaps in the distributions.²⁸ Box-plots also assisted with understanding the distribution of continuous variables. Additionally,

logic statements (e.g. if/ then statements) and arrays were used to recode variables when appropriate.

Handling Missing Data

The appropriate method for handling missing data should be based on assumptions about the reasons for the data being missing, and the nature of the data being collected.³⁰ Complete case analysis, available case analysis, single value imputation and multiple imputation are commonly used methods for handling missing data,³⁰ and the appropriateness of each method depends on the degree of missingness. SB used guidelines set forth by Harrell to select the method for handling missing data for each variable.³¹ If up to 5% of the data for a variable were missing, single imputation was used, since this would not affect model fit later on. The median value was imputed for continuous variable, and the most frequent category was imputed for categorical variables, as per Harrell's guidelines.³¹ For variables with 5% to 15% missingness, single imputation was used because missingness was usually approximately 10% and multiple imputation was unnecessary. Multiple imputation was recommended when missingness was 15% or more.³¹ None of the outcome variables for the regression models (i.e. testing for HIV in the past year and frequency of condom use) or markers of social status and position (SSP) was imputed. Furthermore, the imputed datasets were only used for model building, not for descriptive statistics.

It must be noted that in some cases, missingness occurred because the question was not applicable to a particular respondent. In these cases, SB made decisions about what to do with missing data logically, based on responses to other questions and skip patterns. For instance, a question in the survey asked: "Have you been tested for HIV in Canada in the last 12 months?" This question was preceded by a question asking: "Have you ever been tested for HIV?" If the respondent answered "no" to the question about ever being tested for HIV, that respondent was asked to skip the question about testing in Canada in the last 12 months. In this case, those who had never been tested for HIV had also not been tested in Canada in the past 12 months. Hence, those individuals were grouped with people who had not been tested for HIV in Canada in the last 12 months.

Handling Duplication

No participants completed the survey more than once, so duplication was not an issue. Steps were taken to reduce the likelihood of duplication and increase the likelihood that duplication would be detected. At the beginning of the questionnaire, participants were asked to only complete the questionnaire only once. They were also asked how many times they completed the questionnaire at the end. Since no monetary incentives were provided the likelihood that anyone would complete the complete the questionnaire multiple times was greatly reduced. If a participant had completed the survey more than once, her/his data would have been checked against data from other respondents in the dataset and excluded if duplication were present.

A.3.6. Data Analysis

A.3.6.1. Weighting

SB compared the sample obtained through the BLACCH Study to the Black population in the London Census Metropolitan Area, as defined by the 2006 Census. Participant non-response was high in the BLACCH Study (i.e. only 31.6% of the questionnaires were returned), thus leading to a sample that was not representative of the target population. She applied post-stratification, or non-response, weights to reduce non-response bias. Only one weight was assigned to each participant, and this weight was computed using logistic regression techniques, which is a methodologically sound method for calculating weights.^{32,33} Furthermore, the logistic regression technique is appropriate when sample sizes are small. First, SB compared the BLACCH Study's sample to the adult Black population included in the long form of the 2006 Census on the basis of age group (≤ 24 years, 25-34 years, 35-44 years, 45-54 years, ≥ 55 years), level of education, ethnicity, and sex—characteristics with which participant non-response is usually associated.³⁴ Based on the comparison, the BLACCH Study's sample was younger than the source population ($p=0.0099$). Furthermore, the sample was more educated ($p<0.0001$), included more people with African ethnicity ($p<0.0001$), and included more women ($p=0.0001$) than the population. Since the chi-square tests revealed that the two groups significantly differed on all four characteristics at the $p=0.05$ level, a regression model containing the four characteristics was used to calculate the probability

of an individual being included in the BLACCH Study's sample. This probability was then used to calculate the weights, and the weights were normalized so that they added up to 188, the size of the BLACCH Study's sample. As expected, the weights had a mean value of 1.00, and the standard deviation of the weights was 1.13. These analyses were performed using SAS.²⁹

A.3.6.2. Univariate Diagnostic Analyses

Univariate diagnostic analyses were performed to determine the most appropriate way to model covariates for the effect estimation models for Objectives 2 and 3, and to group categories for these models and the bivariate descriptive analyses for Objective 1. SB examined categorical variables using frequency tables and histograms, and she calculated proportions for categorical variables as well. SB calculated cumulative frequencies for ordinal categorical variables and relative frequencies for unordered categorical variables. Descriptive statistics, such as means, medians, modes, standard deviations, and ranges were obtained where appropriate. These diagnostic analyses were performed using the UNIVARIATE and FREQ procedures in SAS 9.3,²⁹ and they built on the information gathered during data cleaning.

A.3.6.3. Univariate Descriptive Analyses

Univariate descriptive analyses were performed to estimate the prevalences of sample characteristics and potential determinants of testing for HIV in the past year and the frequency with which condoms were used, Objectives 2 and 3, respectively. SB categorized all continuous variables for these analyses. The FREQ procedure in SAS was used to calculate the distribution of characteristics in the sample. The weights were added to the SURVEYFREQ procedure to calculate the population prevalences and corresponding 95% Wilson confidence intervals.²⁹

A.3.6.4. Bivariate Descriptive Analyses

Bivariate analyses were used to satisfy all three objectives, as these analyses comprise one of the first steps in model building, and Table A.2 presents the variables used in all the bivariate analyses. These analyses were performed using the TTEST and FREQ procedures in SAS 9.3,²⁹ as appropriate.

Objective 1 was to describe the distribution of HIV risk behaviours according to markers of SSP (i.e. gender, poverty status/ income, immigration experience, and employment status). To meet this objective, SB categorized all behavioural variables and the sample was stratified according to the markers of SSP (see variables in Table A.2). Normalized weights were included in the SURVEYFREQ procedure in SAS, which was used to compute point prevalences and their corresponding 95% Wilson confidence intervals, and perform Rao-Scott chi-square tests. The Rao-Scott chi-square test is a version of the Pearson chi-square test that adjusts for the study's design. Hence, it cannot be performed without a design correction, the value of which is typically calculated when the chi-square option is selected in SAS' SURVEYFREQ procedure.

A.3.6.5. Effect Estimation Modelling Strategy: Testing for HIV in the Past Year

Objective 2 was to identify which markers of SSP are associated with ACB people getting tested for HIV in the last 12 months. Since the outcome for this effect estimation model was binary, SB chose modified Poisson regression for the analysis. Modified Poisson regression is one of the many alternatives to logistic regression for binary outcomes.³⁵ Logistic regression is often used to estimate the prevalence odds ratio from cross-sectional data.³⁶ It is widely used in epidemiologic research, and is good for adjusting effect estimates for confounding and interactions.^{35,37} When outcomes are rare, it provides a good approximation of the relative risk,³⁷ but these estimates of relative risks are not valid when outcomes are not rare.³⁵ Unlike log-binomial regression, modified Poisson regression does not have convergence problems when point estimates of predicted probabilities are close to zero (0) or one (1).^{35,37} For the purposes of this thesis, modified Poisson regression is also superior to Cox regression because. Unlike Cox regression, it does not underestimate the degree of dispersion in the data.³⁵

The modified Poisson regression model was proposed by Zou in 2004,³⁷ and it is an extension of alternatives to logistic regression that were proposed by other scholars.³⁵ It is good for modelling rare events with different lengths of follow-up, and can be applied to cross-sectional data as well.^{35,37} Like the regular Poisson regression, it is modelled on a log scale and assumes that the mean and variance are equal, so it has only one model parameter.³⁷ It approximates the binomial distribution when the probability of the outcome is small,³⁷ and provides good point estimates.³⁵ Zou modified the Poisson

regression model by using sandwich estimation to produce robust error variance estimates. The confidence intervals based on the point estimates and variances yielded through modified Poisson regression have good coverage percentages, even for sample sizes as small as 100.³⁷ This model can also be used to adjust analyses, as was seen in a study assessing the co-occurrence of birth defects and intellectual disability.³⁸

Markers of SSP that were included in model building (see Table A.2) were identified through the conceptual framework and literature review underlying this dissertation (Chapters 2 and 3, respectively). Since this dissertation applies Intersectionality Theory, interaction terms were also included in the model along with the markers of SSP. Intersectionality Theory dictates that analyses explore the effects of race, class, and gender on social and health outcomes.³⁹⁻⁴¹ Hence, the model included two-way interaction terms that depicted the combined effects of sex and poverty status/ income with the other markers of SSP. These interactions theoretically create unique social positions that ultimately impact risk through their relationships with behaviours and choices.

SB developed the model for estimating the effects of markers of SSP on HIV testing in the past year using a modified version of the strategy set forth by Harrell *et al.*⁴²⁻⁴⁴ To assess multicollinearity between the predictor variables in the model, SB calculated the tolerance and variance inflation factor. Since there was no multicollinearity, all markers of SSP and known proximate determinants of HIV testing were included in bivariate modified Poisson regression models to obtain crude effect estimates. None of these variables was excluded from the multivariable model as per Harrell's recommendation.³¹ Two multivariable models were built—one with just the markers of SSP and socio-demographic factors (Model 1), and one using the variables from Model one and the proximate determinants of HIV testing that were identified in the literature (Model 2). Harrell recommends that all variables of interest should be included in the model simultaneously, but then automated variable selection methods can assist with reducing the number of variables in the model.³¹ Simulations show that backward elimination performs as well as bootstrapping (a method based on resampling) for predictor selection, and bootstrapping is a powerful method when working with small samples.⁴⁵ However, at present, backward elimination has to be performed manually for

modified Poisson regression models, because SAS 9.3 does not have a built-in function to perform this procedure.⁴⁶ Hence, since the outcome was binary, the number of predictor variables in each model was reduced using backward elimination in a logistic regression model, with a critical point of $p = 0.15$. Backward elimination avoids some of the problems inherent in forward selection, such as variables becoming insignificant after a new variable is added to the model. All candidate predictors were added to the model then the least significant variable was dropped based on the critical level. Automated model selection methods often produce unstable models, and noise variables are frequently added as predictors.^{47,48} This weakness was overcome by choosing candidate predictors based on the literature.³¹ Significant predictors from the resulting logistic regression model were entered into a modified Poisson model to create the final model. Age was not significant in the logistic regression models, but SB added it to the final modified Poisson version of Model 1 because it is related to marital status, which was in the logistic regression model. Age was also added to the modified Poisson version of Model 2 because it is related to marital status and number of lifetime sex partners, two predictors that were in the final logistic regression model. SB applied individualized weights at each level of the model building process to adjust for selection bias.

Although parsimony is of little importance when building models for the purpose of effect estimation,³¹ it is important for preventing over-fitting and increasing interpretability. Reducing the number of candidate predictors in the final model avoids over-fitting and increases the model's applicability outside the population in which it was developed.^{31,42} Hence, backward elimination helped to ensure that the model could be generalized to other ACB populations.

Linearity and distributional assumptions of the final model were checked to ensure that the model was appropriate for the data. Linearity assumptions were checked by transforming predictors into multiple terms and checking model fit. Distributional assumptions were investigated graphically and statistically.^{42,43}

The modified Poisson regression models were built using a macro from the PROC GENMOD procedure in SAS 9.3 with the REPEATED statement to implement sandwich error estimation.³⁷

A.3.6.6. Effect Estimation Modelling Strategy: Frequency of Condom Use

Objective 3 was to determine which markers of SSP are associated with different levels of condom use among ACB people in the last 12 months. Since the outcome (frequency of condom use) is ordinal, SB chose an ordinal logistic regression using the proportional odds model for the analysis. This kind of ordinal regression model is recommended for outcomes that may potentially be reversible (i.e. can increase and decrease, and the trajectory is not limited to one direction),⁴⁹ such as past year frequency of condom use. It is also recommended for continuous outcomes that have been categorized,⁴⁹ as degree of condom use was in the survey questionnaire. In contrast, continuation ratio models are best suited for outcomes that are not reversible. Also, cumulative odds models give cumulative odds ratios for the entire outcome scale while adjacent-category models provide odds ratios by contrasting pairs of categories.⁴⁹

The modified version of Harrell's modelling strategy, which was used to estimate the effects of markers of SSP on testing for HIV, was used here as well.^{31,42} Following the univariate descriptive analyses, SB dropped seven dichotomous variables from further analyses because one of their levels had fewer than 10 observations. These variables were: having a high risk sex partner, wanting to have a child, having a history of transactional sex, not using condoms because the sex was too exciting, not being able to afford condoms, not knowing where to buy condoms, and being embarrassed about getting condoms. All markers of SSP, the socio-demographic factors, and the remaining proximate determinants of condom use were included in bivariate and two multivariable (Model 1 and Model 2) proportional odds ordinal logistic regression models. Based on the results of Score tests for the Proportional Odds Assumption, both multivariable models' proportional odds assumptions had been satisfied ($p=0.2147$ for Model 1 and $p=0.5672$ for Model 2).

The analyses described in this sub-section were performed using SAS 9.3.²⁹ The PROC LOGISTIC procedure was used to develop the model.

A.3.6.7. Mediation Analysis

SB performed mediation analyses to meet Objectives 2 and 3. Mediation is the process through which a third variable intervenes in the pathway between an exposure (or main independent variable) and the outcome (or dependent variable); the intervening

variable therefore accounts for some of the total effect of the exposure on the outcome (c). The intervening or intermediate variable is called a mediator,⁵⁰ and unlike a confounder, it should not be controlled for in statistical analyses.⁵¹ Mediation analysis helps to move beyond “black box” epidemiology by attempting to explain how variables in a model are related to each other, and more specifically, how the exposure and outcome variables are related.⁵¹ Unlike simple associations, mediation is concerned with the functional relationships between variables.⁵²

There are a number of methods for examining mediation, but regression-based methods are preferred by researchers.⁵³ A scan of the literature on mediation analysis yielded six methods: the Baron and Kenny Causal Steps Tests, which is the most commonly used method; the Joint Significance Test, which is a variation of the Baron and Kenny test; the Sobel First-Order Test; PRODCLIN (product of coefficients test); the Percentile Bootstrap method; and the Bias-Corrected Bootstrap Test, which only differs from the Percentile Bootstrap method in that it corrects for skew that may be present in the population by centering the distribution around the true parameter.⁵³

Due to its flexibility and usefulness with categorical, ordinal, and continuous variables, SB selected the Baron and Kenny approach to mediation analysis.⁵⁰ This test has four steps: 1) assessing the total effect of each marker of SSP on each outcome (c); 2) assessing the effect of each marker of SP on each potential mediator (α); 3) assessing the effect of each potential mediator on each outcome (β) when the markers of SSP are held constant, and 4) confirming that the total effect of each marker of SSP on each outcome (c') is smaller when the potential mediator is controlled for, compared to when it is not. Using the values for α and β , SB estimated the indirect effect of each marker of SSP on each outcome ($\alpha\beta$).^{50,53} The $Z_{mediation}$ test was used to determine the statistical significance of each indirect effect. This method uses standardized regression coefficients (i.e. Z_α , Z_β , $Z_{\alpha\beta}$, and $Z_{c'}$) to compute a z-statistic, which is then tested against the standard normal curve. Unlike other tests for mediation, this test is able to accommodate all types of variables—categorical, ordinal, and continuous—as exposures, outcomes, and mediators. In fact, this method is the first to adequately address the issues related to having categorical mediators or outcome variables, and work in this area has only just begun.⁵⁴

As per Iacobucci's instructions, SB performed the $Z_{mediation}$ test by using the α and β estimates from the mediation analyses and their corresponding standard errors to calculate standardized α and β estimates (z_α and z_β , respectively), which were then used to calculate the standard error for $\alpha\beta$ ($z_{\alpha\beta}$). SB computed the $Z_{mediation}$ by dividing the product of z_α and z_β ($z_{\alpha\beta}$) by the standard error for $z_{\alpha\beta}$, and she tested the $Z_{mediation}$ against a standard normal curve.⁵⁴ The result of the two-sided $Z_{mediation}$ test was significant at the $\alpha=0.05$ level if its absolute value exceeded 1.96, and it approached significance if the absolute value of the result of the test exceeded 1.28, which corresponded to $\alpha=0.10$. The result of the $Z_{mediation}$ test depends on the strength of the mediation effect and the sample size, not the type of variable. Notably, the $Z_{mediation}$ test tends to underestimate mediation effects when all variables in the analyses are categorical and full mediation is expected. The $Z_{mediation}$ test works well for samples as small as 50.⁵⁴

Rather than simply regression coefficients, which do not make associations or paths comparable,⁵⁵ mediated proportions were calculated to quantify the proportion of total effect (c) through each mediator.⁵¹ This was done by dividing the indirect effect through the mediator ($\alpha\beta$) by the total effect of the exposure on the outcome (c).⁵¹ This method is commonly used in path analyses.⁵¹ Using the values for $z_{\alpha\beta}$, SB calculated mediated proportions (MPs) for each individual path and for all sets of paths from each marker of SSP to each outcome. SB used the following formula to calculate MPs:

$$MP = \left(\frac{|Z_{\alpha_1\beta_1}| + |Z_{\alpha_2\beta_2}| + \dots + |Z_{\alpha_n\beta_n}|}{|Z_{\alpha_1\beta_1}| + |Z_{\alpha_2\beta_2}| + \dots + |Z_{\alpha_n\beta_n}| + |Z_c|} \right)^{51}$$

SB performed the mediation analyses using the significant markers of SSP from Model 1 and the significant proximate determinants from Model 2. Since no guidelines for assessing moderated mediation with multi-categorical mediators or exposures presently exist, the mediation analyses only included main effects, not interaction terms.

A.4. Triangulation

SB used concurrent triangulation to fulfill Objective 1. It allowed for the integration of findings from the semi-structured interviews and self-administered questionnaire.⁵⁶ Triangulation is widely used to integrate findings from qualitative-quantitative mixed methods research. Using the concurrent triangulation strategy, data

from the two sources were collected and analyzed separately.⁵⁶ The data were then integrated by comparing them and noting areas of convergence and non-convergence.⁵⁶

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Appendix B: The Black, African, and Caribbean Canadian Health (BLACCH) Study

B.1. Introduction

This doctoral research project used information collected through the Black, African, and Caribbean Canadian Health (BLACCH) Study, which was a community-based research (CBR) project focused on health status, health behaviours, health care use, and HIV/AIDS in London and Middlesex County's African, Caribbean, and other Black (ACB) population. It was a qualitative-quantitative mixed methods research project that included research partners from different sectors and disciplines. The project's partners were: the Cross Cultural Learner Centre (CCLC), the African and Caribbean Council on HIV/AIDS in Ontario (ACCHO), the Regional HIV/AIDS Connection (RHAC), and The University of Western Ontario (Western). Additionally, the project's research team included ACB community members who were not associated with any of the partner organizations. Some local ACB organizations and community members served as advisors at various stages in the research process.

B.2. Project Partners

Each of the BLACCH Study's partner organizations operates within a different sector and brings knowledge and resources that can assist with knowledge translation (KT) by helping to apply the findings of this doctoral research to the development and implementation of programs and policies to reduce HIV vulnerability among ACB people. CCLC is a settlement organization that largely provides services to refugees and new immigrants. It serves as a partner in a number of multicultural initiatives locally, it is the parent organization of the London Black History Coordinating Committee, and its partners and members include various ACB community organizations. ACCHO is a provincial organization that is responsible for planning, overseeing, and executing the provincial strategy to address HIV in ACB populations. It is a phenomenal resource for KT through its ability to disseminate this project's findings and translate them into programs and policies aimed at preventing HIV infection provincially. Furthermore, ACCHO has built linkages with other HIV-focused organizations serving ACB populations throughout Europe and North America, which potentially expands the reach of these findings. RHAC is the AIDS service organization for London and Middlesex,

Perth, Huron, Elgin, Lambton, and Oxford counties. This organization plans and delivers prevention, care, and support services and programs for people living with HIV and populations at increased risk for HIV infection, such as the ACB population. Its expansion into the six aforementioned counties makes it an important partner for regional KT. Lastly, Western is a research university, and it provides technical expertise by contributing researchers and research trainees to the project. It also provides access to a research ethics board, data management and security resources, and other infrastructure needed to conduct research. The BLACCH Study gains credibility as a research project and access to academic researchers and scientists largely due Western's involvement. Western is therefore instrumental for KT to these two audiences as well as policymakers.

B.3. Community-Based Research (CBR)

ACB people have historically been marginalized and discriminated against in Canada.^{1,2,3} To protect this population's interests, this doctoral research was conducted using a CBR approach, which can empower research participants and promote equitable distribution of power in the hands of researchers, service providers, and community members.⁴⁻⁷ CBR merges research with a commitment to enhancing the capacities of communities by inviting them to work with academic researchers in equitable partnerships.^{4,5} It helps ensure that research findings benefit the lives of the study participants and increases the likelihood that the research will reflect the interests of stakeholders, thereby facilitating KT.^{4,6}

CBR is a recognized and widely promoted approach for addressing HIV. In order to meaningfully address HIV in vulnerable communities, it is imperative that researchers view these communities as resilient and capable of engaging in and addressing the broader social determinants of health (SDOH) related to HIV infection.⁵ This requires a paradigm shift from just seeing these communities as victims in need of help, to seeing them as true partners in research.^{4,5} A principal feature of CBR is its focus on incorporating multiple sources of knowledge that can influence policy and the delivery of programs and services.⁴ Additionally, CBR aims to strengthen communities and improve quality of life while generating information about their health priorities.⁴ This is done by asking questions that are raised and defined by community organizations and community members.⁵ CBR is concerned with the development of multidisciplinary, collaborative

partnerships between academic researchers and the communities they research in order to ensure that the research is relevant, methodologically rigorous and sound, and ethical.^{4,5} Hence, CBR is an important addition to HIV prevention-focused research.

The use of CBR in epidemiology brings the discipline back to its roots as a data-driven approach to public health research and practice.⁵ CBR can engender trust between the community being researched and the researcher, thereby leading to mutual benefits.⁵⁻⁷ This approach also has the potential to: increase the quality of data and response rates, identify new questions for future research, and translate research findings into action or policy.^{5,7}

B.4. The BLACCH Study and CBR

CBR is guided by a set of principles that exist on a continuum and are always evolving as more CBR is conducted.⁴ They can be viewed as goals a CBR project strives to achieve.^{4,8} Below are the guiding principles of CBR and brief discussions of how the BLACCH Study adhered to or sought to adhere to each principle.

Principle 1: *Recognizes the community as a unit of identity.*⁴ The population of interest should be one that already shares a common identity and individuals should have an emotional connection with other group members based on shared needs and common interests.⁴ Despite its diversity, members of London and Middlesex County's ACB population already formed a community, and the BLACCH Study used the existing community as the basis of this project. Community organizations, community events, and collaborations across community organizations are proof the community's existence. Thus the first principle of CBR was upheld in the BLACCH Study. Furthermore, through its involvement of community members, relevance to the community, and research and KT activities that brought various aspects of the community together, the BLACCH Study had also played a role in fostering community development.

Principle 2: *Builds on the community's resources and strengths.*⁴ Existing resources and relationships should be used to address health concerns in the community. CBR should expand or support social structures that help the community maintain health.⁴ The BLACCH Study upheld this principle by drawing team members from various sectors of the local ACB population, working with existing ACB organizations to conduct the research, and using community knowledge and resources to design the

research project. Recommendations from the research findings drew on resources that already exist within the community and capacities that could easily be built in the community.

Principle 3: *Facilitates collaborative partnerships throughout the research process.*^{4,8} CBR partners should work equitably and collaboratively in all phases of the research, and there must be processes in place that enable all partners to influence the research.⁴ The BLACCH Study brought together stakeholders from various organizations to work collaboratively as investigators on research project. As a result of the linkages made through this research, partner organizations have also been able to connect with community organizations that are specific to serving ACB people. This in turn fostered additional collaboration between partner organizations and other organizations in the community.

Principle 4: *Integrates knowledge and action that is mutually beneficial for all partners.*⁴ Information gathered in CBR should be for the purpose of later action. There should be a commitment to the implementation of research results for community change and improvement.⁴ Partner organizations in the BLACCH Study have already committed to translating the research findings into action. Their involvement in the research ensured that the questions addressed by the project were of relevance to them and that the recommendations based on the findings were actionable. Research partners had played a role in interpreting findings from the research and making actionable recommendations based on them. Additionally, RHAC and ACCHO have already implemented some of the findings from the BLACCH Study.

Principle 5: *Promotes a process of co-learning and empowering that is attentive to social inequities.*^{4,8} Knowledge, skills, capacity, and power should be reciprocally transferred in CBR, and inequities must be addressed explicitly.⁴ In addition to conducting the research and answering particular research questions, one objective of the BLACCH Study was to build the capacities of academic researchers to work with ACB populations and of community members and service providers to conduct health research. As such, the research team sponsored hands-on training for its members, community members, partner organizations, and community organizations. The trainings covered a variety of topics, including: conducting research interviews, designing databases,

managing research data, designing research questionnaires, analyzing results from interviews, descriptive statistical analyses, designing KT plans, conducting research with ACB populations, executing KT plans, working with the local ACB community, the structure of the broader ACB community locally, and building connections with community members and leaders.

Principle 6: *Involves a cyclical and iterative process from the start of the research process until its end or maintenance.*⁴ The BLACCH Study team periodically revised its Terms of Reference, which outlined the structure and scope of the research project, as well as individual team members' roles and responsibilities. The project was structured in a way that gave the team a general list of tasks and rough deadlines to fulfill the needs of the academic and non-academic partners, while allowing the research team enough flexibility to make changes that were needed to satisfy each partner's needs and integrate new ideas.

Principle 7: *Uses positive and ecological perspectives to improve health.*⁴ CBR focuses on well-being (i.e. broader health) and it encompasses ecological factors that impact health. These include social, political, economic, biomedical, and behavioural factors that serve as determinants of health and disease.⁴ The BLACCH Study focused on the SDOH, which fits into the ecological perspective. It collected data about social, economic, biomedical, and behavioural determinants that impact health and HIV vulnerability, and these determinants served as important analytical factors in the research products and recommendations.

Principle 8: *Disseminates knowledge gained and research findings to partners.*⁴ Findings and knowledge must be presented in language that is accessible and respectful of the community. The results must also be used to inform action that benefits the community.⁴ This means that KT is an essential component of CBR. According to the Canadian Institutes of Health Research, KT is a process that is both dynamic and iterative. It includes synthesizing, disseminating, exchanging, and applying knowledge in a way that is ethical.⁹ This basically means that knowledge must be integrated into a broader context and body of knowledge, messages should be tailored to the appropriate medium and audience, knowledge users and researchers should interact and learn from each other, and the application of knowledge must be done in a way that is consistent

with ethical principles and the socio-political context.⁹ In addition to being investigators in the BLACCH Study and shaping the research questions and project's design, each partner was involved in KT. They collaboratively designed and executed the KT plan along with other stakeholders in the community. Furthermore, as a result of their involvement, KT was integrated throughout the project's lifecycle. Details about KT in the BLACCH Study are provided in the next section.

B.5. The BLACCH Study's Knowledge Translation (KT) Plan

The BLACCH Study's KT plan was designed to reach ACB community members, health and social service providers with ACB clients, and academics and researchers. Community members were defined as ACB cultural communities, faith communities, community organizations, and individuals. Key messages for this stakeholder group focused on stressing the importance of health for ACB people, providing advice about how ACB people can stay healthy, and providing information about health-related topics of interest to the community. A one-minute public service video and posters were produced to stress the importance of health and provide advice about how to stay healthy, as well as information about HIV testing. Additionally, an article in the local Black directory provided advice about what ACB people can do to maintain their health. A discussion with faith leaders, community leaders, and community members helped to foster dialogue about the importance of health, disseminate the research findings, and develop plans to translate the research findings into improvements at the community and structural levels. Electronic-bulletins and reports were used to disseminate results from topic-specific analyses, and these were distributed through social media accounts (i.e. Facebook and Twitter), e-mail lists, and websites that reached ACB people, service providers, researchers, and health care providers in London and other parts of Ontario. The team created a final report for the BLACCH Study that summarized all of the information collected as part of the research. This report was distributed using the social media accounts, e-mail lists, and websites mentioned previously. Additionally, copies of the report were mailed to research participants who requested them. Clients, staff, members, and volunteers of partner organizations, also received copies of the report, and reports were also distributed through outreach and speaking engagements.

KT to service providers focused on reaching health and social service providers, health promoters and educators, and our research partners. For this group of stakeholders, we stressed: important health messages to share with ACB people, the best ways to reach ACB people, and key findings and recommendations from the research. The messages were distributed through electronic bulletins, reports, the project's final report, websites, and social media accounts, which were described previously. The CCLC requested a report on immigration experience and health, and RHAC requested a report on HIV/AIDS service needs. The team prepared these reports for each organization and orally presented the reports at each organization's staff meeting. Each organization also received 20 hard copies of the report it requested and an electronic version of the report as well. Each report included a set of recommendations for the organization to improve its services for ACB people.

Finally, the KT plan for the BLACCH Study focused on reaching academic audiences, which included: researchers working with or studying ACB populations, public health researchers, and researchers affiliated with Ontario's Ministry of Health and Long-Term Care. These researchers were mainly reached through the aforementioned website, conferences, and research articles and other publications. However, some were reached through the e-mails lists and social media, as well. Furthermore, the first paper from this dissertation was published in an open access journal in order to make the findings accessible to academic and community researchers, as well as community members and other stakeholders. Key messages that were shared with researchers focused on: social determinants of health in ACB populations, HIV prevention for ACB people, and areas in which additional Canadian research on ACB health is needed.

The BLACCH Study team decided not to focus on reaching policymakers and politicians directly. The team lacked the capacity and resources to effectively reach this audience, so this audience was reached indirectly instead. For instance, through ACCHO's work, the team has been able to impact the provincial strategy to address HIV/AIDS in Ontario's ACB communities. Additionally, some of the people on the aforementioned e-mail list are connected to the policy sector or have the capacity to influence policy, so they may be able to use the research to impact policy. The main crux of the team's policy-related KT activities was to empower the local ACB community to

use the results of the research to design and execute a strategy to impact changes at the community and structural levels. This was done through the meeting with community leaders, faith leaders, and community members, which was mentioned previously. The meeting also included leaders in the health sector.

B.6. Shamara Baidoobonso's Role in the BLACCH Study

Despite Shamara Baidoobonso (SB) working with a research team to plan and execute the BLACCH Study, she undertook this doctoral research project independently. SB was the BLACCH Study's Lead Principal Investigator, so she wrote the research grant, completed the study's ethics application, led the research team, ensured that the project was completed in a timely manner and on-budget, and was responsible for administrative tasks pertaining to the study. She chose her doctoral research topic and developed the data collection instruments in collaboration with the rest of the research team. To ensure that the topic of her doctoral research project was relevant to the needs of the partner organizations, SB consulted with the BLACCH Study's partners to identify areas they wanted to explore, then she constructed research questions within those areas. Finally, SB consulted with the study's partners to confirm that the final research questions were relevant to them. All literature reviews, conceptualizations, analysis designs and execution, and writing for this doctoral thesis are her work. Members of the research team and her dissertation advisory committee provided feedback on this dissertation and were involved in understanding the implications of the research findings.

B.7. Conclusion

This doctoral research project continually strived to incorporate all of the critical elements of CBR to ensure the inclusion of stakeholders at all levels and in all sectors. The research was conducted within, and adapts to, the ACB community in London and Middlesex County. It involved partners serving ACB communities and addressed the partners' informational needs. Finally, it built the research partners' and community's capacities, and shared knowledge in ways that are accessible to ACB people, service providers, and researchers.

B.8. References

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Appendix C: Community Member Interview Package

Interview Mini-Manual (Community Members)

Interview Packages

- List of questions
- Information and Consent Form
- Demographics Questions
- List of Service Providers
- Receipt

Interviewing Procedures

- 1) Give the participant the Information and Consent Form
- 2) Explain the Information and Consent Form
- 3) Give the participant the Demographics Questions to complete.
- 4) As the participant is completing the questionnaire, turn on both digital recorders and make sure they are in good working order. Test them.
- 5) Tell the participant what topics will be covered (i.e. topic headings for the questions)
- 6) Ask if there is anything the participant would like us to “code” or leave out of they are concerned with identification.
- 7) Begin the interview, and be sure to make notes on the sheets containing the questions.
- 8) Ask the questions as they appear on the sheet. You may ask the participant to elaborate on an answer.
- 9) At the end of the interview, ask if there are any concluding thoughts or anything the participant would like to share.
- 10) Give the community member the list of Service Organizations and Agencies.
- 11) Turn off the recorders.
- 12) Ask the community member to sign the receipt. (All community members will receive \$10 whether or not they complete the interview. They will all need to sign the receipt.)
- 13) Use your notes from the interview to write some field notes. Your field notes should also cover: participants’ demeanour, triggers, what questions worked and did not work, the type of language (i.e. words) used, and whatever else you think is relevant.

We will meet to debrief (i.e. discuss the interviews) once every three weeks.

Community Interview Structure

***probe for recent experiences and keep demographics questions in mind**

Introduction

- *Give consent form, explain if needed, get it signed*
- *Introduce each section so interviewee is aware of content*
- *Is there anything you would like us to 'code' or leave out in case you're concerned with identification?*

General Questions/ Conversation

- What is "health" and what does this mean to you?
- How healthy do you consider yourself?
- What does "community" mean to you?
- What are important health issues in your community? And what health issues are important to you personally?
- Where do you usually obtain health-related information, and how?

Migration-Related Questions

- Tell me about your experience migrating.
- Has Canada lived up to your expectations? Why, or why not?
- Do you think you have been healthier or less healthy since migrating?

Social Determinants of Health Questions

- Do you think you have ever been treated differently from other people when you were trying to access health care or social services?
- (If the person answers yes to the question above.) Do you think this difference in treatment was based on your race, gender, age, immigrant/ refugee status or sexual orientation. Why or why not?
- Do you think your income, education and/or housing have had an effect on your health? (Ask about each of these separately.)
- How has religion affected your health?
- Tell me how your culture has influenced your health.

Health Behaviour Questions

- How have drugs impacted local Black, African and Caribbean communities?
- How do people in the community stay healthy?
- Do you have a primary care provider? How often do you see him/her?

Service Utilization Questions

- What types of health care services do you access?
- Are you generally satisfied with the level of health and or social services provided in the community?
- How can current programs be made culturally-appropriate to better address these issues?

HIV-related Questions

- Do you believe HIV is a problem in your community?
- What do you think your risk of contracting HIV is?
- What barriers do African and Caribbean individuals face when accessing HIV/AIDS services?
- What types of services do Black, African and Caribbean individuals require for meeting their HIV/AIDS-related needs?
- Can you name one thing that you've heard people say about HIV/AIDS, but you know it's not true?

Social Network Questions

- How would you describe the local Black community?
- What kinds of social supports are available to you in London? How about the rest of Ontario?
- What supports does your ethnic community provide to newcomers?
- How do you keep your connections strong with people in your country of origin ("back home")?
- How have your relationships with people "back home" influenced your health?
- Who do you respect and whose advice do you follow?

Gendered Experiences Questions

- In what ways has your gender impacted your ability to be healthy?
- How do you relate to the men/women in your life?
- What is the position of women in your culture/community? Has living in Canada influenced this position?
- Do you believe gender affects the distribution of power in romantic relationships (i.e. marriage, dating, common-law) between men and women?

Research Methods

- If community members are given surveys covering the topics we talked about today, do you think they will be willing to complete the survey and then give out surveys to their friends?

Concluding thoughts

Black, African and Caribbean Canadian Health (BLACCH) Study

Interview Information Letter/ Consent Form (for Community Members)

Title of Project:

Black, African and Caribbean Canadian Health (BLACCH) Study

Introduction:

The Black, African and Caribbean Canadian Health (BLACCH) Study is a community-based research project that is trying to understand and improve the health of Middlesex County's Black, African and Caribbean population. The project will create a database resource of general health information to guide future research on the health of this population.

The project partners for the BLACCH Study are: the London Cross Cultural Learner Centre, the AIDS Committee of London, The University of Western Ontario and the African and Caribbean Council on HIV/AIDS in Ontario. This project is funded by the Schulich School of Medicine and Dentistry at The University of Western Ontario.

Purpose of the Interview:

The information provided in this letter can help you make an informed choice about participating in this part of the study.

These interviews make up the first part of a two-part study. In this part, the research team will select 30 people to interview in-depth about their experiences with health services in Middlesex County. Seven (7) of the people we interview will be health and social service providers, and the other 23 will be community members. In the second part, we will give out a survey.

We are asking you participate in this interview to learn more about the experiences of Black, African and Caribbean Canadians in Middlesex County. Specifically, we will be looking at: health and social service use, migration-related experiences, health behaviours, HIV-related issues, social network characteristics, health beliefs, gender and social class.

These interviews will be done to understand how social factors (i.e. things that are non-medical or non-biological) affect health within the Black, African and Caribbean population. The information we get will be used to design evidence-guided programs to prevent disease and promote health in Middlesex County's Black community.

In addition to the interview, we will ask you to fill out a demographics sheet that has 27 questions. It asks questions about: race/ ethnicity, age, language ability, residence, immigration class and status, education, employment and income, family, sexual orientation, and religion. These will help us as we go over the information from the interviews, and will help us get a better understanding of your experiences.

The research team made up of Black, African and Caribbean community members and allies (i.e. persons who support the community and are committed to helping the community reach its goals).

We have identified some things that we think are important for understanding health in this community, but we want community members to be more involved, so we would like to hear about your experiences. Using your voices, we hope to make a case for policy changes that benefit the Black community in, and outside of, Middlesex County.

Participation:

Anyone who lives in Middlesex County and is a member of a Black, African or Caribbean community can participate. Participants must be 16 years or older and able to speak English. It does not matter if you are an immigrant, a refugee, or were born in Canada.

This is a general health study, so your HIV or other disease status is not relevant.

Other Important Information:

The interview should be about 90 minutes long, and you can stop and start the interview as you wish. We would like you to share your experiences to the extent that you feel comfortable doing so. You can refuse to answer any questions that make you uncomfortable.

We will give you \$10 whether or not you complete the interview.

The study will have a Facebook group (named The BLACCH Study) that provides up-to-date information about our progress and findings. Town hall-style meetings will also be held at community organizations every so often to provide information to community members and service providers, and answer questions. Research team members will also provide information through local community-focused media (i.e. newspapers and radio programs). If funding is available, we will also translate our findings into the most common languages spoken in the community.

Community members and service providers will be directly involved in all stages on this community-based research project, including creating materials to be shared with the community.

Risks and Benefits:

Some of the questions we ask may be sensitive. You do not have to answer any questions that make you feel uncomfortable. Other than that, you are not taking any risks by participating in this interview.

Because the goal of the research project is to improve the health services provided to Black, African and Caribbean persons in Middlesex County, your participation may lead to better services for yourself and for other Black, African and Caribbean Canadian persons.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time. At any point before, during or after the interview, you may ask for certain information to be removed. If you are participating in other studies at this time, that is fine and you may also take part in this interview.

Anonymity & Confidentiality:

Your participation in this interview is anonymous. This means that your name will not be on any document or file associated with this research. We will replace all information that can be used to identify you with non-identifiable, common words. The interviews will be tape recorded, but after they have been typed, the recordings will be destroyed. This is being done to make sure that no one will ever be able to connect your answers with you. Also, we will not use any information that can identify you in any reports or publications.

Copies of the interview transcripts will be kept on secure computers and in locked cabinets located in locked rooms at The University of Western Ontario. Only members of the research team will have access to the transcripts.

You may keep this letter. If you have any questions at all concerning this research project, your experience with the interview, or how the data will be handled, please contact members of the research team:

Greta Bauer, Principal Investigator
Assistant Professor
Epidemiology & Biostatistics
The University of Western Ontario
xxxx@schulich.uwo.ca
xxx-xxx-xxxx, ext. xxxxx

Shamara Baidoobonso
Ph.D. Candidate
Epidemiology & Biostatistics
The University of Western Ontario
xxxx@schulich.uwo.ca
xxx-xxx-xxxx, ext. xxxxx

If you have questions about the conduct of this research project or your rights as a research subject please contact:

Office of Research Ethics
The University of Western Ontario
xxx-xxx-xxxx
xxxx@uwo.ca

Your participation in this interview does not mean you are waiving any of your legal rights or authorizing the release of the BLACCH Study team or any of its partners from any liability for negligence.

Since your name will not be collected, any information the BLACCH Study team uses in any form of publications (i.e. journal articles, pamphlets, reports, etc.) can never be traced to you. No specific information revealing your identity can be published.

Dr. Greta R. Bauer, PhD, MPH
Principal Investigator
The BLACCH Study

I have read this Information Letter/ Consent form for the Black, African and Caribbean Canadian Health (BLACCH) Study, or have had it read to me. The study has been explained to me and I agree to participate. All my questions have been answered to my satisfaction.

Participant name (please print)

Participant signature

Date

Parent/Guardian name (please print)

Parent/Guardian signature

Date

Person obtaining informed consent

Date

Demographic Questions for Interviews

1) How old are you? _____

2) What do you consider your ethnic/ racial background?

3) How will you describe your abilities in the English and/or French Language? (Check all that apply)

English

Proficiency:	Reading	Writing	Speaking	Listening
High				
Moderate				
Basic				
None				

French

Proficiency:	Reading	Writing	Speaking	Listening
High				
Moderate				
Basic				
None				

4) What language do you speak at home? _____

5) Where in Middlesex County do you reside? _____

6) How long have you lived in Middlesex County? _____

7) How long have you lived in Canada? _____

8) Where did you live prior to residing in Canada? _____

9) Where else have you lived in Canada? _____

10) What is your immigration class?

- Born Canadian
- Skilled worker immigration
- Economic/ Business class immigration
- Family class immigration
- Unskilled worker immigration
- Temporary worker/ Work visa
- Refugee
- Visitor visa
- Student visa
- Other, please specify: _____
- I choose not to answer this question

11) What is your current immigration status?

- Canadian citizen
- Landed Immigrant/ Permanent Resident
- Refugee
- Refugee claimant
- Temporary worker
- Visitor
- Student
- No status
- I choose not to answer this question

12) What is the highest level of education you completed?

- Grade school or less
- Some high school
- College or trade school
- University – Bachelor's Degree
- University – Graduate School

13) What was your field of study?

- Social science, education, government service, or religion
- Business, finance or administration
- Natural and applied science or related fields
- Health
- Art, culture, recreation or sports
- Sales and service
- Trades, transport and equipment operators, or related fields
- Processing, manufacturing, or utilities
- Other, please specify: _____

14) Are you currently employed?

- Yes
- No

15) In what industry are you currently employed?

- Management occupations
- Business, finance and administration occupations
- Natural and applied sciences and related occupations
- Health occupations
- Occupations in social science, education, government service and religion
- Occupations in art, culture, recreation and sport
- Sales and service occupations
- Trades, transport and equipment operators and related occupations
- Occupations unique to processing, manufacturing and utilities
- Other, please specify: _____

16) Approximately how many hours do you work per week? _____

17) Last year, what was your total household income?

- Less than \$5,000.00
- \$5,000 to less than \$10,000
- \$10,000 to less than \$15,000
- \$15,000 to less than \$30,000
- \$30,000 to less than \$40,000
- \$40,000 to less than \$50,000
- \$50,000 to less than \$60,000
- \$60,000 to less than \$80,000
- \$80,000 to less than \$100,000
- \$100,000 or more
- I do not know my total household income
- I choose not to answer this question

18) How many people are supported by this income? Please include yourself and those who do not live with you, even if they live in another country and you are sending them money.

19) Do you have children?

- Yes
- No

20) How many children do you have? _____

21) Thinking of your relationship status, are you...?

- Married
- Common-law
- Single, currently dating
- Single, not dating
- Widowed
- Divorced

22) Is the person you are married to...?

- Male
- Female

23) Would you consider yourself trans, or of trans experience (i.e. transgendered, transsexual or transitioned)?

- Yes
- No

24) What is your gender?

- Male
- Female

25) Do you consider yourself ...?

- Bisexual
- Gay
- Straight/Heterosexual
- Other, please specify: _____

26) Are you primarily attracted to...?

- Only men
- Mostly men
- Men and women equally
- Mostly women
- Only women
- Neither men nor women

27) What is your religion? _____

AIDS Committee of London
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Options Clinic
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Huron Heights Plaza
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

London Inter-Community Health Centre
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Infectious Diseases Care Programme
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

YWCA St.Thomas-Elgin
xxxx xxxx Street,
St. Thomas, ON
xxx-xxx-xxxx

Association Canadienne-français de l'Ontario London-
Sarnia
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

London Cross Cultural Learner Centre
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Middlesex-London Health Unit
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Kenwick Mall
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Middlesex County Department of Family and Social
Services
Middlesex County Building
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

Strathmere Lodge
xxxx xxxx Street,
Strathroy, ON
xxx-xxx-xxxx

LUSO Community Services
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

South London Neighbourhood Resource Centre
xxxx xxxx Street,
London, ON
xxx-xxx-xxxx

RECEIPT

I was given \$10 in cash for my participation in the BLACCH Study.

Participant name (please print)

Participant signature

Date

Appendix D: Service Provider Interview Package

Interview Mini-Manual (Service Providers)

Interview Packages

- List of questions
- Information and Consent Form
- Demographics Questions

Interviewing Procedures

- 1) Give the participant the Information and Consent Form
- 2) Explain the Information and Consent Form
- 3) Give the participant the Demographics Questions to complete.
- 4) As the participant is completing the questionnaire, turn on both digital recorders and make sure they are in good working order. Test them.
- 5) Tell the participant what topics will be covered (i.e. topic headings for the questions)
- 6) Ask if there is anything the participant would like us to “code” or leave out of they are concerned with identification.
- 7) Begin the interview, and be sure to make notes on the sheets containing the questions.
- 8) Ask the questions as they appear on the sheet. You may ask the participant to elaborate on an answer.
- 9) At the end of the interview, ask if there are any concluding thoughts or anything the participant would like to share.
- 10) Give the community member the list of Service Organizations and Agencies.
- 11) Turn off the recorders.
- 12) Ask the community member to sign the receipt. (All community members will receive \$10 whether or not they complete the interview. They will all need to sign the receipt.)
- 13) Use your notes from the interview to write some field notes. Your field notes should also cover: participants’ demeanour, triggers, what questions worked and did not work, the type of language (i.e. words) used, and whatever else you think is relevant.

We will meet to debrief (i.e. discuss the interviews) once every three weeks.

Service Provider Interview Structure

***probe for recent experiences**

Introduction

- *Introduce yourself, explain the study*
- *Give consent form, get it signed*
- *Ask about any questions or concerns, address these*
- *Is there anything you would like us to 'code' or leave out in case you're concerned with identification?*

General Questions/Conversation- for Support/ Social Service Providers

- What is your overall philosophy about health?
- What is your philosophy and approach to serving your African, Caribbean and Black clients?
- How would you describe the African, Caribbean and Black communities in the area?
- How would you describe the acceptance of African, Caribbean and Black persons by the larger community?
- Do you see community acceptance as being related to health?
- How integrated are newcomers into the community?
- What are some gender dynamics you have observed in the community, and how are these related to health?

General Questions/Conversation- for Health Service Providers

- What is your overall philosophy about health?
- How would you characterize the overall health of the local African, Caribbean and Black community?
- How would you describe the African, Caribbean and Black communities in the area?
- What are some gender dynamics you have observed in the community, and how are these related to health?

General Service Questions

- What kinds of services do you provide and do you provide any services specifically for African, Caribbean and Black populations?
- What services do African, Caribbean and Black clients utilize and how frequently do they utilize these services?
- What cultural factors have you identified that influence service utilization?
- Do men and women utilize your services differently?
- Do you know of any other local services available to this population?

- Generally speaking, and not specifically about your organization: do you feel African, Caribbean and Black persons have been treated differently because of their race, ethnicity, or any other characteristic when accessing services?
- Do you think it is easy for members of this community to access support services?
- What information do you need in order to serve London's Black, African and Caribbean communities? What information is needed now?
- If you perceive a need to do so, how would you change your services to better serve the Black, African and Caribbean communities in London?

HIV-related Questions

- Do you know of any services the government provides to help persons who are HIV-positive?
- What barriers to African, Caribbean and Black persons face when accessing HIV services?
- What encourages people to access HIV services?
- What kinds of HIV-related services do your African, Caribbean and Black clients utilize and request?
- What barriers have you identified that prevent women from protecting themselves against HIV infection?
- What barriers have you identified that prevent men from protecting themselves against HIV infection?

Research Methods

- If community members are given surveys covering the topics we talked about today, do you think they will be willing to complete the survey and then give out surveys to their friends?

Concluding thoughts

Black, African and Caribbean Canadian Health (BLACCH) Study

Interview Information Letter/ Consent Form (for Service Providers)

Title of Project:

Black, African and Caribbean Canadian Health (BLACCH) Study

Introduction:

The Black, African and Caribbean Canadian Health (BLACCH) Study is a community-based research project that is trying to understand and improve the health of Middlesex County's Black, African and Caribbean population. The project will create a database resource of general health information to guide future research on the health of this population.

The project partners for the BLACCH Study are: the London Cross Cultural Learner Centre, the AIDS Committee of London, The University of Western Ontario and the African and Caribbean Council on HIV/AIDS in Ontario. This project is funded by the Schulich School of Medicine and Dentistry at The University of Western Ontario.

Purpose of the Interview:

The information provided in this letter can help you make an informed choice about participating in this part of the study.

These interviews make up the first part of a two-part study. In this part, the research team will select 30 people to interview in-depth about their experiences with health services in Middlesex County. Seven (7) of the people we interview will be health and social service providers, and the other 23 will be community members. In the second part, we will give out a survey.

We are asking you participate in this interview to learn more about the experiences of Black, African and Caribbean Canadians in Middlesex County. Specifically, we will be looking at: health and social service use, migration-related experiences, health behaviours, HIV-related issues, social network characteristics, health beliefs, gender and social class.

These interviews will be done to understand how social factors (i.e. things that are non-medical or non-biological) affect health within the Black, African and Caribbean population. The information we get will be used to design evidence-guided programs to prevent disease and promote health in Middlesex County's Black community.

In addition to the interview, we will ask you to fill out a demographics sheet that has 27 questions. It asks questions about: race/ ethnicity, age, language ability, residence, immigration class and status, education, employment and income, family, sexual orientation, and religion. These will help us as we go over the information from the interviews, and will help us get a better understanding of your experiences.

The research team is made up of Black, African and Caribbean community members and allies (i.e. persons who support these communities and are committed to helping these communities

reach their goals). We have identified some things that we think are important for understanding health in this community. However, we want greater input from service providers who work with this population, and so, we would like to hear about your experiences. Using your voices along with those of community members, we hope to make a case for policy changes that benefit Black persons in, and outside of, Middlesex County.

Participation:

English-speaking persons providing health or social services to Black, African and Caribbean persons are eligible to participate. Specifically, these persons must be employed by one of the following organizations: London Cross Cultural Learner Centre, Middlesex-London Health Unit, AIDS Committee of London, Infectious Diseases Care Program at St. Joseph's Hospital, Options Clinic for Anonymous HIV Testing, Association Canadienne-français de l'Ontario London-Sarnia, and the London Inter-Community Health Centre.

Other Important Information:

The interview should be approximately 90 minutes long, and you can stop and start the interview as you wish. We would like you to share your experiences to the extent that you feel comfortable doing so. You can refuse to answer any questions that make you uncomfortable.

The study will have a Facebook group (named The BLACCH Study) that provides up-to-date information about our progress and findings. Town hall-style meetings will also be held at community organizations every so often to provide information to community members and service providers, and answer questions. Research team members will also provide information through local community-focused media (i.e. newspapers and radio programs). If funding is available, we will also translate our findings into the most common languages spoken in the community.

Community members and service providers will be directly involved in all stages on this community-based research project, including creating materials to be shared with the community.

Risks and Benefits:

Some of the questions will ask may be sensitive. You do not have to answer any questions that make you feel uncomfortable. Other than that, you are not taking any risks by participating in this interview.

Because the goal of the research project is to improve the health services provided to Black, African and Caribbean persons in Middlesex County, your participation may lead to an improvement in the services provided by your organization to this population. In other words, the effectiveness and appropriateness of your organization's services may improve.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time. At any point before, during or after the interview, you may ask for certain information to be removed. If you are participating in other studies at this time, that is fine and you may also participate in the interview.

Anonymity & Confidentiality:

Your participation in this interview is anonymous. This means that your name will not be on any document or file associated with this research. We will replace all information that can be used to identify you with non-identifiable, common words. The interviews will be tape recorded, but after they have been typed, the recordings will be destroyed. This is being done to make sure that no one will ever be able to connect your answers with you. Also, we will not use any information that can identify you in any reports or publications.

Copies of the interview transcripts will be kept on secure computers and in locked cabinets located in locked rooms at The University of Western Ontario. Only members of the research team will have access to the transcripts.

You may keep this letter. If you have any questions at all concerning this research project, your experience with the interview, or how the data will be handled, please contact members of the research team:

Greta Bauer, Principal Investigator
Assistant Professor
Epidemiology & Biostatistics
The University of Western Ontario
xxxx@schulich.uwo.ca
xxx-xxx-xxxx, ext. xxxxx

Shamara Baidoobonso
Ph.D. Candidate
Epidemiology & Biostatistics
The University of Western Ontario
xxxx@schulich.uwo.ca
xxx-xxx-xxxx, ext. xxxxx

If you have questions about the conduct of this research project or your rights as a research subject please contact:

Office of Research Ethics
The University of Western Ontario
xxx-xxx-xxxx
xxxx@uwo.ca

Your participation in this interview does not mean you are waiving any of your legal rights or authorizing the release of the BLACCH Study team or any of its partners from any liability for negligence.

Since your name will not be collected, any information the BLACCH Study team uses in any form of publications (i.e. journal articles, pamphlets, reports, etc.) can never be traced to you. No specific information revealing your identity can be published.

Dr. Greta R. Bauer, PhD, MPH
Principal Investigator
The BLACCH Study

I have read this Information Letter/ Consent form for the Black, African and Caribbean Canadian Health (BLACCH) Study, or have had it read to me. The study has been explained to me and I agree to participate. All my questions have been answered to my satisfaction.

Participant name (please print)

Participant signature

Date

Person obtaining informed consent

Date

Demographic Questions for Interviews

1) How old are you? _____

2) What do you consider your ethnic/ racial background?

3) How will you describe your abilities in the English and/or French Language? (Check all that apply)

English

Proficiency:	Reading	Writing	Speaking	Listening
High				
Moderate				
Basic				
None				

French

Proficiency:	Reading	Writing	Speaking	Listening
High				
Moderate				
Basic				
None				

4) What language do you speak at home? _____

5) Where in Middlesex County do you reside? _____

6) How long have you lived in Middlesex County? _____

7) How long have you lived in Canada? _____

8) Where did you live prior to residing in Canada? _____

9) Where else have you lived in Canada? _____

10) What is your immigration class?

- Born Canadian
- Skilled worker immigration
- Economic/ Business class immigration
- Family class immigration
- Unskilled worker immigration
- Temporary worker/ Work visa
- Refugee
- Visitor visa
- Student visa
- Other, please specify: _____
- I choose not to answer this question

11) What is your current immigration status?

- Canadian citizen
- Landed Immigrant/ Permanent Resident
- Refugee
- Refugee claimant
- Temporary worker
- Visitor
- Student
- No status
- I choose not to answer this question

12) What is the highest level of education you completed?

- Grade school or less
- Some high school
- College or trade school
- University – Bachelor's Degree
- University – Graduate School

13) What was your field of study?

- Social science, education, government service, or religion
- Business, finance or administration
- Natural and applied science or related fields
- Health
- Art, culture, recreation or sports
- Sales and service
- Trades, transport and equipment operators, or related fields
- Processing, manufacturing, or utilities
- Other, please specify: _____

14) Are you currently employed?

- Yes
- No

15) In what industry are you currently employed?

- Management occupations
- Business, finance and administration occupations
- Natural and applied sciences and related occupations
- Health occupations
- Occupations in social science, education, government service and religion
- Occupations in art, culture, recreation and sport
- Sales and service occupations
- Trades, transport and equipment operators and related occupations
- Occupations unique to processing, manufacturing and utilities
- Other, please specify: _____

16) Approximately how many hours do you work per week? _____

17) Last year, what was your total household income?

- Less than \$5,000.00
- \$5,000 to less than \$10,000
- \$10,000 to less than \$15,000
- \$15,000 to less than \$30,000
- \$30,000 to less than \$40,000
- \$40,000 to less than \$50,000
- \$50,000 to less than \$60,000
- \$60,000 to less than \$80,000
- \$80,000 to less than \$100,000
- \$100,000 or more
- I do not know my total household income
- I choose not to answer this question

18) How many people are supported by this income? Please include yourself and those who do not live with you, even if they live in another country and you are sending them money.

19) Do you have children?

- Yes
- No

20) How many children do you have? _____

21) Thinking of your relationship status, are you...?

- Married
- Common-law
- Single, currently dating
- Single, not dating
- Widowed
- Divorced

22) Is the person you are married to...?

- Male
- Female

23) Would you consider yourself trans, or of trans experience (i.e. transgendered, transsexual or transitioned)?

- Yes
- No

24) What is your gender?

- Male
- Female

25) Do you consider yourself ...?

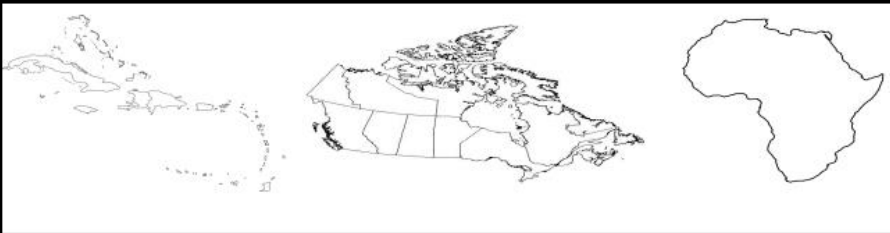
- Bisexual
- Gay
- Straight/Heterosexual
- Other, please specify: _____

26) Are you primarily attracted to...?

- Only men
- Mostly men
- Men and women equally
- Mostly women
- Only women
- Neither men nor women

27) What is your religion? _____

Appendix E: BLACCH Study Questionnaire (English Version)




THE BLACCH STUDY

The Black, African and Caribbean Canadian Health (BLACCH) Study


**Health Status,
Health Behaviours and Use of Health Services**

August 2010

Department of Epidemiology and Biostatistics
Schulich School of Medicine and Dentistry
The University of Western Ontario



IN PARTNERSHIP WITH:



AIDS COMMITTEE OF LONDON
cclc London Cross Cultural Learner Centre
CACVO Le Centre des africanistes et caribbéens de l'Ontario
ACCHO African and Caribbean Health and Wellness Council of Ontario
Western
Schulich MEDICINE & DENTISTRY

Eligibility Questions

- 1) Do you identify yourself as Black (i.e. belonging to the Black race)?
 No
 Yes

- 2) Do you live in London or Middlesex County, Ontario or spend most of the year in London or Middlesex County?
 No
 Yes

- 3) Are you at least 18 years old?
 No
 Yes

If you answered "no" to any of the questions above, thank you for your interest, but please do not continue with this survey.

If you answered "yes" to all the above questions, please continue by completing the survey and thank you for your interest.

A Few Questions before We Start

1. What are the first three digits of your postal code? (optional)

2. Have you heard of the BLACCH Study?

- No
- Yes

3. How did you hear about the BLACCH Study?

- Friend
- TV
- Radio
- Poster/ flier
- Agency
- Other, please specify: _____

4. How did you get a copy of this survey?

- Someone on the research team gave me the survey
- A stranger gave me the survey
- A friend gave me the survey
- I got the survey from an agency, please name the agency: _____
- Other, please specify: _____

5. Is someone helping you to fill out this survey?

- No, I am doing this on my own
- Yes, a friend or family member is helping me in person
- Yes, a friend or family member is helping me over the phone
- Yes, someone from the research team is helping me by phone

A. About You

Before we can improve the health of London-Middlesex County's Black communities, we need to know who the community members are. Since you know more about yourself and your life than anyone else, please tell us a little bit about you. ****Please remember that this information is confidential.**

1) In what year were you born?

_____ Year

2) What is your gender?

- Male
 Female
 Other, please specify: _____

3) Where were you born?

_____ Country

4) To what ethnic or cultural groups do you belong?

5) People living in Canada come from many different cultural and racial backgrounds. What cultural and racial groups did your ancestors belong to? *Please mark (X) all that apply.*

- European or White (example: Greek, English, Russian)
 East Asian (example: Chinese, Japanese, Korean)
 South Asian (example: East Indian, Pakistani, Sri Lankan)
 African (example: Ghanaian, Kenyan, Ethiopian)
 Caribbean (example: Jamaican, Trinidadian, Puerto Rican)
 Pacific Islander (example: Samoan, Tongan, Fijian)
 Latin American (examples: Costa Rican, Colombian, Guatemalan)
 South East Asia (example: Vietnamese, Cambodian, Indonesian)
 Arab (examples: Iraqi, Lebanese, Saudi Arabian)
 West Asian (example: Afghan, Iranian)

6) How often are you mistaken for a White person?

- None of the time
 Some of the time
 Most of the time
 All of the time

7) How often are you mistaken for a race other than Black or White?

- None of the time
 Some of the time
 Most of the time
 All of the time

8) Please mark (X) off all the languages on this list that are **easy** for you to **speak**.

- English
 French
 Amharic
 Somali
 Swahili
 Spanish
 Arabic
 Other, please specify: _____

9) Please mark (X) off all the languages on this list that are **easy** for you to **read**.

- English
 French
 Amharic
 Somali
 Swahili
 Spanish
 Arabic
 Other, please specify: _____

10) How often do you think you have problems with speaking English?

- None of the time
- Some of the time
- Most of the time
- All of the time

11) How often do you think people have a hard time understanding you when you are speaking English?

- None of the time
- Some of the time
- Most of the time
- All of the time

12) How often do you think you have problems with speaking French?

- None of the time
- Some of the time
- Most of the time
- All of the time

13) How often do you think people have a hard time understanding you when you are speaking French?

- None of the time
- Some of the time
- Most of the time
- All of the time

14) What is your sexual orientation **right now**?
Please mark (X) all that describe you.

- Bisexual
- Gay or Lesbian
- Straight
- Other, please specify:

15) What is your **legal** marital status **right now**?
Please mark (X) the right box.

- Married (Married to one or more person)
Living common-law (Living with a boyfriend or girlfriend, and have been living with him or her for at least one year)
- Separated (Married, but no longer living with husband or wife, for any reason other than being sick or because of work)
- Divorced (Got a legal divorce and have not married another person, and are not living common-law)
- Widowed (Husband or wife has died, and you have not remarried and are not living common-law)
- Marriage was annulled
- Never been married

Our religious beliefs can affect decisions we make about our health, and programmes to improve health should be respectful of these beliefs.

16) In General, would you say you are?

- Very religious
- Religious
- Not very religious
- Not religious at all

17) What, if any, is your faith or religion?

- None
- Agnostic/atheist
- Christian, please specify type:

- Muslim, please specify type:

- African traditional, please specify type:

- Caribbean or West Indian traditional, please specify type:

- Other, please specify:

- Don't know

If you were born in Canada, please go to section B of the questionnaire.

18) How long have you been living in Canada?

_____ Years

Or

_____ Months

19) What was your **official immigration status** when you **moved to** Canada? *Please mark (X) one.*

- Unskilled worker immigration
- Skilled worker immigration
- Economic or business class immigration
- Family class immigration
- Temporary worker or work visa
- Refugee- government sponsored
- Refugee- non-government sponsored
- Refugee claimant/ pre-removal risk assessment (PRRA)/ Judicial Review
- Visitor visa
- Student visa
- Undocumented/ Non-status/ Without papers
- I don't know
- Other, please specify:

20) What is your **official immigration status** in Canada **right now**? *Please mark (X) one.*

- Canadian citizen
- Landed immigrant/ permanent resident
- Refugee
- Refugee applicant/ person in need of protection (before decision has been made by immigration authorities)
- Temporary worker/ work permit holder
- Visitor
- Student
- Undocumented / No status/ Without papers
- I don't know
- Other, please specify:

B. School, Work and Money

Now we want to ask you some questions about your schooling, work and income. We know some of these are personal questions and they may make you feel uncomfortable, but we need to know this information because money, schooling and work all affect health. ****Please remember that this information is confidential and anonymous.**

1) What is the highest level of schooling you have **finished** whether in **Canada or abroad**? Please mark (X) only one answer.

- Never gone to school
- Some elementary/primary school
- Completed elementary/primary school
- Some secondary school
- Completed secondary school
- Some community college
- Completed community college
- Some university at the bachelor's level
- Completed bachelor's degree
- Completed university certificate or diploma above bachelor's degree
- Completed professional school (example: law school, dental school, medical school)
- Completed graduate degree
- Other, please specify:

2) Are you a student in any type of school **right now**? Please mark (X) all that apply.

- No
- Yes, elementary/primary school
- Yes, secondary school
- Yes, community college
- Yes, trade school
- Yes, university for a bachelor's degree
- Yes, university for a certificate or diploma above a bachelor's degree
- Yes, professional school (example: law school, medical school, dental school, etc.)
- Yes, university graduate school (for Master's or doctoral/ Ph.D. degree)
- Yes, adult learning centre
- Yes, ESL (English as a second language classes)
- Other, please specify:

3) Did you work at a job or business in Canada at any time in the last **12 months**?

- No → **Please go to question 6**
- Yes, permanently employed part time
- Yes, part time seasonal work
- Yes, part time occasional work
- Yes, permanently employed full time
- Yes, full time seasonal work
- Yes, full time occasional work
- Yes, self-employed (or I work for myself)

4) How many hours do you usually work a week?

_____ Hours

5) How many jobs do you have **right now**?

_____ Jobs

If you answered questions 3, 4 and 5, please go to question 7.

6) What is the reason for you not working at a job or business **right now**? Please mark (X) all of your reasons.

- I am sick or ill
- I am taking care of my children
- I am taking care of elder relatives
- I am pregnant (females only)
- I have other personal or family responsibilities
- I am on vacation
- I am in school or on educational leave
- I am retired
- I am laid off
- My work is seasonal
- I have a disability
- Other, specify:

7) What is your best estimate of **your total personal income**, before taxes and deductions, from all sources in the past **12 months**? *Please mark (X) only one answer.*

- Less than \$5,000
- \$5,000 to \$9,999
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 or more
- Don't know
- Rather not say

8) What is your best estimate of the total **combined income**, before taxes and deductions, of **all household family members** (including youth) from all sources in the past **12 months**? *Please mark (X) only one answer.*

- Less than \$5,000
- \$5,000 to \$9,999
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 or more
- Don't know
- Rather not say

9) Including yourself, how many people live in your household?

_____ People

Sometimes we have to send money to help support family and friends in Canada and abroad, and this can affect the amount of money that is available to be spent on our health. The following questions will give us information about how much money is available for health care spending.

10) What is your best estimate for the total amount of money **you personally** sent to friends and relatives (family) in the past **12 months**?

- I did not send money to family and friends in the past 12 months
- I sent money to family and friends→
Amount: _____ Dollars

11) What is your best estimate of the total amount of money **you and all household family members** sent to friends and relatives in the past **12 months**?

- I did not send money to family and friends in the past 12 months
- I send money to family and friends→
Amount: _____ Dollars

12) Including yourself, how many people are being supported on the household income you mentioned in question 8? *Please include everyone who is being supported, even those who may live outside of Canada.*

_____ People

13) How would you describe your housing situation?

- Living in a homeless shelter
- Living on the street
- Living in a group home or boarding home
- Living in a student residence
- Living with a friend
- Living with a family member
- Living in my own home (i.e. renting, buying, leasing)
- Other, please specify: _____

C. General Health

The next few questions deal with your health. These questions will help us find out what health problems we should focus on when improving the health of Black communities in London and Middlesex County. Some of the questions are sensitive, but we are only asking them because it is information we need to know. ****Please remember that this information is confidential and anonymous.**

1) In general, compared to others of your age, how would you describe your health?

- Excellent
- Very good
- Good
- Fair
- Poor

2) **Compared to one year ago**, how would you say your health is now?

- Much better than 1 year ago
- Somewhat (a bit) better now than 1 year ago
- About the same as 1 year ago
- Somewhat (a bit) worse now than 1 year ago
- Much worse now than 1 year ago

3) How satisfied are you with your life in general?

- Very satisfied
- Satisfied
- Neither satisfied nor unsatisfied
- Dissatisfied
- Very dissatisfied

4) In general, how would you describe your mental health?

- Excellent
- Very good
- Good
- Fair (not too good)
- Poor (bad)

5) Thinking about the amount of stress in your life, how would you describe most of your days?

- Not at all stressful
- Not very stressful
- A bit stressful
- Quite a bit stressful
- Extremely (very) stressful

6) Has a health care provider ever told you that you have any of the following health problems? If yes, please include the **year of diagnosis**. Please mark (X) all that apply and provide the year when necessary.

- Arthritis/ rheumatism, year: _____
- Breast cancer, year: _____
- Cancer of the cervix, year: _____
- Cancer of the prostate, year: _____
- Colorectal cancer, year: _____
- Diabetes, year: _____
- Fibroids in the uterus or womb, year: _____
- Heart attack, year: _____
- Heart disease, year: _____
- High blood pressure/ hypertension (not during pregnancy) , year: _____
- HIV/AIDS, year: _____
- HTLV I or II, year: _____
- Lupus, year: _____
- Migraine headaches, year: _____
- Sickle cell anaemia, year: _____
- Stroke, year: _____
- Tuberculosis, year: _____
- Other health condition, specify: _____ year: _____
- I have not been diagnosed with any major health disorder

7) Has a health care provider ever told you that you have any of the following mental health conditions? If yes, please include the **year of diagnosis**. Please mark (X) all that apply and provide the year when necessary.

- Anxiety disorders (examples: panic attacks, post-traumatic stress disorder), year: _____
- Bipolar disorder, year: _____
- Borderline personality disorder, year: _____
- Dissociative identity disorder (multiple personality disorder), year: _____
- Major depression, year: _____
- Schizophrenia, year: _____
- Other health condition, specify: _____ year: _____
- I have not been diagnosed with any major mental health disorder

Sometimes we go to the doctor to "get checked" if we feel sick or just to make sure everything is OK. The following questions in this section will let us know what kinds of things the doctor does when you go in for a visit.

8) When was your last visit to a family doctor, nurse practitioner, clinic or nurse in Canada?

- I have never visited a family doctor, clinic or nurse in Canada
- Less than 1 year ago
- 1 to 2 years ago
- 3 to 4 years ago
- 5 to 9 years ago
- 10 or more years ago

9) When was the last time you had your blood pressure taken at a doctor's office or clinic in Canada?

- Never
- Less than 6 months ago
- 6 months to less than 1 year ago
- 1 year to less than 2 years ago
- 2 years to less then 5 years ago
- 5 or more years ago

10) When was the last time you had a stool test to check for colon cancer in Canada?

- Never
- Less than 1 year ago
- 1 year to less than 2 years ago
- 2 years to less than 3 years ago
- 3 years to less than 5 years ago
- 5 years to less than 10 years ago
- 10 or more years ago

11) **Women:** When is the last time you had a PAP smear test in Canada?

- Never
- Less than 6 months ago
- 6 months to less than 1 year ago
- 1 year to less than 3 years ago
- 3 years to less than 5 years ago
- 5 or more years ago

12) **Women:** When is the last time you had a breast exam at a doctor's office or clinic in Canada?

- Never
- Less than 6 months ago
- 6 months to less than 1 year ago
- 1 year to less than 3 years ago
- 3 years to less than 5 years ago
- 5 or more years ago

13) **Men:** When was the last time you had a prostate specific antigen (PSA) test for prostate cancer at a doctor's office or clinic in Canada?

- Never
- Less than 1 year ago
- 1 year to less than 2 years ago
- 2 years to less than 3 years ago
- 3 years to less than 5 years ago
- 5 or more years ago

14) Have you ever been tested for HIV/AIDS?

- No
- Yes

- Don't know for sure
- Rather not say

15) How many times have you been tested for HIV?

_____ Times

16) Have you been tested for HIV in Canada in the last 12 months?

- No
- Yes

- Don't know for sure
- Rather not say

17) Have you ever been tested for HIV for immigration purposes?

- No → **please go to question 19**
- Yes

- Don't know for sure
- Rather not say

18) How did you learn of **your** test results?

- An immigration officer told me directly
- An immigration officer told a friend or relative
- A health care provider told me directly
- A health care provider told a friend or relative
- Other, please specify:

- Rather not say

19) Has your main sex partner (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) **ever** been tested for HIV?

- No
- Yes

- Don't know for sure
- Rather not say

20) Do you agree with each of the following sentences about HIV/AIDS and the blood test for HIV? *Please mark (X) the appropriate boxes..*

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	HIV/AIDS is a sickness that attacks the immune system
<input type="checkbox"/>	<input type="checkbox"/>	There is a cure for HIV/AIDS
<input type="checkbox"/>	<input type="checkbox"/>	There are medications that allow a person who has HIV to live longer
<input type="checkbox"/>	<input type="checkbox"/>	I am confident that health care professionals in Canada always keep results of HIV tests confidential
<input type="checkbox"/>	<input type="checkbox"/>	You always have to give your name when you get an HIV test in Canada
<input type="checkbox"/>	<input type="checkbox"/>	I know where to go to get an HIV test if I wanted one in Canada

21) Do you know your HIV status?

- No
- Yes
- Rather not say

22) Do you know your main partner's HIV status?

- No
- Yes
- Rather not say

23) If you have HIV, how do you think you got HIV? *Please mark (X) all that apply.*

- Sex with someone of the opposite gender (straight sex)
- Sex with some of the same gender (gay sex)
- Blood transfusion or blood products
- Needlestick injury
- Sharing needles (injection drug use)
- Other, please specify:

- Don't know
- Not applicable; I do not have HIV

For information about HIV prevention, testing, treatment and counselling, please contact the



D. Health Care Use

Now we would like to ask you about your contact with health professionals in Canada. ****Please remember that this information is confidential and anonymous.**

- 1) Do you have health insurance **right now**?
- No → **Go to question 3**
 - Yes, public only
 - Yes, private only
 - Yes, public and private
- 2) What kind of health insurance do you have?
Please mark (X) all that apply.
- Government
 - Employer-based
 - Private
- 3) Do you have a regular primary care provider (i.e. medical or family doctor, or nurse practitioner) here in London or Middlesex County?
- No
 - Yes → **Go to question 5**
- 4) Why do you not have a regular primary care provider (i.e. medical or family doctor, or nurse practitioner)? *Please mark (X) all that apply.*
- No primary care providers are available in my area
 - Primary care providers in my area are not taking new patients
 - I have not tried to contact one
 - I had a primary care provider who left or retired
 - Other, please specify:-

- 5) In the past **12 months in Canada**, did you ever go to any of the following people for anything related to your physical or mental health? *Please mark (X) all that apply.*
- Massage therapist
 - Acupuncturist
 - Homeopath, naturopath, or herbalist
 - Religious or spiritual healer
 - Traditional Healer
 - None of the above
- 6) In the past **12 months in London or Middlesex County**, did you ever go to any of the following people for anything related to your physical or mental health? *Please mark (X) all that apply.*
- Family doctor or general practitioner
 - Nurse practitioner
 - Eye specialist or doctor (ophthalmologist or optometrist)
 - Any other specialist medical doctor (such as a surgeon, allergist, orthopaedist, gynaecologist, HIV specialist, or psychiatrist)
 - Nurse
 - Dentist or orthodontist
 - Chiropractor
 - Physiotherapist
 - Social worker or social welfare officer
 - Counsellor
 - Psychologist
 - Speech, audiologist, or occupational therapist
 - Dietician/nutritionist
 - Chiropodist or foot care specialist
 - None of the above
- 7) While living in London or Middlesex County, what is the furthest distance you have **ever** had to travel for physical or mental health care?
- In my city or town
 - To another city or town.
How far away by car? _____ Hours
_____ Minutes
 - To another province
 - To another country
- 8) How far did you travel to get your **most recent** appointment for physical or mental health care?
- In my city or town
 - To another city or town.
How far away by car? _____ Hours
_____ Minutes
 - To another province
 - To another country

9) During the past **12 months**, was there ever a time when you felt that you needed health care but didn't get it? This includes times when you did not try to get health care, but felt that you should have.

- No → *Please go to question 11*
 Yes

10) In the past **12 months**, what type of health care were you unable to get when you needed it? *Please mark (X) all that apply.*

Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	Treatment of a physical illness
<input type="checkbox"/>	<input type="checkbox"/>	Treatment of an emotional or mental health problem
<input type="checkbox"/>	<input type="checkbox"/>	A regular check-up (including regular pre-natal care)
<input type="checkbox"/>	<input type="checkbox"/>	Care of an injury
<input type="checkbox"/>	<input type="checkbox"/>	Other, please specify:

11) How comfortable are you with talking with your family doctor or nurse practitioner about your health needs? *Please mark (X) only one response.*

- Very uncomfortable
 Uncomfortable
 Comfortable
 Very comfortable
 I do not have a family doctor in London or Middlesex County

12) In your opinion, how much do doctors and nurse practitioners you have seen in London or Middlesex County know about the health care needs of Black people? *Please mark (X) only one response.*

- They don't know anything about the health care needs of Black persons
 They know a few things about the health care needs of Black persons
 They know about the health care needs of Black persons
 They know a lot about the health care needs of Black persons
 I have not seen a doctor in London or Middlesex County
 I would rather not say

13) Have you ever had to educate a doctor or nurse practitioner about your needs as a Black person?

- No
 Yes

14) Where do you **currently** go to get information about health in London or Middlesex County? *Please mark (X) all that apply.*

- Doctor/ nurse practitioner/ nurse
 Magazines/newspapers/ books/ pamphlets
 Alternative therapist
 Friends/word of mouth
 Family members
 Partner/spouse
 Television/radio
 Internet
 School
 HIV/AIDS service organizations
 Telephone hot-lines
 Community organizations
 Support groups
 Diabetes Education Centres
 Other, please specify:
 I do not receive information about health in London or Middlesex County

15) Have you applied for life insurance at any point since 1990?

- No
 Yes
 Don't know

E. Health Behaviours

*This next section asks some questions about things you do that can affect your health. By answering these questions, you will help us know what behaviours we should focus on when we are trying to better the health of Black people in London and Middlesex County. Some of the questions may be sensitive, but it is important that we ask them. Please remember that no one will know your answers, and the information you give us will be kept private and secure. ****Please remember that this information is confidential and anonymous.***

1) Have you **ever** smoked cigarettes?

- No
 Yes

2) Have you **ever** had a drink of beer, wine, liquor or any other drink with alcohol in it?

By "drink" we mean:

- one bottle, can or a glass of beer
- one glass of wine or a wine cooler
- one mixed drink or cocktail

- No → **Go to question 4**
 Yes

3) Is your drinking a problem for you **right now**?

- No
 Sometimes
 Yes

4) In the past **4 weeks**, did you take any vitamin or mineral supplements?

- No → **Go to question 8**
 Yes

5) Did you take them at least once a week?

- No → **Go to question 8**
 Yes

6) Last week, on how many days did you take your vitamins?

_____ Days

7) In the past **4 weeks**, on how many days did you take your vitamins?

_____ Days

8) Which of the following do you **usually** eat or drink at least one time per week? *Please mark (X) the appropriate boxes*

- Fruit juice
 Fruit
 Green salad
 Potatoes (not French fries, fried potatoes or potato chips)
 Carrots
 Vegetables other than carrots, potatoes or green salad
 None of the above

9) How often do you **usually** do the following? *Please mark (X) the appropriate box.*

	Never or hardly	Some times	Often or always
Eat the skin on the chicken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eat the fat on meat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add salt to your food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add pepper to your food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10) Have you done any exercises or physical activities in the past **3 months**?

- No
- Yes

11) Have you done any of the in the past **3 months**? Please mark (X) the all that apply.

- Walking for exercise
- Gardening or yard work
- Swimming
- Riding a bicycle
- Dancing
- Exercising at home
- Playing a sport
- Taking an exercise class
- Lifting weights
- Jogging or running
- Golfing
- None of the above apply

Now we are going to ask you some questions about drug use.

12) If you have ever injected drugs, have you **ever** used a needle or injecting or shooting equipment (such as cookers, cotton or water) that someone else had used already?

- No
- Yes
- I have never injected drugs

13) Have you ever tried or used the following? Please mark (X) all that apply.

- Marijuana, cannabis, or hashish ("*pot*", "*dope*")
- Cocaine or crack ("*coke*", "*freebase*")
- Speed, amphetamines or crystal meth
- Ecstasy ("*E*", *MDMA*)
- Hallucinogens, PCP, or LSD ("*acid*", "*peyote*")
- Sniff glue, gasoline, or other solvents
- Heroin
- Steroids, such as testosterone, dianabol, or growth hormones, to increase your performance or to change your physical appearance
- Chat ("*khat*" or "*mira*")
- Other, please specify: _____
- I have not used any drugs that were not prescribed for me by my doctor

F. Sexual and Reproductive Health

We would like to ask you some questions about sexual health and sexual behaviours. We are asking these questions because sexual behaviours can have very important effects in general health. Some of the questions in this section may be uncomfortable for you to answer, but you can be assured that anything you say will remain confidential (private). ****Please remember that this information is confidential and anonymous.**

1) Have you ever had sex?

- No → **Please go to section G**
- Yes, vaginal sex
- Yes, anal (bum) sex
- Yes, vaginal sex and anal (bum) sex

2) How old were you when you first had sex?

_____ Years old

3) With how many people have you ever had sex over your lifetime? *Please mark the box next to the closest answer.*

- 1 person
- 2 to 4 people
- 5 to 9 people
- 10 to 19 people
- 20 people or more
- I don't know
- I would rather not say

4) What were the genders of the people with whom you had sex?

- All male
- Mostly male
- Equally male and female
- Mostly female
- All female
- I don't want to answer

5) How many times have you gotten pregnant, or gotten a partner pregnant?

We will now ask you some questions about the people you had sex with in the last **12 months**. We are asking these questions to try and find out about the kinds of practices that may put your health at risk and to better target health services. We will not ask you any personal details about your sexual partners that would identify who they are.

6) In the **past 12 months**, have you had sex?

- No → **Please go to question 23**
- Yes
- Don't want to answer → **Please go to question 23**

7) Over the **past 12 months**, with how many people did you have sex?

_____ People

8) How many of these people were African, Caribbean or Black?

- None of them
- Some of them
- All of them
- Rather not say

9) Did you have any regular partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) over the **last 12 months**?

- No → **Go to question 15**
- Yes

10) Over the **past 12 months**, with how many of your regular sex partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) did you live?

- None → **Go to question 12**
- 1 partner
- 2 partners
- 3 partners
- 4 partners
- 5 partners or more
- Rather not say

11) Over the **past 12 months**, how often did you use condoms with your regular sex partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) with whom you lived?

- Never
- Hardly (*less than 10% of the time*)
- Sometimes (*between 10% and 39% of the time*)
- Half of the time (*between 40% and 59% of the time*)
- Most of the time (*between 60% and 89% of the time*)
- Almost always (*90% or more of the time*)
- Always (*100% of the time*)

12) Over the **past 12 months**, how many of your regular sex partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) did you **not** live with?

- None
- 1 partner
- 2 partners
- 3 partners
- 4 partners
- 5 partners or more
- Rather not say

13) Over the **past 12 months**, how often did you use condoms with your regular sex partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) that you did **not** live with?

- Never
- Hardly (*less than 10% of the time*)
- Sometimes (*between 10% and 39% of the time*)
- Half of the time (*between 40% and 59% of the time*)
- Most of the time (*between 60% and 89% of the time*)
- Almost always (*90% or more of the time*)
- Always (*100% of the time*)

14) Did you use a condom the **last time** you had sex with a regular sex partner (husband or wife, boyfriend or girlfriend, or fiancé or fiancée)?

- No
- Yes
- Rather not say

15) Over the **past 12 months**, how many casual sex partners (**not** your husband or wife, boyfriend or girlfriend, or fiancé or fiancée) did you have?

- None → **Go to question 18**
- 1 partner
- 2 partners
- 3 partners
- 4 partners
- 5 partners or more
- Rather not say

16) Over the **past 12 months**, how often did you use condoms with your casual sex partners (**not** your husband or wife, boyfriend or girlfriend, or fiancé or fiancée)?

- Never
- Hardly (*less than 10% of the time*)
- Sometimes (*between 10% and 39% of the time*)
- Half of the time (*between 40% and 59% of the time*)
- Most of the time (*between 60% and 89% of the time*)
- Almost always (*90% or more of the time*)
- Always (*100% of the time*)

17) Did you use a condom the **last time** you had sex with a casual sex partner (**not** your husband or wife, boyfriend or girlfriend, or fiancé or fiancée)?

- No
- Yes
- Rather not say

18) Did you use condoms at all over **the last 12 months**?

- No → **Go to question 20**
- Yes
- Rather not say

19) What were your reasons for using condoms with your partners over the **last 12 months**? Please mark (X) all the reasons that apply.

	Regular partners	Casual partners
To protect myself against sexually-transmitted infections (STIs) or AIDS	<input type="checkbox"/>	<input type="checkbox"/>
To avoid pregnancy	<input type="checkbox"/>	<input type="checkbox"/>
I didn't trust my partner/ thought that my partner had other partners	<input type="checkbox"/>	<input type="checkbox"/>
My partner asked/ insisted	<input type="checkbox"/>	<input type="checkbox"/>
My partner is known to have HIV infection	<input type="checkbox"/>	<input type="checkbox"/>
I have HIV infection	<input type="checkbox"/>	<input type="checkbox"/>
Other, please specify:	<input type="checkbox"/>	<input type="checkbox"/>
I don't know	<input type="checkbox"/>	<input type="checkbox"/>
I would rather not say	<input type="checkbox"/>	<input type="checkbox"/>

20) Could you tell me if any of the following were reasons for you not using a condom over the **last 12 months**? Please mark (X) all that apply.

- I do not like condoms.
- My partner did not want to use one.
- I was using alcohol or drugs
- The sex was too exciting.
- I do not have HIV/AIDS or any other STI.
- I did not think that my partner had HIV/AIDS or any other STI.
- I was with my regular sex partner.

20 (continued) Could you tell me if any of the following were reasons for you not using a condom over the **last 12 months**? Please mark (X) all that apply.

- I was with my regular sex partner.
- I did not have a condom at the time.
- I could not afford to buy condoms.
- I was too embarrassed to get condoms.
- I did not think of using a condom.
- I (or my partner) wanted to get pregnant.
- I could not talk about using a condom with my partner
- I was pressured into having sex when I didn't want to do it
- I was afraid my partner would accuse me of having sex with other people
- I didn't know where to get one
- Other, please specify:

21) In the **past 12 months**, did any of your regular sex partners (husband or wife, boyfriend or girlfriend, or fiancé or fiancée) have sex with other people around the same time they were having sex with you? Please mark (X) 'not applicable' if you have not had any regular partners in the past 12 months.

- No
- Yes
- I don't know
- Not applicable
- Rather not say

22) In the **last 12 months**, did you have sex with more than one person over the same time period?

- No
- Yes
- I don't know
- Rather not say

23) Have you **ever** used alcohol or drugs before or during sex?

- No
- Yes, before sex
- Yes, during sex
- Yes before and during sex

24) Have you **ever** had sex with someone who used injection drugs?

- No
- Yes
- I don't know

25) There are some diseases or infections that can be passed to other people during sex. These are sometimes called sexually transmitted diseases or infections. Has a doctor, nurse practitioner, or nurse **ever** told you that you have any of the following sexually transmitted infections? *If you have **ever** been diagnosed with any of the following sexually transmitted infections, please include the year of diagnosis.*

- Gonorrhea (the clap), year: _____
- Chlamydia, year: _____
- Genital herpes, year: _____
- Syphilis, year: _____
- HPV (Genital or anal warts), year: _____
- Abnormal PAP test (cervical HPV), year: _____
- Hepatitis B, year: _____
- Hepatitis C, year: _____
- I have not been diagnosed with any of these
- I would rather not say
- I don't know

26) Were you **ever** pressured into having sex when you did not want to do it?

- No
- Yes
- Don't know
- Rather not say

27) Have you **ever** had sex with someone who has HIV?

- No
- Yes
- Don't know
- Rather not say

28) Do you or your partner use any of these types of birth control? *Please mark (X) all that apply.*

- Condom (male or female)
- Sponge
- Spermicide (example: foam, jelly, film)
- Vasectomy
- Rhythm method (timing when you have sex based on a woman's fertility or ovulation)
- Diaphragm or cervical cap
- Hysterectomy
- Birth control pills
- Tubes tied (tubal ligation)
- Intrauterine device (IUD)
- Implant under the skin (Norplant)
- Birth control injection (Depo-Provera)
- The patch
- Other, please specify: _____

29) Have you **ever** had to have sex with someone for the following reasons?

- Food
- Money
- A place to live
- Street drugs
- To stay in Canada
- I would rather not say
- None of the above

30) **Men:** Have you been circumcised (had the extra skin cut off from your penis)?

- No
- Yes
- Don't know

31) **Women:** Have you been circumcised (cut "down there" for cultural or religious reasons)?

- No
- Yes
- Don't know

Is there anything else you want to tell us?

THANK YOU FOR COMPLETING THIS SECTION OF THE SURVEY!

Dear Participant,

This next section of the survey has been developed to provide the AIDS Committee of London, and the African and Caribbean Council on HIV/AIDS in Ontario with valuable information on how to design their prevention and care programs to better serve the needs of the African, Caribbean and Black communities in London and Middlesex County.

In order to design programs that are responsive to community need and also respectful of the community being served, these service organizations need a better understanding of the current level of knowledge possessed by the community as it relates to HIV/AIDS. They need to have a sense of what the community's attitude about HIV/AIDS is currently; and they need an idea of the type of behaviours that people may engage in that impact upon their health as it relates to HIV/AIDS. The best way to do this is to ask the community to provide this feedback.

Your responses will help these organizations know if there are deficiencies in their current programs, so that they may work at improving them.

The subject matter may be sensitive, and your participation is of course entirely voluntary, but we need the input of as many members of the African, Caribbean and Black communities as possible. Your information is vital to the improvement of HIV/AIDS prevention and care programs in the London-Middlesex and Ontario.

Thank you,

The BLACCH Study Team

G. HIV/AIDS

This section is about what types of services are available and accessible in London and Middlesex as it relates to HIV/AIDS. It is also about your knowledge and attitude about HIV and AIDS, as well as your possible risk for contracting the infection. We are aware that some of these questions may make you uncomfortable, but ask that you are as forthcoming as possible, because it is important that we know what aspects of prevention to focus on. Thank you for your responses, and remember **the information is confidential and anonymous.**

- 1) How often do you see posters, flyers, ads, or other media about HIV/AIDS?
 - Very rarely
 - Rarely
 - Neither rarely nor often
 - Often
 - Very often
- 2) Do you believe that you would be able to access HIV/AIDS educational services in London or Middlesex County if you needed it?
 - No
 - Yes
 - Don't know
- 3) Have you ever heard of the AIDS Committee of London?
 - No
 - Yes
- 4) If you felt you needed to, would you ever go to the AIDS Committee of London?
 - No
 - Yes
 - Don't know
- 5) Have you ever been to the AIDS Committee of London?
 - No
 - Yes
- 6) Have you ever used any of the services provided by the AIDS Committee of London?
 - No → **Please go to question 8**
 - Yes
- 7) If yes, which AIDS Committee of London services have you used? *Please mark (X) all that apply.*
 - HIV/AIDS education seminars
 - HIV/AIDS testing
 - HIV/AIDS information/brochures
 - Needle Exchange Program
 - HIV/AIDS counselling for the infected and affected
 - Assistance with basic needs
 - Emergency financial assistance
 - Food bank
 - Transportation
 - Friendly Visitor Program
 - Referrals to other services (housing; social assistance)
 - Support groups for the infected
 - Advocacy services
 - I have not used any services at the AIDS Committee of London
 - Other: _____
- 8) If you have ever received information from the AIDS Committee of London, how easy was it to understand the information that you received?
 - Very difficult
 - Difficult
 - Neither difficult nor easy
 - Easy
 - Very easy
 - I do not receive any information provided by the AIDS Committee of London
- 9) How important is it that the AIDS Committee of London provides education and services tailored to the Black Community?
 - Not important at all
 - Not very important
 - Neither important nor unimportant
 - Important
 - Very important
 - Tailored services should **not** be provided

10) How important is it that pictures of Black persons be used in the AIDS Committee of London's (ACOL) brochures?

- Not important at all
- Not very important
- Neither important nor unimportant
- Important
- Very important

- Pictures of Black persons should **not** be used in ACOL's brochures

11) What HIV-related services or programs do you think need to be provided in London or Middlesex County, Ontario?

Education & Counselling:

- HIV/AIDS education seminars
- HIV/AIDS pamphlets/brochures
- Risk behaviour counselling
- Pre-test counselling
- HIV/AIDS counselling for those with HIV
- Peer-to-peer counselling

Testing & Risk Reduction Services:

- HIV/AIDS testing
- Needle exchange program
- Addiction services & counselling

Basic Services & Financial Assistance:

- Food bank
- Transportation
- Housing assistance
- Assistance with basic needs for those with HIV
- Social assistance
- Emergency financial assistance
- Friendly visitors for people infected with HIV

Advocacy & Social Support:

- Support groups for those with HIV
- Support groups for friends and families of those with HIV
- Advocacy services
- Stigma reduction programs

Other:

- Referrals to other services
- Role models
- Other: _____

- None of the above

12) From whom would **you rather** learn about HIV/AIDS? *Please mark (X) only one.*

- A male
- A female
- The gender of the person doesn't matter

13) From whom would **you prefer** to learn more about HIV? *Please mark (X) all that apply.*

- Health worker
- Family doctor/GP
- Nurse
- Other Health professional
- Settlement worker
- Spouse; boyfriend; girlfriend; partner
- Counsellor
- Anybody knowledgeable
- Person living with HIV
- Family member(s)
- Friend(s)
- Other: _____
- Don't know
- None of the above

14) If you **personally** wanted to learn more about HIV/AIDS. Would you use the following? *Please mark (X) the appropriate boxes.*

- Websites
- Booklets, brochures or postcards
- Articles in newspapers, magazines or newsletters
- Advertisements
- Health worker or health professionals at a voluntary organization or charity
- Health worker or health professional at a sexual health clinic or HIV clinic
- Health worker or health professional at a doctor's office
- Health worker or health professional in community settings
- Health worker or health professional on a telephone via a help line
- Health worker or health professional in an internet chat room
- Information group or workshop
- Settlement worker
- Other: _____
- None of the Above

15) From whom would you rather receive services? *Please mark (X) only one.*

- A Black health care professional of the same ethnicity as my own
- A Black health care professional from a different ethnic group than me
- A Caucasian health care professional
- A non-Black, non-Caucasian health care professional
- The race/ethnicity does not matter

16) Which of the following would you like to know more about? *Please mark (X) the appropriate boxes.*

- Post-exposure prophylaxis (PEP)
- How to find HIV-sensitive doctors
- Treatments for HIV infection
- Safer sex and how to prevent HIV
- Preventing discrimination against people with HIV
- How to reduce HIV stigma
- Peer to peer counselling/Support Groups
- Managing relationships
- HIV testing
- The law and HIV transmission
- Living well with HIV
- How to be more confident in sexual situations
- Who is able to get free HIV treatment
- Testing and treatment for other sexually transmitted diseases
- How to stop condoms breaking or coming off
- What different kinds of condoms are available
- Female Condoms
- Circumcision and HIV
- Breastfeeding and HIV
- Where to find a boyfriend / girlfriend
- None of the above

17) How concerned do you **think** Black people should be about contracting HIV in Canada?

- Not concerned at all
- Not very concerned
- Somewhat concerned
- Concerned
- Very Concerned
- Don't know

18) How common is homophobia (a fear; dislike; or scorn for homosexuals) in the Black community?

- Not common at all
- Not very common
- Somewhat common
- Common
- Very common

19) How much do you agree with the following statements? *Please mark (X) the appropriate box to show your level of agreement.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
HIV/AIDS is not an important issue in the Black community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We do not talk about HIV/AIDS in my religion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is taboo to talk about HIV in my culture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am too shy to talk about HIV/AIDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We cannot do anything to stop HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20) In your opinion, what is the biggest reason for the spread of HIV in the Black communities in Canada? *Please mark (X) only one box.*

- Lack of education
- Injection drug use
- Violence against women (e.g. forced sex)
- Male homosexuality
- Lack of condoms
- Promiscuity
- Sex between partners who haven't been tested
- Unfaithful husbands, wives or partners
- Sex before marriage
- Poverty
- Other, please specify: _____

21) Do you know anyone who has HIV?

- No
- Yes
- Don't know

22) How much fear do you have about getting HIV if you do the following? Please mark (X) the appropriate box to show your level of fear.

	A lot of fear	A little fear	No fear	Do not know
Hug a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Share a drinking glass with a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work next to a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Care for a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have sex without a condom with a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Share needles with a person with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23) Do you personally know (or heard from someone else) about someone who has had the following happen to him/her in the past 12 months because of having HIV or AIDS?

	Yes	No	Unsure
Been excluded from a social gathering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been abandoned by spouse/partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been verbally abused or teased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been physically assaulted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been fired from work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had property taken away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been denied health services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24) Please answer true or false to the following questions about HIV transmission. Mark (X) True if you think the statement is true, and mark (X) False if you think the statement is not true.

True	False	
<input type="checkbox"/>	<input type="checkbox"/>	Coughing and sneezing DO NOT spread HIV.
<input type="checkbox"/>	<input type="checkbox"/>	A person can get HIV by sharing a glass of water with someone who has HIV.
<input type="checkbox"/>	<input type="checkbox"/>	Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex.
<input type="checkbox"/>	<input type="checkbox"/>	A woman can get HIV if she has anal sex with a man.
<input type="checkbox"/>	<input type="checkbox"/>	Showering, or washing one's genitals/private parts, after sex keeps a person from getting HIV.
<input type="checkbox"/>	<input type="checkbox"/>	All pregnant women infected with HIV will have babies born with AIDS.
<input type="checkbox"/>	<input type="checkbox"/>	People who have been infected with HIV quickly show serious signs of being infected.
<input type="checkbox"/>	<input type="checkbox"/>	There is a vaccine that can stop adults from getting HIV.
<input type="checkbox"/>	<input type="checkbox"/>	People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.
<input type="checkbox"/>	<input type="checkbox"/>	A woman cannot get HIV if she has sex during her period.
<input type="checkbox"/>	<input type="checkbox"/>	There is a female condom that can help decrease a woman's chance of getting HIV.
<input type="checkbox"/>	<input type="checkbox"/>	A natural skin condom works better against HIV than does a latex condom.
<input type="checkbox"/>	<input type="checkbox"/>	A person will NOT get HIV if she or he is taking antibiotics.
<input type="checkbox"/>	<input type="checkbox"/>	Having sex with more than one partner can increase a person's chance of being infected with HIV.
<input type="checkbox"/>	<input type="checkbox"/>	Taking a test for HIV one week after having sex will tell a person if she or he has HIV.
<input type="checkbox"/>	<input type="checkbox"/>	A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.
<input type="checkbox"/>	<input type="checkbox"/>	A person can get HIV from oral sex.
<input type="checkbox"/>	<input type="checkbox"/>	Using Vaseline or baby oil with condoms lowers the chance of getting HIV.
<input type="checkbox"/>	<input type="checkbox"/>	HIV can be spread through injection sharing needles.
<input type="checkbox"/>	<input type="checkbox"/>	A person can get HIV by sharing food with someone who has it.

Please continue to question 25 if you have HIV. If you do not have HIV, please go to question 29.

We care about how people who have HIV are treated. If you are living with HIV or AIDS let us know your experience with medical and social services in Middlesex County. Please feel free to skip these questions if you are not comfortable responding.

25) How supportive are the people that are aware that you have HIV status? Please mark (X) the appropriate box to show their level of support.

	Supportive	Not Supportive	Somewhat Supportive	Very Supportive	Person does not know my HIV status	N/A
Parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Siblings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical Personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Service Personnel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Co-workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acquaintances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Main sex partner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Casual sex partner(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26) How often have you had the following worries in the past month?

	All of the time	A lot of the time	Some of the time	A little of the time	None of the time
I've limited what I tell others about myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been afraid to tell other people that I have HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been worried about my family members finding out that I have HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been worried about people at my job/routine daily activities finding out that I have HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been worried that I'll lose my source of income if other people find out that I have HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27) How have you felt about your doctor in the past 6 months? Please mark (X) the appropriate box.

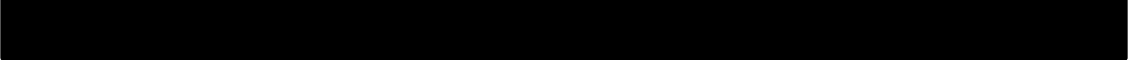
	All of the time	A lot of the time	Some of the time	A little of the time	None of the time
I've felt that I could see my doctor whenever I needed to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've felt that my doctor involved me in decision-making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've felt that my doctor cared about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In general, I am satisfied with the care I receive from my doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28) In the past 6 months, how have you felt about your social worker or case manager? Please mark (X) the appropriate box.

	All of the time	A lot of the time	Some of the time	A little of the time	None of the time
I've felt that I could see my social worker or case manager whenever I needed to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've felt that my social worker or case manager I involved me in decision-making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've felt that my social worker or case manager cared about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In general, I am satisfied with the care received from my social worker or case manager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29) Do you have any additional comments to make?

For information about HIV prevention, testing, treatment and counselling, please contact the Ontario AIDS



One last question:

How many times have you completed this survey (in total)?

- 1 time (This is my only time completing the survey)
- 2 times (I completed the survey this time and one other time)
- I completed the survey more than two times

THANK YOU FOR YOUR HELP!

Appendix F: Ethics Approval

Ethics Approval for Phase I of the BLACCH Study



Office of Research Ethics

The University of Western Ontario
Room 4180 Support Services Building, London, ON, Canada N6A 5C1
Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
Website: www.uwo.ca/research/ethics

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. G.R. Bauer

Review Number: 16288S

Review Level: Full Board

Review Date: July 03, 2009

Protocol Title: The Black, African and Caribbean Canadian Health (BLACCH) Study

Department and Institution: Epidemiology & Biostatistics, University of Western Ontario

Sponsor: Graduate Thesis Research Award - Schulich

Ethics Approval Date: August 10, 2009

Expiry Date: June 30, 2010

Documents Reviewed and Approved: UWO Protocol, Letter of Information and Consent (Service Providers), Letter of Information and Consent (Community Member).

Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

- changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- all adverse and unexpected experiences or events that are both serious and unexpected;
- new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.



Chair of NMREB: Dr. Jerry Paquette

Ethics Officer to Contact for Further Information			
<input checked="" type="checkbox"/> Grace Kelly	<input type="checkbox"/> Janice Sutherland	<input type="checkbox"/> Elizabeth Wambolt	<input type="checkbox"/> Denise Grafton

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cc: ORE File

Ethics Approval for Phase II of the BLACCH Study



Office of Research Ethics

The University of Western Ontario
Room 4180 Support Services Building, London, ON, Canada N6A 5C1
Telephone: (519) 661-3036 Fax: (519) 850-2466 Email: ethics@uwo.ca
Website: www.uwo.ca/research/ethics

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Dr. G.R. Bauer

Review Number: 16933S

Review Date: March 05, 2010

Review Level: Full Board

Approved Local # of Participants: 400

Protocol Title: The Black, African and Caribbean Canadian Health (BLACCH) Study: Phase II

Department and Institution: Epidemiology & Biostatistics, University of Western Ontario

Sponsor: UNIVERSITY OF WESTERN ONTARIO

Ethics Approval Date: May 17, 2010

Expiry Date: May 31, 2011

Documents Reviewed and Approved: UWO Protocol, Letter of Information, Introduction Letter, Ad, Poster.

Documents Received for Information:

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

- a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) all adverse and unexpected experiences or events that are both serious and unexpected;
- c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

Chair of NMREB: Dr. Jerry Paquette
FDA Ref. #: IRB 00000941



Ethics Officer to Contact for Further Information			
<input checked="" type="checkbox"/> Grace Kelly	<input type="checkbox"/> Janice Sutherland	<input type="checkbox"/> Elizabeth Wambolt	<input type="checkbox"/> Denise Grafton

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Ethics Approval to extend the data collection period for Phase II of the BLACCH Study



Use of Human Participants - Ethics Approval Notice

Principal Investigator: Greta Bauer
 Review Number: 16933S
 Review Level: Delegated
 Approved Local Adult Participants: 400
 Approved Local Minor Participants: 0
 Protocol Title: The Black, African and Caribbean Canadian Health (BLACCH) Study: Phase II
 Department & Institution: Epidemiology & Biostatistics, University of Western Ontario
 Sponsor:
 Ethics Approval Date: May 04, 2011 Expiry Date: May 31, 2012

Documents Reviewed & Approved & Documents Received for Information:

Document Name	Comments	Version Date
Revised Study End Date	The study end date has been revised to May 31, 2012 to allow for project completion.	

This is to notify you that The University of Western Ontario Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above referenced revision(s) or amendment(s) on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussions related to, nor vote on, such studies when they are presented to the NMREB.

The Chair of the NMREB is Dr. Riley Hinson. The UWO NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 0000941.

Signed: 

Ethics Officer to Contact for Further Information

Grace Kelly	Janice Sutherland
-------------	-------------------

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The University of Western Ontario
 Office of Research Ethics
 Support Services Building Room 5150 • London, Ontario • CANADA - N6A 3K7
 PH: 519-661-3036 • F: 519-850-2466 • ethics@uwo.ca • www.uwo.ca/research/ethics

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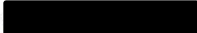
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Curriculum Vitae

Name: Shamara M. Baidoobonso

Education: The University of Western Ontario
London, Ontario, Canada
2008-2013, Ph.D. in Epidemiology & Biostatistics

University of North Carolina at Chapel Hill
Chapel Hill, North Carolina, United States of America
2007-2008, Certificate in Core Public Health Concepts

Dartmouth College
Hanover, New Hampshire, United States of America
2002-2006, BA in Genetics, Cell and Developmental Biology

Scholarships & Academic Honours and Awards: Ontario Graduate Scholarship, 2011-2012, 2012-2013

Western Graduate Research Scholarship- Epidemiology, 2008-2013

Ontario HIV Treatment Network Conference Scholarship, 2009, 2012

Ontario Graduate Scholarship in Science and Technology, 2010-2011

Canadian Association for HIV Research Scholarship, 2010-2011

Schulich Medical Research Scholarship, 2008-2011

Universities Without Walls Fellowship, 2010

High Honours in Biology, Dartmouth College, 2006

Presidential Scholar, Dartmouth College, 2006

Cum Laude Honour Distinction, Dartmouth College, 2006

High Academic Honours Award, Dartmouth College, 2003, 2006

Dartmouth Class of 1965 Endowed Scholarship, 2003-2006

Research Grants: Remis R, Tharao W, Calzavara L, Baidoobonso S, Kaul R, Burchell A, Rourke S, Uddin Z, Mbulaheni T, Ryan S, Pierre-Pierre V, Massaquoi N. Understanding HIV transmission among Persons from Africa and the Caribbean Following Their Arrival in Canada. Canadian Institutes for Health Research & Ontario HIV Treatment Network. Submitted. Co-Principal Investigator, 2013.

Antoniou T, Remis R, Tharao W, Uddin Z, Mbulaheni T, Baidoobonso S. Health Services Utilization and Outcomes of Persons with HIV Originally from Africa and the Caribbean. Ontario HIV Treatment Network. Submitted. Co-Investigator, 2013.

Baidoobonso S. The Black African and Caribbean Canadian Health (BLACCH) Study. Graduate Thesis Research Award, The University of Western Ontario: \$3,123. Received. Principal Investigator, 2009-2013.

Baidoobonso S, Bauer GR, Nleya-Ncube M, Abdelkader M, Lawson E, Hussien S, Jasnos J, Pugh D. The Black African and Caribbean Canadian Health (BLACCH) Study. Ontario HIV Treatment Network: \$21, 860. Received. Lead Principal Investigator, 2010-2013.

Jolly R, Mngoma N, Baidoobonso S, Nixon S, Tharao W, Pierre-Pierre V. People on the Move Project. CIHR Centre for Research Evidence into Action for Community Health (REACH) in HIV/AIDS: \$25,000. Received. Co-Investigator, 2010-2012.

Research Assistantships:

Ross L. Centre for Addiction and Mental Health. 2011-2012.

Watson J, Rueda S. Ontario HIV Treatment Network. 2010-2011.

Bauer GR, Pugh D, Coleman T. Western University, Department of Epidemiology & Biostatistics. 2009-2010.

Bauer GR. Western University, Department of Epidemiology & Biostatistics. 2008-2009.

Myers L. Dartmouth Medical School, Department of Biochemistry. 2003-2006.

Johnson E. Mount Sinai School of Medicine, Department of Molecular, Cell and Developmental Biology. 2003.

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