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Discrimination and Health: Measurement and Impacts on Ontario's Transgender Communities

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Abstract

Discrimination may contribute to poorer health outcomes experienced by non-dominant social groups. While discrimination and health research has flourished over the past two decades, little attention has been paid to the assessment of multiple forms of discrimination, nor to the health effects of discrimination for transgender persons in Canada. Therefore, this thesis examines the impacts of discrimination on health behaviours among transgender persons in Ontario and develops a new instrument set for evaluating self-reported discrimination irrespective of attribution, the Intersectional Discrimination Index (InDI). The first four manuscripts draw on data from the Trans PULSE Project, a respondent-driven sampling survey of transgender Ontarians aged 16+ conducted in 2009-2010 (n=433). Analyses were weighted using RDS-II methods, and odds ratios or prevalence ratios were estimated from logistic regression models to identify the impacts of discrimination, social exclusion, and gender transition. The first manuscript investigates correlates of both past-year HIV-related sexual risk and sexual inactivity among transfeminine (male-to-female spectrum) persons. Genital surgery for gender transition was independently associated with lower odds of both outcomes. Discrimination was not associated with sexual risk overall, but sensitivity analyses found that correlates differed by type of sexual risk behaviour. The second manuscript examines HIV-related sexual risk among transmasculine (female-to-male spectrum) persons who are gay, bisexual, or have sex with men. Known correlates of sexual risk among cisgender gay and bisexual men were similarly predictive of risk in this population, including sexual abuse, stimulant use, and depressive symptoms. The third and fourth manuscripts focus on heavy episodic drinking (HED) and illicit drug use, respectively, among all transgender Ontarians. HED, cocaine use, and amphetamine use were more common among transgender Ontarians than expected based on the age-standardized reference population. HED was associated with transmasculine gender and sex work, but not with discrimination. Illicit drug use was associated with anti-transgender violence, homelessness or underhousing, and sex work. The final manuscript describes the development and validation of the InDI, which includes three components measuring anticipated, day-to-day, and major discrimination. The bi-national validity and reliability study found consistent evidence of construct validity and test-retest reliability. Finally, implications and future research directions are discussed.

Keywords

Discrimination; stigma; racism; scale development; transgender; HIV risk; alcohol; drug use

Co-Authorship Statement

All chapters of this dissertation were written by Ayden Scheim as part of the fulfilment of requirements for his Doctor of Philosophy from the Department of Epidemiology and Biostatistics. Chapters 2 through 5 were based on secondary data made available to Mr. Scheim from the Trans PULSE Project. Mr. Scheim was responsible for recoding variables and conducting all reported analyses with Trans PULSE data. In Chapters 4 and 5, age-standardized prevalence estimates from the Canadian Community Health Survey were computed by Rachel Giblon. Mr. Scheim performed all other statistical analyses reported in this thesis. In addition, Mr. Scheim conceived of the research questions, designed analyses, and wrote all components for each of the included manuscripts. Chapter 6 is based on primary data collection led by Mr. Scheim (with mentorship and input from Dr. Greta Bauer), which included coordinating data collection via a survey panel provider, designing the Intersectional Discrimination Index and validation survey, engaging in consultations with multiple researchers and policymakers, writing a research ethics board application, and data cleaning and coding.

Mr. Scheim's supervisory committee—Drs. Greta Bauer, Guangyong Zou, William Fisher, and William Avison—provided guidance in the conceptualization of research questions, the design of instruments, the conduct of analyses, and interpretation of results. While Mr. Scheim drafted the full text of all manuscripts, supervisory committee members and colleagues (Dr. Greta Bauer, Dr. Robb Travers, and Mostafa Shokoohi) were listed as co-authors where they assisted in conceptualizing analyses, interpreting results, and editing manuscripts.

Dedication

This thesis is dedicated to three brilliant, kind, and courageous friends & colleagues who left us far too soon.

Wendy Babcock

Ryley Courchene

Kyle Scanlon

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List of Abbreviations and Symbols

AIDS	Acquired Immune Deficiency Syndrome
AOR	Adjusted odds ratio
APR	Adjusted prevalence ratio
BRFSS	Behavioral Risk Factor Surveillance System
CBR	Community-based research
CCHS	Canadian Community Health Survey
CSA	Childhood sexual abuse
EDS	Everyday Discrimination Scale
EOD	Experiences of Discrimination
HED	Heavy episodic drinking
HIV	Human immunodeficiency virus
ICC	Intra-cluster correlation coefficient
OR	Odds ratio
PR	Prevalence ratio
RDS	Respondent-driven sampling
STI	Sexually transmitted infection
T-GBMSM	Transmasculine persons who are gay, bisexual, or have sex with men

1 Chapter 1: Introduction and Objectives

1.1 Thesis Objectives

This thesis aimed to explore the impacts of discrimination on health behaviours (substance use and HIV risk) within a Canadian transgender population, and to contribute to the improved measurement of discrimination in population health research. Specifically, the thesis had three primary objectives:

Objective 1: To examine discrimination and gender transition factors associated with human immunodeficiency virus (HIV)-related sexual risk behaviour among transgender persons in Ontario, Canada, including:

a. transfeminine (male-to-female spectrum transgender) persons. Considering the high prevalence of sexual abstinence in this group, associations with both high-risk sexual behaviour and abstinence (versus low risk sex) were identified.
b. transmasculine (female-to-male spectrum transgender) persons who identify as gay, bisexual, queer, or who have sex with men.

Objective 2: To describe the prevalence of hazardous substance use among transgender persons in Ontario, Canada in comparison to the age-standardized reference population, and to examine associations with discrimination and gender transition. Two outcomes were examined:

a. Past-year heavy episodic drinking.

b. Past-year illicit drug use. Based on data availability, disparities with the Ontario reference population were estimated for past-year use of cocaine or amphetamines, while predictors of illicit drug use were examined within the trans population.

Objective 3: To develop and evaluate the validity and reliability of the Intersectional Discrimination Index, a set of self-report measures of anticipated and enacted discrimination for use in intersectional population health research.

1.2 Thesis organization

The remainder of Chapter 1 consists of a review of literature pertinent to the thesis objectives. Chapters 2 and 3 address Objective 1, for transfeminine and transmasculine persons, respectively. A version of Chapter 2 is under revision with *The Journal of Sex Research.* A version of Chapter 3 was published in the *Journal of Acquired Immune Deficiency Syndromes.*[1] Objectives 2a and 2b are satisfied in Chapters 4 (heavy episodic drinking) and 5 (illicit drug use). Versions of Chapters 4 and 5 have been published in *Drug and Alcohol Dependence*[2] and *Addictive Behaviors*,[3] respectively. Chapter 6 describes the development and evaluation of the Intersectional Discrimination Index, as per Objective 3. A version of this chapter will be submitted for publication. Finally, Chapter 7 provides an integrated discussion and conclusion. Questionnaires, letters of invitation and consent, and Research Ethics Board approval documents are included as appendices.

1.3 Introduction

1.3.1 Defining discrimination

Public health interest in the impacts of stigma, prejudice, and discrimination on health has increased in the past two decades,[4] and various definitions and theoretical models of these concepts have been developed, often in parallel. According to Link and Phelan,[5] stigma involves labeling of human differences, cultural beliefs that relate those labels to negative stereotypes, and categorization of labeled persons to distinguish "us" from "them," followed by status loss and discrimination. They also highlight the role of differential access to power and resources in producing stigmatization. While theories of stigma have tended to focus on individual characteristics (e.g., deviant behaviour, disease, disability), prejudice frameworks have more commonly been applied to race/ethnicity, and other stigmas related to group (i.e., shared within family) characteristics.[6] These concepts have much in common, and can be subsumed under the umbrella of stigma.

Phelan and colleagues[6] developed a typology of functions of stigma that is informative for studies of its manifestations and consequences: exploitation and domination (keeping people

down), norm enforcement (keeping people in), and disease avoidance (keeping people away). Others prefer to frame social inequities in health in terms of 'oppression,' but these definitions also overlap greatly with the stigma concept. For example, Paradies defines privilege/oppression as "a societal system in which actors are divided along socially constructed dimensions with power unevenly distributed (or produced) based on these dimensions."[7 pg. 144]

Stigma can be considered a fundamental cause of health inequalities[8]: one that (a) affects multiple diseases via multiple pathways in a large number of people; (b) concerns access to health-promoting resources; and (c) is robustly related to health inequities across time and setting.[9] Because new pathways arise to reproduce the relationship between the fundamental cause and multiple outcomes, a fundamental cause approach suggests that intervening on those mediators will not resolve health inequities over the long-term. Moreover, focusing on estimating the impact of one type of stigma on one health outcome is likely to underestimate its effects.[8] However, this does not imply that stigma universally leads to health inequalities between dominant and non-dominant groups. For example, studies have repeatedly failed to find evidence of mental health disparities between African-Americans and white Americans, despite robust findings of mental health-harming effects among African-Americans.[10]

Enacted stigma (i.e., inequitable interpersonal or institutional treatment based on stigma) is most often referred to as discrimination. Put differently, discrimination has been defined as "all means of expressing and institutionalizing social relationships of dominance and oppression",[4 pg. 650] incorporating institutionalized oppression of social groups, direct or indirect discrimination in law and policy, and subtle interpersonal slights. Multiple pathways link stigma and discrimination to poor health outcomes. Krieger lists six primary pathways: economic and social deprivation; excess exposure to toxins and pathogens; social trauma; health-harming responses to discrimination; targeted marketing of harmful commodities; inadequate medical care; and ecosystem degradation.[4]

1.3.2 Conceptualizing self-reported discrimination and its health impacts

Although ecological and multi-level data are increasingly being used to identify the impacts of institutional and structural discrimination on population health,[11] most research on discrimination

and health has focused on self-reported discrimination, which is generally interpersonal, direct, and overt.[4] Such reported discrimination is necessarily *perceived* discrimination, most often in the absence of a visible counterfactual contrast (i.e., knowledge of the treatment one would receive in the same situation were all factors but minority group membership held constant).[7,12] Moreover, even perceived discrimination may not be self-reported due to impression management and internalized stigma (e.g., the belief that discrimination is just).[12,13] Irrespective of whether it coincides with objective discrimination, perceived discrimination communicates to a target that they are unworthy, threatens their sense of belonging, stigmatizes potentially salient group identities, and can contribute to feelings of powerlessness.[14] Thus, perceived discrimination represents a potential mechanism in the development and maintenance of health inequalities within and across population groups, and an important exposure to investigate in population health research aiming to ameliorate inequalities.[15,16]

Self-reported discrimination is most often conceptualized as a psychosocial stressor,[17] informed by Lazarus and Folkman's Transactional Model and Stress and Coping[18] and Pearlin et al.'s stress process model.[19] The Transactional stress model encompasses two primary stages: appraisal and coping. The model posits cognitive appraisal processes following an experience, wherein an individual first assesses a situation as potentially stressful (e.g., as a threat or loss), and then assesses the availability of coping resources. Next, they will enact cognitive and behavioural coping efforts to regulate their emotional response to the experience and/or to try and change the stressful situation. Pearlin's stress process model and its more recent elaborations[20] include three key domains: sources of stress (e.g., discrete event versus ongoing, seriousness of threat) that negatively impact self-concept and sense of mastery; social and personal resources which mediate the impacts of stress; and finally, symptoms of stress (i.e., distress). In addition to precipitating emotional, cognitive, and behavioural responses, chronic discrimination may have negative physiologic effects (e.g., elevated cortisol levels).[20]

Discrimination is also a key stressor within minority stress theory,[21,22] which builds on social stress theories by describing the additional burden of stress experienced by sexual and gender minorities, and potentially others with concealable stigmas. Meyer[21,22] identified four interconnected minority stress processes for gay, lesbian, and bisexual individuals, which have

been extended to transgender persons[23] They are (1) external, objective stressors (e.g., acts of discrimination), (2) expectations of such stressful events (i.e., anticipated discrimination), (3) internalized stigma (negative attitudes towards one's own sexual or gender identity), and (4) concealment of sexuality or gender identity to mitigate stigma.

Each of these frameworks posit that, as a stressor, discrimination may contribute to distress or maladaptive coping strategies, depending on the availability of coping resources such as a personal sense of mastery, social supports, or pride in minority identity. Self-reported discrimination may also impact health directly or through mechanisms other than stress,[4] for instance, economic deprivation related to job loss, injury due to hate violence, or lack of medical treatment due to discriminatory refusal of care.

1.3.3 Discrimination and intersectionality

Intersectionality is a theoretical framework based in African-American feminist scholarship, particularly the work of legal scholar Kimberlé Crenshaw.[24] She argued that various forms of discrimination act in tandem and cannot be understood in isolation from each other, pointing to how legal frameworks requiring discrimination claims based on gender *or* based on race could not address experiences of African-American women that were both gendered and racialized. Crenshaw argued that single-axis analyses of discrimination distort the experiences of Black women whose experiences cannot be reduced to the "sum of their parts" (racism and sexism). In a single-axis framework, discrimination is conceptualized by the experiences of otherwise-privileged group members (e.g., defining sexism as the experiences of white women), through a counterfactual definition of discrimination as a situation in which, "but for" a single given characteristic, the individual would have had a different outcome. Over the past twenty-five years, intersectionality has "travelled" extensively beyond its disciplinary origins,[25] including applications in qualitative and quantitative public health research.[26]

McCall[27] has delineated three distinct intersectionality frameworks. Some intersectionality scholars reject categories of social difference altogether ("anti-categorical") while others prefer to focus on heterogeneity within a single defined group, such as African-American women ("intracategorical"). The version of intersectionality adopted within population health research

tends to be the third approach ("intercategorical"), which recognizes categories of social difference as socially constructed – yet real in their effects – and examines relationships and inequities between groups defined by multiple categories of difference. In the context of population health research, intersectionality frameworks highlight that effects of multiple social positions (e.g., race, class, gender), and the bio-psycho-social processes associated with them (e.g., racism, sexism) cannot be assumed to reflect simple "addition" of the effects observed for each position or process individually. Rather, intersectionality researchers consider the potential for qualitative and quantitative interaction between social positions and/or processes in their effects on population health.[15,28,29]

Despite increasing interest in intersectional frameworks across diverse fields of scholarship,[30-33] quantitative studies of discrimination and health have primarily examined one form of discrimination at a time.[30,34] Instead, intersectional discrimination research has largely been qualitative, with some even arguing that quantitative methods are poorly suited to the study of intersectionality.[29] As in health inequities research more broadly, quantitative intersectionality studies, when conducted, have often been limited by a focus on documenting inequalites across groups cross-stratified by social position (i.e., socio-demographic characteristics) rather than on understanding modifiable processes that lead to such inequalites.[15,16,28,29] More recently, methods for quantitative intersectionality research have been identified and summarized,[28] and Bauer has proposed a research agenda to advance analytic intersectional population health research, including the development of intersectional measures of discrimination.[15]

1.4 Health impacts of discrimination

In 1999, a systematic review by Krieger[35] found only 20 reports in the public health literature that assessed self-reported discrimination as a determinant of health. Most studies examined impacts of racial discrimination among African Americans, and focused on mental health outcomes. A few considered physical health outcomes, chiefly hypertension. Negative associations between discrimination and health were most consistent for mental health outcomes, but conclusions were limited by heterogeneity in exposure operationalization and measurement. By 2014, the field had burgeoned to the extent that Krieger was able to conduct a 'review of reviews' on associations between discrimination and health,[4] finding that evidence of the

deleterious effects of discrimination has remained strongest for the impacts of racial and ethnic discrimination on negative mental health outcomes. A 2015 meta-analysis of 333 studies on racism and health published between 1983-2013 found that racial discrimination was associated with negative effects on (in order of effect size) negative mental health, positive mental health, general health, and negative physical health.[36]

The robustness of findings related to racial/ethnic discrimination is in part a function of research focus: most discrimination and health research has examined racial discrimination, primarily among African-Americans.[4] However, meta-analyses of correlational and experimental data of studies examining multiple bases of discrimination published through 2012 found that effects of reported discrimination were larger for discrimination based on concealable stigma (e.g., sexual orientation, mental illness) than based on visible non-dominant group membership (e.g. racial minority status).[14] This suggests that focus is warranted on a broader range of discrimination experiences (including other forms of discrimination experienced by individuals who also report racial/ethnic discrimination).

In addition to negative mental health, associations between discrimination and health risk behaviours have been observed in many studies.[4,37-40] However, associations with health risk behaviours appear population-, behaviour-, and measure-dependent. For instance, a recent systematic review of discrimination and alcohol use highlights that global associations are inconsistent, with conclusions depending on the groups being compared, choice of exposure and outcome measure, and moderating/mediating factors.[40] The authors note that lack of standardized discrimination measurement is a substantial obstacle to advancing scientific knowledge in the area—if studies using inconsistent measures reach different conclusions, it is impossible to determine whether the disagreement is due to differences in casual processes, or simply to variation in operationalization of the exposure. The difficulty research participants may have in attributing perceived discrimination to specific bases (e.g., race versus gender) also challenges the validity of findings that are purportedly specific to each discrimination type.[15]

Another limitation of the discrimination and health literature is reliance on self-report and cross-sectional data, which are subject to confounding by personality traits and to reverse-causation (e.g., for those with poor health to perceive more discrimination).[34] However, evidence to date

suggests that while personality traits (e.g., neuroticism) are associated with reporting discrimination, associations with health remain robust after control for personality characteristics,[34] and that discrimination may actually impact health through impacts on personality.[41] Further, documented prospective associations of discrimination with objective clinical end-points and asymptomatic preclinical end-points (e.g., all-cause mortality,[42,43] inflammation[12]) provide evidence against reverse causality as an explanation for this pattern of findings.[34]

1.5 Discrimination and health behaviours in transgender populations

1.5.1 Who are transgender persons?

Transgender (trans) persons are those with a gender identity that differs from their birth-assigned sex. This includes individuals who identify as transgender men or women, as well as those who consider themselves neither male nor female, and who may use terms such as genderqueer, non-binary, or Two Spirit.[44] To be concise and respectful, this thesis refers to individuals who were assigned a female sex at birth but who have a male or masculine gender identity as *transmasculine*, and to those who were assigned male at birth but who have a female or feminine gender identity as *transfeminine.* In the United States, an estimated 0.6% of the adult population can be classifed as transgender.[45] As no population-based survey in Canada currently includes measures to ascertain transgender status, comparable figures are not available in the Canadian context.

Historically, trans identities were pathologized within medicine, and trans people were labelled with the psychiatric diagnosis of Gender Identity Disorder. In recent years trans identity has increasingly come to be seen as part of a spectrum of gender diversity, that is sometimes, but not always, associated with a need for medical or mental health care.[46] Reflecting this understanding, the most recent edition of the Diagnostic and Statistical Manual of the American Psychiatric Association[47] replaced Gender Identity Disorder with a diagnosis of Gender Dysphoria. This nosologic change places the locus of "disorder" in clinically significant distress or impairment related to an incongruence between one's gender identity and birth-assigned sex or sexed embodiment, rather than in the gender identity itself. Gender dysphoria is thus a condition that

some trans people will have, at some points in their lives, and for which social and/or medical transition is the standard of care. [48,49] However, whether due to personal choice or social circumstances, trans people may not take steps to socially or medically transition. An estimated 30% of trans Ontarians continue to live day-to-day in their birth-assigned gender role.[50] Among those who do medically transition sex, treatment decisions are individualized. For instance, even among those trans Ontarians who described themselves as having completed medical transition, only 59% of transfeminine persons and 1% of transmasculine persons had undergone genital reconstruction.[50]

Although trans people have often been overlooked in health and social research,[51,52] there has been a rapid growth in scientific interest in transgender health. A review of published quantitative trans health research from 2008-2014 found approximately 10 articles per year from 2008 through 2012, approximately 30 in 2013, and 50 in 2014.[44]

1.5.2 Experiences of discrimination among transgender persons

The growing evidence base on trans health and well-being indicates that trans populations experience high levels of stigma, discrimination, and violence.[53] For example, in a 2015 survey of over 27,000 transgender Americans,[54] 14% reported being denied equal treatment or service, 46% reported verbal harassment, and 9% reported physical assault due to transgender status, in the past year alone. In Ontario, 98% of trans persons reported any lifetime experiences of anti-trans stigma (*transphobia*),[55] while lifetime verbal harassment and physical assault related to being trans were reported by an estimated 35% and 21%, respectively.[56] Stigma and discrimination are also evident in primary and emergency healthcare settings, which can lead trans people to avoid seeking care.[57,58]

In addition, as will be discussed in greater detail later in this thesis, a number of studies have found inequalities in the mental, sexual, and behavioural health of trans persons relative to the broader population, particularly related to depression, suicidality, HIV/AIDS, and substance use.[51,59] Within a minority stress framework, a causal link between stigma, discrimination, and health inequalities has been proposed.[23] A number of recent North American studies have evaluated associations between discrimination and health outcomes in trans samples.[53] Related to

Objectives 1 and 2 of this thesis, the following sections review the literature pertaining to HIV and substance use within trans populations, with particular emphasis on the roles of stigma and discrimination.

1.5.3 HIV in transgender populations

Alarming HIV prevalence levels have been reported among transfeminine persons in some settings. A 2012 meta-analysis[60] combined seroprevalence estimates from 39 studies in 10 middle-income and 5 high-income countries (n=11,066) to estimate pooled seroprevalence at 19% globally, and 22% in high-income countries (n=3,869). These estimates correspond to odds of HIV infection 48.8 times higher than the corresponding country-specific estimates for the overall population. Behaviourally, this high prevalence has been attributed to frequent engagement in condomless receptive anal intercourse with non-trans (*cisgender*) men.[60] As discussed in the following section, such behaviour is less common in the Ontario transgender population. Studies of transmasculine persons have reported HIV prevalence rates of 0-4%,[44,61-67] with most relying on self-reported status in small samples.

It is important to note that sampling bias appears endemic to seroprevalence studies in trans populations.[68] In the aforementioned meta-analysis of transfeminine persons, 32% of all participants from high-income countries were sampled in San Francisco or Los Angeles, California. Also, most transfeminine studies have oversampled communities disproportionately impacted by HIV such as survival sex workers and African-Americans.[69-71] Recent studies of trans people in the United States employing large, broad convenience samples have found reported HIV prevalences ranging from 2-8%.[71-74] In Ontario, self-reported HIV prevalence was estimated to be 3% among transfeminine persons and 0.6% among transmasculine persons, but 46% had never been tested.[44] In comparison, HIV seroprevalence among all Canadians was 0.2% in 2011.[75]

1.5.4 HIV-related sexual risk in transgender populations

In Ontario, HIV risk attributable to injection behaviours appears negligible among trans persons.[76] Thus, this thesis will focus exclusively on HIV-related sexual risk, which is quite

heterogeneous among trans Ontarians.[44] An estimated 19% of transfeminine persons and 7% of transmasculine persons had engaged in any HIV-related high-risk sexual activity in the past year. Sexual risk largely attributable to insertive genital sex among transfeminine persons and almost exclusively attributable to receptive genital sex among transmasculine persons. Only an estimated 4% of transfeminine persons reported high-risk receptive anal intercourse.

Prior research has found most HIV-related sexual risk among transmasculine persons to result from vaginal intercourse.[66,77,78] Among transfeminine persons, however, most studies have focused exclusively on anal intercourse with cisgender men, and sometimes only receptive anal intercourse.[79-81] Where HIV risk attributable to insertive genital sex among transfeminine persons has been measured, rates were low. For example, in one study, 2 of 392 transfeminine participants reported condomless insertive genital sex.[63] Although condomless receptive anal sex poses the highest risk for HIV transmission, other forms of unprotected intercourse still present a substantial risk for HIV transmission and acquisition,[82] as well as for other sexually transmitted infections (STIs). The unique sexual risk behaviour profile of Ontario's trans population, as compared to previous samples from the urban United States, highlights the need for research in the local context. This variation in patterns of sexual risk may be accompanied by variation in contributors to risk behaviour.

1.5.5 Substance use in transgender populations

Unlike the relatively straightforward HIV-related outcomes, describing the burden of substance use and misuse among trans persons is complicated by the range of outcomes, variable definitions, and reporting timeframes employed.[51] Further, much published research on substance use among trans persons has been conducted in the context of HIV prevention research,[83-87] in which higher-risk samples are purposefully recruited. These studies have found high levels of heavy episodic (binge) drinking and illicit drug use among transfeminine persons. For example, in samples recruited New York, Los Angeles, and San Francisco respectively, 25% used cocaine use and 60% drank heavily the past six months,[84] 22% reported past-month methamphetamine use,[88] and 20% reported past-year methamphetamine use while 30% drank heavily in the past six months.[83]

More heterogeneous, mixed-gender convenience samples of trans persons have found higher levels of binge drinking and/or illicit drug use among trans persons as compared to cisgender survey participants or reference populations, particularly among youth.[89-91] Among over 75,000 college students in the United States, cisgender males were more likely to report any heavy episodic drinking, but trans students reported a greater number of recent heavy drinking days (incidence-rate ratios comparing cisgender females and males to trans persons were 0.43 and 0.28, both $p< 0.001$).[89] Compared to cisgender boys and adjusting for other socio-demographic characteristics, trans adolescents in a national U.S. online survey were more likely to report any use and regular use of alcohol and illicit drugs (adjusted odds ratios [AORs] ranging from 1.42-1.75, all $p<0.01$).[91]

Less research has focused on substance use disparities between cisgender and transgender adults. However, in the 2014 Behavioral Risk Factor Surveillance System (BRFSS) survey, the only population-based source of data on substance use among trans adults (in 19 U.S. states),[92] they were no more likely than cisgender persons to report binge drinking, confirming an earlier finding from the 2007-2009 Massachusetts BRFSS.[93] However, as alcohol use behaviours vary by both sex and gender,[94] overall transgender-cisgender comparisons may obscure disparities. Methodologically, the BRFSS and other household probability surveys studies may systematically under-recruit more marginalized trans persons (e.g., homeless individuals) and will misclassify those who are uncomfortable disclosing transgender status to an interviewer.[92] A recent Canadian survey of gay and bisexual men—a population that is arguably less stigmatized than trans persons in the United States—found that 30% would not disclose sexual orientation as part of an interviewer-administered population survey.[95] Further, BRFSS data pertaining to other forms of substance use among trans people have not been published, leaving questions about disparities in drug use unanswered. Related to the objectives of this thesis, the burdens of heavy drinking and illicit drug use, as well as disparities with the cisgender population, have not been characterized among trans Canadians.

1.5.6 Understanding health behaviour disparities in transgender populations

1.5.6.1 Minority stress

As described in Section 1.3.2, minority stress theory posits that members of gender minority groups will experience a higher burden of negative mental and behavioral health outcomes related to social stigma.[21,22] The framework also asserts that minority identity and within-group solidarity can have protective mental health effects and foster resilience.[23]

Empirical research to date, primarily conducted in the United States, has associated exposure to transphobia with greater substance use and HIV risk. Scores on a transphobia scale were positively associated with condomless receptive anal intercourse with commercial (sex work) partners among transfeminine persons in San Francisco (AOR= 2.56, 95% CI: 1.12- 5.87).[96] Again among transfeminine San Franciscans, another study found that higher scores on a transphobia measure were correlated with both recent condomless anal intercourse (AOR=1.45; 95% CI: 1.04, 2.00) and illicit drug use (AOR=1.47, 95% CI: 1.05, 2.04).[97] Two studies found interactions between youth status and transphobia, such that reporting high versus low levels predicted HIV-related sexual risk behaviour among transfeminine youth of colour in San Francisco (AOR=3.2; 95% CI: 0.9, 12.8)[81] and among trans youth in Ontario (AOR=1.14, 95% CI: 1.00-1.20).[98] Results in both studies had borderline statistical significance, however sample sizes were small (57-113 youth). Among adolescents, transphobic bullying mediated the association between transgender status and alcohol or illicit drug use.[91] For example, such bullying mediated 32.9% (95% CI: 15.8, 50.1) of the effect of trans status on the odds of regular non-cannabis illicit drug use. Finally, in a rare longitudinal study of transfeminine adults conducted in New York City, transphobic harassment and/or violence was prospectively associated with greater substance use (e.g., OR for any cocaine use was 3.17, 95% CI: 2.44, 4.11),[84] HIV-related sexual risk behaviour (e.g., hazard ratio with casual partners= (HR 2.55; 95% CI: 1.73, 3.75),[99] and incident HIV or other sexually transmitted infections (adjusted hazard ratio, lagged effect=1.64; 95% CI: 1.02, 2.63).[99]

As suggested by the framework of intersectionality, stigma and discrimination based on transgender status may act in concert with other forms to potentiate poorer health outcomes for

transgender persons who are also racial/ethnic minorities. In the United States, estimates of HIV prevalence among African-American and other transfeminine persons of colour are higher than among white transfeminine persons—and all other at-risk groups.[64,100] Some have speculated that transfeminine persons of colour may be more likely to have sex with cisgender men and therefore to be at higher risk of HIV acquisition.[101] Supporting this hypothesis, one study found that the higher HIV incidence among Black and Latina (relative to white) transfeminine persons was largely mediated by sexual orientation.[102] However, a minority stress approach suggests that experiences of racism may also contribute to HIV-related sexual risk. In Ontario, while Aboriginal and/or racialized trans persons were less likely than whites to report high-risk sex, self-reported racism increased the odds of having had high-risk sex among racialized persons.[55] However, the study's use of parallel (and potentially overlapping) measures of transphobia and racism limited the potential for an integrated analysis of the total effect of discrimination.

In addition to self-reported stigma and discrimination, research on health behaviours among trans people must consider the indirect effects of stigma via experiences of social exclusion and socio-economic marginalization. For example, approximately half of trans Ontarians reported annual incomes under $15,000 CDN,[44] and 33% were underhoused,[103] while 13% reported being fired from a job, and 18% not being hired, due to being trans.[104] Unstable housing[80] and extremely low incomes[105] have been associated with sexual risk among transfeminine persons. In this context, trans people report high levels of engagement in sex work,[106] including 15% of trans Ontarians who reported lifetime engagement in sex work or exchange sex, and 2% who reported current employment as a sex worker.[44] A meta-analysis found that transfeminine sex workers were more likely to be HIV-positive than non-transgender male or female sex workers, but not non-sex working transfeminine persons.[107] Sex work may not be an independent risk factor for HIV acquisition, but rather an indicator of the presence of proximal risk factors related to marginalization.[107,108] Sex work has also consistently been associated with substance use among transgender persons.[84,109-111]

1.5.6.2 Syndemics

Singer[112,113] developed the concept of syndemics to describe the interaction among substance use, violence, and HIV/AIDS resulting from social marginalization among low-income substance

users. He argued that these conditions were not simply co-occurring, but mutually re-inforcing (i.e., that they interact synergistically), or in some cases, mutually causal. Syndemics in sexual and gender minority communities are theorized to result from minority stress processes that unfold over the life course and show associations with perceived stigma.[97,114] Although syndemics and intersectionality research have largely developed in parallel, they are highly compatible. For instance, an intersectional syndemics approach could hypothesize and investigate the concentration of interacting health conditions at the intersection of sexual orientation, race/ethnicity, and HIV status.[115] Syndemic theory has primarily been applied to research on HIV infection or transmission risk as a primary outcome, particularly among gay men and other men who have sex with men. Clustering psychosocial health problems (polydrug use, depressive symptomatology, intimate partner violence, and childhood sexual abuse) have been found to be associated with increased rates of HIV infection and HIV-related sexual risk behaviour among gay men.[116]

Given evidence of high levels of psychosocial health problems and experiences of violence amongst trans persons, Operario and Nemoto[117] argue that syndemic conditions exist among transfeminine persons and must be addressed in efforts to reduce their HIV vulnerability and improve their overall health. Little research has specifically sought to test the applicability of syndemic theory to HIV risk or substance use in trans populations, with a 2015 review identifying 8 studies purporting to employ syndemic theory in trans samples globally.[59] One study of transfeminine youth found that having two or more potentially syndemic conditions (polysubstance use, intimate partner violence, victimization, low self-esteem) was associated with increased odds of unprotected anal intercourse (e.g., OR for 2 versus 0 conditions=5.46; 95% CI: 1.55, 19.12).[118] For each additional condition reported by transmasculine persons who have sex with men in a Massachusetts study (heavy drinking, polydrug use, depression, anxiety, partner violence, childhood sexual abuse), the odds of condomless intercourse were higher, but only among those who had socially transitioned gender (AOR=1.79; 95% CI: 1.42, 2.25).[119]

Despite the high level of interest and uptake of syndemic theory in the HIV research literature, recent work by Tsai has drawn attention to some important conceptual and methodologic problems.[120,121] The “syndemic count” score approach described above – and used in most

published syndemics research – captures neither synergistic interaction nor mutual causation between health conditions, but rather, the cumulative effects of an increasing number of adversity or health risk indicators.[121,122] Further, effects attributed to the number of "syndemic" conditions could in fact be driven by the difference between zero conditions and one condition.[123]

1.5.6.3 Gender affirmation

Gender affirmation refers to the psychological, social, medical, and legal processes of validating one's own gender identity and acquiring social validation of that identity.[51] Research to date, almost entirely qualitative, suggests that gender affirmation may contribute to health risk behaviours in a number of ways. First, to achieve gender affirmation, trans persons may strive to conform to gendered norms of (health) behaviour.[124,125] To date, this process has primarily been investigated for transfeminine persons, among whom acquiescence in relationships with cisgender men[124,126] and disordered eating behaviours[127] have emerged as risk behaviours related to gender norms. Similarly, qualitative studies have identified a need for gender-related validation or affirmation from sexual and romantic partners as a potential contributor to HIV-related sexual risk.[124,126,128-130] Sevelius[126] argues that transfeminine persons have limited access to gender affirmation, yet have increased need for it because of enacted and internalized transphobia. Therefore, they may engage in behaviours that increase their access to gender affirmation despite health risks, including condomless sex with male partners who provide gender validation. For transfeminine persons in primary relationships with female partners who are not accepting of their trans identities, outside partners may be an important source of gender affirmation.[131] Gay and bisexual-identified transmasculine persons have also described seeking gender affirmation through sex with men; acceptance and desirability as a gay man is seen by some as particularly validating of male identity.[66,77]

Lack of social and medical gender affirmation may also contribute to substance use and other health risk behaviours as a coping strategy. Medical transition (hormones and/or surgery) is associated with reduced mental health symptomology and suicide attempts among trans persons.[56,132,133] Evidence regarding the impact on both HIV risk and substance use behaviour has been more mixed.

Among transfeminine persons, two studies reported negative and positive relationships, respectively, between transition and substance use. The first, in San Francisco, found that hormone therapy was associated with less non-injection illicit drug use (OR=0.2; 95% CI: 0.1, 0.4), while hormone therapy (OR=0.4; 95% CI: 0.3, 0.7), breast augmentation surgery (OR=0.2; 95% CI: 0.2, 0.3), and genital surgery (OR=0; 95% CI: 0, 0.2) were associated with less binge drinking.[134] However, among cohort participants in New York, both social transition (presenting in felt gender) and hormone therapy were associated with any substance use, the number of substances used, and the number of past-month substance use days.[84] For example, the odds of any substance use were 1.29 times as high among those presenting in their felt gender (95% CI: 1.20, 1.38), and 3.08 times as high (95% CI: 2.10, 4.51) among those on hormone therapy. In the same cohort, sexual risk behaviour was more common among those presenting in their felt gender (OR for condomless intercourse with commercial partners= 1.22; 95% CI: 1.12, 1.33) and those on hormone therapy (OR for condomless intercourse with casual partners= 2.97; 95% CI: 1.84, 4.79).[99] In the San Francisco study, neither hormones nor surgeries were associated with sexual risk behaviour.[134]

Finally, the social and physiological effects of gender transition may potentiate health risks. For example, transmasculine persons frequently report a perception that testosterone use leads to increased sex drive, and increased interest in sex with men.[74,77,135,136] Among transfeminine persons, feminizing hormones may cause erectile difficulties and thus challenges with condom use,[131,137,138] but can also contribute to reduced sex drive and activity.[136,138]

1.5.6.4 Rationale for examining the impacts of discrimination and gender transition on transgender health behaviours in Canada

As summarized above, trans persons face high levels of discrimination and social exclusion globally. In the United States and in other countries for which data are available, inequities in mental, sexual, and behavioural health are evident. However, little is known about the prevalence of substance use risks among trans people in the Canadian and Ontario contexts. Further, predictors of both substance use and HIV risks have not been evaluated in a Canadian trans population (with the exception of a previous thesis by Marcellin which focused on self-reported racism and transphobia as predictors of HIV risk[55,98]). In the United States, observed inequities

have been linked to experiences of stigma and discrimination. Within trans populations, access to gender transition and affirmation may also play a role in shaping health behaviour. Yet, these factors have seldom been analyzed in an integrative manner. Moreover, trans people's experiences in Ontario, relative to the United States, may be differentially shaped by access to publicly insured health care, as well as human rights protections (e.g., under the Ontario Human Rights Code[139]). Thus, the current thesis seeks to fill these gaps in knowledge pertaining to the health of trans Ontarians, with the aim of informing interventions to prevent hazardous substance use and new HIV infections.

1.6 The need for intersectional discrimination measures

1.6.1 Current approaches to measuring discrimination

Objective 3 of this thesis addresses the measurement of discrimination from an intersectional perspective. Corresponding to the proliferation of discrimination research is a growing set of instruments to measure discrimination, primarily focused on racial/ethnic discrimination. A 2006 review identified 152 self-report instruments for racism.[38] Most (86%) were developed in the United States, and 69% focused exclusively on African-Americans, limiting utility for research with ethnically diverse samples globally. Highlighting the importance of appropriate measurement of the discrimination construct, among the three most commonly used measures (representing about one-quarter of studies), the proportion of statistically significant findings ranged from 30-86%.[38]

In recognition of the need for instruments suitable to population health research with ethnically diverse samples, efforts have been made to develop and evaluate the validity of measures for racial/ethnic discrimination experiences across ethno-racial groups, including immigrant populations,[140,141] who may attribute discrimination to language rather than race/ethnicity.[4] However, these efforts have rarely extended to creating instruments that can tap multiple forms of discrimination.[142]

Single-item measures of intersectional discrimination have been described in the literature (i.e., in which either the base question or the sole question directly asks if the respondent has

experienced discrimination[143]). Single-item measures that leave time and space unspecified, however, will contribute to poor recall and under-reporting.[144] To our knowledge, only one multi-item instrument has been developed specifically to assess discrimination across stigmatized social groups from an intersectional perspective. Bastos et al.[145] developed such a measure for use in the Brazillian context, and evaluated its validity in a university student sample in Brazil. It assesses so-called "explicit" interpersonal discrimination, ranging from minor interpersonal slights to events that may affect life chances, such as employment discrimination. After each of 18 questions that ask about unfair treatment (without language regarding social position or discrimination) a sub-item asks if the respondent attributes the experience to discrimination based on several listed social positions. While this measure makes an important contribution, a few key limitations are evident for adaptation in the Canadian context, including generic language that encourages reporting of non-discriminatory unfair treatment, items specific to the student context, and items that appear intended to tap experiences based primarily on race/ethnicity or class (e.g., being mistaken for an employee rather than a customer).

Beyond this example, when investigating discrimination based on multiple social positions, researchers have employed attribution-specific scales, parallel versions of the same scale with multiple attribution-specific stems, or adaptations of popular measures that were developed to assess race/ethnicity-based discrimination (without attribution in the stem). In the following sections, each approach is briefly described.

1.6.1.1 Attribution-specific discrimination measures

Attribution-specific discrimination measures abound, including those related to discrimination against specific ethno-racial groups,[146,147] ethno-racial minorities overall,[140,148] women,[149] sexual minorities,[150-152] gender minorities (i.e., transgender persons),[55,153] and people living with mental illness or substance use disorders.[154-156] To examine the effects of intersecting forms of discrimination, some studies have employed two or more such measures.

For example, in the area of trans health, two recent studies employed non-parallel measures of transphobia and racism on HIV risk behaviour [55] and mental health.[157] In the study of HIV risk among trans Ontarians, Marcellin et al. examined the interaction between racism and

transphobia, using continuous scale scores.[55] In the latter mental health study, the combined effects of racism and transphobia were of interest. Given the different items and response scales, this required categorizing respondents into those experiencing high versus low levels of each racism and/or transphobia. In both cases, the scales included overlapping items (e.g., sexual objectification, health care discrimination), and thus the independence of these exposures is unclear. In addition, such measures are clearly unsuitable for use in broader population surveys in which a small minority of respondents will be transgender.

1.6.1.2 Parallel, attribution-specific versions of the same discrimination measure

Bogart and colleagues developed the Multiple Discrimination Scale[158] to assess race/ethnicity, HIV, and sexual orientation discrimination concurrently among Black and Latino men who have sex with men living with HIV. It includes ten binary items regarding interpersonal discrimination and violence which are asked repeatedly, with each of the three scales employing a different stem. Each scale is scored independently, to create separate but comparable measures of each discrimination type. Another study of intersecting race/ethnicity, HIV, and gender stigma among women living with HIV employed parallel measures of race and gender discrimination adapted by Clark et al.[159] from Williams' Everyday Discrimination Scale,[160] along with a separate measure of HIV stigma.[161] Following a similar approach, some investigators have adapted Krieger et al.'s Experiences of Discrimination (EOD) questionnaire,[162] a popular[38,40] measure designed to assess racial/ethnic discrimination among working-class Black, Latino, and White U.S. adults, to investigate multiple forms of discrimination. The EOD asks respondents: "Have you ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?" across nine situations (e.g., seeking employment, healthcare, or housing; in public spaces).[162] When adapted, the end of the question has been modified to ask about discrimination based on gender, sexual orientation, or other factors, with respondents asked to complete the measure for each social position. [163-165]

Such measures suffer from a few important limitations. The response burden of being asked to answer the same questions multiple times (for each social position of interest) must be considered. This approach also assumes that respondents can clearly identify and report the

reason for being discriminated against,[142] contrary to the expectations of intersectionality theory.[29] Further, to an even greater extent than the use of multiple, non-parallel discrimination measures, this approach may facilitate reporting of a single event or experience multiple times (e.g., being denied employment based on race and based on gender). Thus, the validity of treating the subscales as independent exposures is questionable, as is summing responses to estimate the overall frequency of discrimination. Indeed, in recent research using adapted EOD items to explore the effects of race/ethnicity, gender, and sexual orientation discrimination on mental health and substance use outcomes,[163,164] discrimination was coded as experiencing sexual orientation discrimination only, experiencing two types of discrimination, or experiencing three types. Given that the original items included frequency information, this represents a substantial loss of information.

1.6.1.3 Adapting "unfair treatment" race/ethnicity-based discrimination measures

The Everyday Discrimination Scale (EDS) by Williams et al.[160] inquires about unfair treatment in interpersonal contexts. A sample item asks respondents how often they "…are treated with less respect than other people are". Rather than inquiring about unfair treatment based on social status or position initially, a follow-up item asks the respondent "what do you think was the main reason for these experiences", with a list of options. However, some surveys have modified the original wording with a preface that primes the respondent to answer with respect to discrimination (e.g., "how often have you experienced each of the following types of discrimination").[166,167] Specific reference to discrimination in the stem may be important, as a study of Asian-Americans found that almost 1/3 of respondents reporting no generic "unfair treatment" did report racial/ethnic discrimination when more specific language was used.[168]

Williams et al. also developed a measure of major discrimination, with nine items probing "unfair" treatment in specified contexts (e.g., "…have you ever been unfairly fired"), followed by the same attribution question as the EDS. However, the EDS is often used in isolation, without the corresponding major discrimination questions.[34,169] This is problematic, as major discrimination events must be understood in concert with more chronic, 'everyday' stressors in order to fully comprehend the impact of discrimination on health.[39]

As the base questions do not refer to social position, the Williams Everyday and Major discrimination items have been adapted for studies of multiple forms of discrimination by revising the attribution question to allow or encourage multiple attributions[167,170] (e.g., "what do you think are the main reason**s**…"[167]). In other cases, the stem is not altered but interviewers record additional attributions if they are provided.[166,171] Irrespective of the exact wording, the measures' format allows investigators to model the effects of (a) total discrimination burden irrespective of attribution,[166,170,172] (b) the number of grounds discrimination is attributed to,[171,173] and/or (c) variation in the effects of discrimination based on the grounds it is attributed to.[166,168,174] However, with respect to the third approach, evidence indicates that the health effects of discrimination (when measurement is standardized) do not necessarily depend on the grounds to which it is attributed.[34]

1.6.1.4 The need for intersectionality in the development of multiple-basis discrimination measures

This overview of current practices in measuring discrimination has shown that developers of discrimination measures have infrequently taken an intersectional perspective.[15] Intersectional population health research has sometimes drawn on secondary data sources in which discrimination was assessed via multiple, non-intersectional indices, with associated analytic limitations. In other cases, a single instrument has been employed, but one which was not initially intended to demonstrate content validity across different kinds of discrimination. Thus, both analytic flexibility and content validity may be improved if new measures are developed within an intersectional framework.

Considering evidence of attributional ambiguity among members of groups who experience multiple forms of stigma,[29,175] intersectional measures would ideally not require participants to disaggregate discrimination experiences based on the attribute being targeted. Whether posed in the stem or in a follow-up question, these attribution items pose a high cognitive and psychological burden, and measures that require attribution in the stem may lead to under-reporting.[176] Moreover, single-axis or select-axes measures will underestimate the overall prevalence of discrimination experiences and their health effects. Instead, global measures of

discrimination could be used, with social status and position data cross-stratified to analyze the intersectional distribution and effects of discrimination.[15]

To ensure construct validity across intersecting groups, global discrimination measures require attention to the commonalities, as well as the differences, in experiences of discrimination across stigmatized groups. This is evident from the literature on developing race/ethnicity-based discrimination measures for use with multiple ethnic groups. In some cases, measures developed for use with African-Americans have been adopted for other populations without changing any of the items.[141,177,178] This is problematic as such measures (e.g., the Williams Everyday Discrimination Scale[160]) do not include items addressing common manifestations of discrimination for non-African-American and/or immigrant ethno-racial minority groups, including discrimination related to language or accent, nativity, and "positive" stereotypes.[177] Conversely, measures designed for Asian-Americans, for example, would be too specific and thus unsuitable for comparative research or population health surveys.[141,177]

Even within a single target ethno-racial group, these measures may exhibit bias related to intersectional social positions. The Williams Everyday and Major discrimination measures were developed with the intention of measuring racial discrimination experienced by African-Americans.[160] "Everyday" items probe disrespectful or discourteous treatment; being treated as frightening, unintelligent, inferior, or dishonest; and being called names or threatened. Among African-Americans, a study found evidence of gender bias.[179] Most items were endorsed by a higher percentage of men versus women, and the proportion of variance explained by a latent discrimination variable was higher for men. The authors note that some items are specific to stigmas against African-American men (e.g., being perceived as frightening or criminal), while none refer to gendered forms of racism that may be more commonly experienced by women (e.g., in romantic relationships).

More broadly, to be applicable to discrimination based on a range of social statuses or positions, items should sample from within all dimensions of the typology of stigma described in Section 1.1.1. Race/ethnicity-based discrimination items, as described above, appear to reflect exploitation and domination to a greater extent than norm enforcement or disease avoidance. The latter are particularly salient for stigmas related to characteristics considered voluntary and

mutable (e.g., sexual orientation, transgender identity), or threatening to the perpetrator's sense of well-being (e.g., mental illness, infectious disease).[5]

1.6.2 The need to consider multiple dimensions of discrimination

Scholars of stress have emphasized the need to measure stressors comprehensively to identify their full effects on health,[180] including those that differ with respect to chronicity, viewed on a spectrum from continuous to discrete events, and with respect to level, from micro to macro (e.g. interpersonal slights to structural impediments).[181] As different types of discrimination may produce different psychophysiological responses, and in turn different health outcomes, some have cautioned against combining multiple types of discrimination into a single measure.[41]

1.6.2.1 Day-to-day and major discrimination

Following the classification scheme within social stress theory, major discrimination events might be considered acute stressors – discrete events that are 'objectively' stressful – while day-to-day discrimination is akin to a chronic stressor – a subjective experience that lacks a clear time frame and may be either ongoing or repeating.[182] The measures developed by Williams et al.[160] are unique in separating major and everyday discrimination into separate scales. Consistent with the prediction of social stress theory that chronic stressors are particularly pernicious,[183-185] when employing both major and day-to-day discrimination components, the latter has been found to more strongly predict psychological distress.[37,160,166] However, this could also reflect the stronger impact of more recent experiences, as the Williams measure assesses major discrimination over the lifetime and everyday discrimination over an unspecified timeframe, which is likely to be perceived as contemporaneous.[166] Regardless, these findings highlight the importance of considering both chronicity and timing in developing discrimination measures.

Domains in which discrimination occurs should also be incorporated in measurement (e.g., home, justice system, health care, in public). This is critical for cognitively grounding survey items.[4] In addition, a meta-analysis of experimental studies that manipulated perceived discrimination (e.g., by telling subjects that a confederate was motivated by racial prejudice) revealed that only studies assessing repeated (versus single-event) discrimination had a

significant effect on mental health.[14] This indicates that discrimination measures should include assessment of frequency. Knowledge about the domains in which discrimination occurs is also needed to inform efforts to prevent discrimination, and to monitor trends over time. Researchers are advised to consider both domains and junctures at which discrimination may occur within institutions (access, functioning, and movement, e.g., getting a job, evaluation within the workplace, promotion).[4,35,144] When multi-item measures are being used, adequate coverage of domains is required to avoid underestimating discrimination by sampling from a small frame of the discrimination 'universe'.[186] Finally, measurement should include traumatic or violent events based on social position, which are often excluded from discrimination measures.[34,39,176]

1.6.2.2 Anticipated discrimination

As posited by social and minority stress theories, discrimination can constitute a chronic stressor in the lives of stigmatized persons even without direct experience of discrimination events, because of stress related to the possibility of experiencing it in the future.[21,22,181] Anticipated discrimination may lead minority group members to experience anxiety and/or a high level of vigilance in interactions with dominant group members or institutions, taxing coping resources.[21,176] Correlational and experimental studies have found that anticipated discrimination is associated with psychological distress and cardiovascular stress responses.[187,188]

Of the limited number of studies related to anticipated discrimination,[176] some have investigated impacts of stigma consciousness or awareness.[88,189] While stigma consciousness is also related to distress among members of target groups,[189] one can be aware of stigma against members of one's group without worrying about facing discrimination personally.[190,191] Anticipated discrimination also differs from internalization of stigmatizing attitudes about one's own group, which has been measured and studied extensively in sexual minorities.[152] An individual can anticipate stigma without having a negative self-image related to the stigmatized status.[187] Further, in some cases anticipated discrimination is conflated with responses to anticipation, or is assumed to result only from experienced discrimination. For example, Williams et al.[160] assessed vigilance and consequent behaviour alteration only among respondents who reported experiencing enacted discrimination. Considering these research gaps, stress related to anticipated discrimination has been identified as an emerging research priority.[34]

1.7 Data sources

This thesis employs three datasets to achieve its objectives. Each data source is described briefly below; additional details are provided in the respective manuscripts.

1.7.1 Trans PULSE Project

Chapters 2 through 5 draw on data from the Trans PULSE Project, a community-based, mixed methods research project that began in 2005. Project partners included unaffiliated community members, The University of Western Ontario, Wilfred Laurier University, Sherbourne Health Centre, Rainbow Health Ontario, and The 519 Church Street Community Centre. This thesis focuses on the Trans PULSE respondent-driven sampling survey funded by the Canadian Institutes of Health Research. Ethics approval was obtained from The University of Western Ontario and Wilfred Laurier University. In 2009-2010, 433 trans Ontarians participated in the cross-sectional survey through a self-administered questionnaire, completed online or using a visually identical paper copy (see Appendix A).

Participants were recruited through respondent-driven sampling (RDS), an innovative method for sampling hidden populations, for whom a sampling frame cannot be enumerated.[192,193] RDS is a modified chain-referral sampling method, in which participants recruit their peers. This aids in the recruitment of stigmatized populations, which may be unwilling to identify themselves to researchers. In addition to facilitating recruitment of hidden populations, RDS analytic methods allow for the generation of asymptotically unbiased estimates and confidence intervals for the networked target population through weighing on recruitment probabilities.[194] RDS II weights are based on personal network size (the number of eligible persons known, representing the number of possible recruitment paths).[195] Eligible participants needed to be 16 years of age or older; living, working, or receiving health care in Ontario; and identify as trans following a broad definition. Recruitment began with 16 diverse seed participants, who were each given three coupons for recruitment of their peers. Upon completing the survey, participants were given three coupons for further recruitment.

1.7.2 Canadian Community Health Survey

In Chapters 4 and 5, data on the past-year prevalence of heavy episodic drinking, cocaine use, and amphetamine use among Ontarians aged 16+ in 2009-2010 were obtained from Statistics Canada's Canadian Community Health Survey.[196] The CCHS is an ongoing multi-stage, multi-mode, stratified, cluster sampling cross-sectional survey of Canadians aged 12 and above. The sampling frame covers approximately 97% the Canadian population (excluding institutionalized persons and those living on First Nations reserves). To date, measures of transgender status or identity have not been included in the CCHS. Respondent sex/gender is classified as male or female, usually classified based on the interviewer's assumption.

1.7.3 Understanding Social Experiences and Health Survey

Chapter 6 reports on partial findings of the Understanding Social Experiences and Health Survey. The survey's primary objective was to evaluate the validity and reliability of the Intersectional Discrimination Index (InDI). A secondary objective was to collect additional data on indicators of social status and position, targetable attributes (i.e., visibility of minority status) and mental and behavioural health outcomes (psychological distress, smoking, anxiety, and hazardous drinking) for proof-of-concept analyses demonstrating the potential uses of the InDI. Legerweb, a market and academic research firm, was hired to collect data through their online survey panels in both Canada and the United States. Baseline data were collected between August and November 2016 from 2642 adults aged 18+, including 1065 in Canada and 1577 in the United States. As described in Chapter 6, quota sampling was employed with the aim of achieving approximately equal numbers of participants from six major ethno-racial groups, and an oversample of sexual and/or gender minorities. To assess test-retest reliability of the InDI, a subsample of 150 participants (83 in Canada and 67 in the United States) completed a follow-up survey between three and six weeks after baseline. Ethical approval was obtained from the Non-Medical Research Ethics Board at the University of Western Ontario (see Appendix E).

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2 Chapter 2: HIV/STI risk and sexual inactivity among transfeminine persons: A Canadian respondent-driven sampling survey

2.1 Introduction

Available data indicate an extremely high burden of HIV infection among transfeminine (i.e., male-to-female spectrum transgender) persons. A 2012 meta-analysis[1] found pooled HIV seroprevelance of 19% among 11,066 transfeminine persons in 15 countries. Sampling bias appears endemic to seroprevalence studies in urban North American transfeminine communities;[2] however, studies of more heterogeneous and geographically dispersed transgender (trans) populations have been limited to self-reported HIV status. In previously published results from the Trans PULSE study, 3% of transfeminine persons identified as HIV-positive, but 42% had never been tested; only 19% had engaged in any HIV-related high-risk sexual activity in the past year, with insertive vaginal intercourse (i.e., a transfeminine person using her penis for vaginal penetration) being the largest contributor.[3]

Minority stress theory[4] posits that health risk behaviors among sexual and gender minorities are attributable to the additional burden of stigma-related stress these groups face. Exposure to anti-trans stigma and violence has been associated with condomless anal intercourse[5,6] and incident HIV/STI.[7] Coping responses such as substance use can further increase sexual risk.[8,9] Discrimination in education and employment contribute to high levels of poverty, unstable housing, and survival sex work, which in turn exacerbate HIV/STI vulnerability.[3,8] In addition, sexual relationships can offer affirmation of gender identity for transfeminine individuals who often face invalidation, and the need for such affirmation may take precedence over HIV/STI prevention.[10]

Although public health research has emphasized the role of stigma in potentiating sexual risk, stigma may also serve to limit sexual engagement. In Ontario, half of transfeminine persons reported no past-year sex partners: more than twice the proportion who had HIV transmission/acquisition risk.[3] Periods of abstinence have been associated with health-promoting

behaviors among adults.[11] However, determinants and consequences of sexual inactivity in a population with average levels of sexual activity are unlikely to reflect the experiences of sexually stigmatized groups. Transfeminine persons face threats of rejection, stigma, and violence when disclosing trans status to potential sexual partners, as well as fetishization.[12] Body image concerns related to gender incongruence can also lead to avoidance of sex,[13] as can reduced sexual desire or function related to feminizing hormone therapy and surgical complications.[13,14] In the cisgender (non-trans) population, female sex,[15] higher education,[15] depression,[16] and sexual abuse[17] are associated with low desire and inactivity.

Sexual health studies among transfeminine persons have primarily sampled patients accessing hormonal and surgical treatments, while HIV/STI studies have primarily sampled trans women who have sex with men. These two groups do not represent Ontario's transfeminine population, among whom only 23% had sex with a cisgender man in the past year[12] and 47% had never used feminizing hormones.[18] Addressing the limitations of both urban convenience and clinical samples for understanding the spectrum of sexual health, the present study draws on a respondent-driven sampling study of trans people in Ontario. Extending our team's past descriptive research on transfeminine sexualities[12] and trans persons' HIV risk,[3] we sought to identify factors associated with both past-year HIV/STI-related sexual risk and inactivity among transfeminine persons. Of primary interest were the potential impacts of discrimination and other forms of social exclusion on these outcomes, however, for this first exploratory analysis of these outcomes in a Canadian population we also examined associations with gender transition and other potential socio-demographic and psychological determinants of trans sexual health.

2.2 Methods

2.2.1 Study Design and Participants

The Trans PULSE community-based participatory research project surveyed 433 trans Ontarians in 2009-2010 using respondent-driven sampling (RDS). RDS is a modified chain-referral sampling method for hidden populations.[19,20] In addition to facilitating recruitment of hidden populations through the use of peers, RDS analytic methods can produce asymptotically unbiased point estimates for the networked target population.[21] We used RDS II weights, which are estimated as the inverse of the number of target population members known, to adjust for unequal recruitment probabilities due to personal network size.

Participants completed a self-administered questionnaire, using visually identical online or paper versions. Eligible participants needed to be 16 years of age or older; live, work, or receive health care in Ontario; and identify as trans following an inclusive definition. Recruitment began with 16 diverse seed participants selected from the study's community advisory committee who were each given three coupons for recruitment of their peers. Upon completing the survey, participants were given three coupons for further recruitment. Twenty-two seeds were added after 4 to 5 waves of recruitment were obtained; maximum chain length was ten waves beyond the seeds. All but seven seeds were productive (i.e., recruited at least one participant). A recruitment network diagram has been published previously.[3]

Ethics approval was obtained from The University of Western Ontario and Wilfrid Laurier University. Gender spectrum was classified as transmasculine (i.e., assigned female at birth; n=227) or transfeminine (i.e., assigned male at birth=205), including individuals who identified as neither men nor women. This analysis includes 171 transfeminine participants who had ever had sex and provided sufficient data (17 participants had no sexual experience and 17 were missing data).

2.2.2 Measures

Demographic and background factors. Participants indicated their age, education, social transition status (living in felt gender full-time, part-time, or not at all), surgical history, hormone use, and the frequency with which they were socially perceived as cisgender. Ethnoracial group was coded as Aboriginal, non-Aboriginal racialized (i.e. person of color), or white based on answers to multiple check-all-that-apply items. Residence in metropolitan Toronto (Ontario's largest urban center) was ascertained by the first letter of the respondent's postal code. Income-to-needs ratio was calculated by dividing the mid-point of household income categories by the number of household members being supported. Sexual attraction was dichotomized as primarily attracted to men versus primarily attracted to women, multiple genders, or not sexually attracted to others. Background variables included sexual abuse (any unwanted sexual contact before age 16) and religiosity of upbringing (quite or extremely versus fairly or less). Self-reported HIV status was measured, but not included in analyses because of small cell sizes. As previously

reported, an estimated 3% of transfeminine Ontarians reported being HIV-positive, although only 40% had been tested in the previous two years.[3]

Social exclusion and inclusion. A scale of perceived transphobia (Cronbach's *a*= 0.81) included items pertaining to external (e.g. employment discrimination) and internalized (e.g. fear of dying young) dimensions of trans-related discrimination.[22] Participants indicated lifetime experiences of transphobic physical or sexual assault, and harassment or threats. Social support was measured with the Medical Outcomes Study scale;[23] *a*= 0.97 in our data). Perceived parental support for gender identity or expression was dichotomized to reflect the presence of potentially protective strong support, including expected support for those who had not yet disclosed their gender identity. Involvement in the local lesbian, gay, bisexual, and transgender (LGBT) community was coded dichotomously based on participant report of past-year LGBT event attendance or group membership. Attendance at a trans-specific bar or club night was included as a separate variable, as these events more often emphasize sexual partner seeking.

Substance use, mental health, and sexual agency. Problematic alcohol use was operationalized as a score of 2 or greater on the CAGE short screener.[24] Stimulant use was defined as any past-year use of cocaine, crack, crystal methamphetamine, or other amphetamines. Center for Epidemiological Studies Depression scale[25] scores were categorized into low (<16), moderate (16-26), and high (27-60) symptomatology (*a*= 0.93 in our data). Sexual anxiety, fear, and satisfaction (*a*= 0.92; 0.84; 0.96) were assessed with the relevant subscales of the Multidimensional Sexual Self-concept Questionnaire.[26] The research team developed a seven-item measure of trans-related body image worries (*a*=0.80), and an eight-item trans-specific condom/barrier self-efficacy scale (*a*=0.92) including items such as "…how certain are you that you could ask a non-trans partner to use a protective barrier [for example, a condom, dental dam, glove, or plastic wrap]?".

HIV/STI-related sexual risk and sexual inactivity. Past-year sexual risk behaviour was categorized as no risk (abstinent), low risk (only oral sex, vaginal/anal sexual activities without fluid exposure, or fluid-exposed vaginal/anal sex with an HIV-seroconcordant spouse or long-term partner in a monogamous relationship), or high risk (fluid-exposed vaginal/anal sex outside of a seroconcordant, monogamous relationship).

2.2.3 Statistical analysis

Weighted frequencies and associated 95% confidence intervals were calculated in SAS 9.3.1.[27] Confidence intervals were estimated using Taylor linearization and adjustment for clustering by shared recruiter. Odds ratios were estimated with weighted logistic regression models using a domain analysis in SAS PROC SURVEYLOGISTIC. Polytomous models estimated effects for past-year sexual inactivity or (separately) high-risk sex, with low-risk sex as the referent. After estimating bivariate associations, we built a model containing all demographic and background variables to identify independent demographic predictors. Next, we estimated adjusted odds ratios separately for each of the social exclusion/inclusion and mental health, substance use, and sexual agency variables of interest. To control for non-modifiable factors and to reduce confounding, these models were adjusted for variables with $p<0.25$ in the demographic and background model.[28] Social transition status was included as a covariate regardless of p-value, because of its potential to confound associations between trans-specific experiences and the outcomes.

We did not enter all variables into a multivariable model because of the exploratory nature of the analysis, the multitude of potential mediated pathways and consequent risk of adjusting for mediators, multicollinearity, and the relatively small sample size. For multivariable analyses only, simple imputation of the mean or mode was used for independent variables with less than 10% missingness. One variable (childhood sexual abuse) had 12.2% missing, and was imputed using individual marginal predicted risks of sexual abuse (rounded to 0 or 1) generated from a logistic regression model.

Approximately half of sexual risk was attributable to condomless vaginal intercourse as the insertive partner, and we hypothesized that predictors of this behavior could diverge from other forms of sexual risk. Therefore, we conducted a sensitivity analysis by repeating regression analyses with a more narrowly defined risk outcome, reclassifying condomless insertive vaginal intercourse into the “low risk” category (for proof-of-concept, not to imply that such behavior necessarily presents low HIV/STI risk). Adjusted odds ratios were estimated using the same set of adjustment variables as in primary analyses.

2.3 Results

Among transfeminine people in Ontario age 16 and over, 11.7% (95% CI: 5.0, 18.4) had never engaged in partnered sex (and were excluded from the following analysis). Of those who had ever had sex, 40.8% (95% CI: 28.9, 52.6) reported no past-year sex partners, 38.3% (95% CI: 26.7, 49.9) engaged in low-risk sex, and 20.9% (95% CI: 11.7, 30.2) had at least one sexual encounter that could pose high HIV/STI-related risk. Approximately half of high HIV/STI-related sexual risk was attributable solely to vaginal intercourse as the insertive partner: 9.9% (95% CI: 3.0, 16.9) had sexual risk related to anal intercourse or receptive vaginal intercourse. Data on HIV testing and self-reported status have been previously published;[3] in this analytic subgroup three-quarters identified as HIV-negative (75.2%, 95% CI: 64.2, 86.2) and 1.2% (95% CI: 0.0, 3.0%) as HIV-positive, while 23.6% (95% CI: 12.7, 34.6) did not know their status.

While analyzed as a single set of polytomous models (n=171), results for the two outcomes are presented in separate tables for clarity. Findings for the first outcome – HIV/STI-related risk behaviour– as well as weighted variable frequencies are presented in Tables 2.1 and 2.2. Crude odds of sexual risk were higher among those not living in their felt gender. In the multivariable model including all demographic and background variables, living in Toronto (AOR= 0.25, 95% CI: 0.07, 0.93) and having completed genital surgery (AOR=0.08, 95% CI: 0.02, 0.46), were statistically significantly associated with lower odds of HIV/STI risk behaviour. After adjusting for demographic and background factors, attending trans-specific club or bar nights (AOR=5.11, 95% CI: 1.46, 17.94) was associated with sexual risk, while greater sexual anxiety (AOR=0.59, 95% CI: 0.35, 0.97) and higher condom self-efficacy (AOR=0.54, 95% CI: 0.34, 0.88) were associated with lower odds of HIV/STI risk behaviour. Neither transphobia scale scores nor transphobic violence were associated with HIV/STI risk behaviour.

Table 2.1: Weighted demographic and background characteristics of transfeminine persons in Ontario, Canada and associations with high HIV/STI sexual risk versus low-risk sex (n=171)

	Weighted frequencies		Bivariate associations		Full model[a]	
	% or $\bar{x}$	95% CI	OR[†]	95% CI[†]	AOR[†]	95% CI
Age (years)	38.7	(34.8, 42.6)	1.05	(0.99, 1.10)	1.04	(0.99, 1.11)
Ethnoracial group						
Aboriginal	9.6	(2.6, 16.6)	0.14	(0.02, 1.17)	0.26	(0.01, 11.33)
Non-Aboriginal white	84.3	(76.7, 92.0)	1.00		1.00	
Non-Aboriginal racialized	6.1	(2.2, 10.0)	1.03	(0.24, 4.46)	1.89	(0.36, 9.97)
Residence in metropolitan Toronto	27.6	(17.4, 37.9)	0.56	(0.15, 2.13)	**0.25**	**(0.07, 0.93)***
Education						
Less than high school	6.1	(1.8, 10.3)	0.61	(0.12, 3.15)	1.27	(0.18, 8.76)
High school diploma	6.6	(2.0, 11.1)	0.58	(0.10, 3.25)	0.49	(0.06, 4.14)
Some postsecondary	29.0	(17.7, 40.2)	0.29	(0.08, 1.10)	**0.09**	**(0.02, 0.50)***
Postsecondary graduate	58.4	(46.6, 70.2)	1.00		1.00	
Income-to-needs ratio						
<$10,000 CAD	21.5	(11.0, 32.0)	0.76	(0.16, 3.68)	1.84	(0.30, 11.39)
$10,000-19,999	25.9	(14.8, 37.0)	1.31	(0.24, 7.02)	1.96	(0.27, 14.22)
$20,000-29,999	9.7	(2.7, 16.7)	4.30	(0.67, 27.8)	3.62	(0.94, 13.91)
>$30,000	42.9	(30.0, 55.8)	1.00		1.00	
Primarily attracted to men	17.2	(8.9, 25.6)	0.51	(0.12, 2.22)	1.05	(0.16, 6.78)
Experienced childhood sexual abuse	37.8	(25.6, 50.0)	**0.26**	**(0.07, 0.96)***	0.16	(0.02, 1.27)
Quite/extremely religious upbringing	29.0	(17.3, 40.8)	2.02	(0.52, 7.80)	4.52	(0.96, 21.32)
Social transition status						
Living in felt gender full-time	53.3	(40.8, 65.8)	1.00		1.00	
Living in felt gender part-time	22.3	(12.8, 31.8)	1.30	(0.37, 4.54)	0.48	(0.09, 2.57)
Not living in felt gender	24.4	(12.6, 36.1)	**5.31**	**(1.12, 25.06)***	1.86	(0.34, 10.24)
Perceived as cisgender (almost) always	36.5	(24.3, 48.7)	1.62	(0.44, 5.99)	1.22	(0.36, 4.10)
Completed genital surgery	14.8	(6.9, 22.8)	0.22	(0.03, 1.49)	**0.08**	**(0.02, 0.46)***
Using feminizing hormones	59.6	(47.0, 72.1)	0.32	(0.10, 1.04)	0.48	(0.10, 2.32)

† OR = odds ratio; CI = confidence interval; AOR= adjusted odds ratio.

*Association statistically significant at $p<0.05$.

. [a] Nagelkerke $R^2=0.5302$

Table 2.2.2: High HIV/STI sexual risk versus low-risk sex: Crude and demographic-adjusted correlates and their frequencies among transfeminine persons in Ontario, Canada (n=171)

	Weighted frequencies		Bivariate associations		Demographic-adjusted associations[a]	
	% or $\bar{x}$	95% CI	OR[†]	95% CI[†]	AOR[†]	95% CI
Lifetime transphobia scale score (range= 0-33)	15.3	(13.9, 16.7)	0.94	(0.85, 1.03)	1.01	(0.90, 1.14)
Lifetime transphobic violence						
None	36.6	(24.8, 48.5)	1.00		1.00	
Verbal harassment or threats	42.1	(30.2, 54.1)	**0.17**	**(0.04, 0.70)***	0.55	(0.12, 2.47)
Physical or sexual assault	21.2	(12.2, 30.2)	**0.26**	**(0.07, 0.95)***	0.82	(0.20, 3.35)
Social support (range=0-5)	3.3	(3.1, 3.6)	0.98	(0.55, 1.72)	0.86	(0.46, 1.60)
Strong parental support for gender	34.8	(22.9, 46.7)	0.72	(0.20, 2.63)	0.48	(0.12, 2.02)
LGBT community involvement	34.3	(23.2, 45.3)	0.85	(0.25, 2.93)	1.31	(0.36, 4.80)
Attended trans bar or club night event	33.9	(22.8, 45.0)	**4.82**	**(1.41, 16.40)***	**5.11**	**(1.46, 17.94)***
Problem drinking (CAGE ≥ 2)	18.2	(9.0, 27.4)	0.43	(0.12, 1.57)	1.18	(0.24, 5.75)
Past-year stimulant use	6.9	(3.0, 10.8)	0.81	(0.21, 3.04)	3.17	(0.36, 28.22)
Depressive symptoms						
Low: CESD score <16	38.1	(25.8. 50.3)	1.00		1.00	
Moderate: CESD score 16-26	23.7	(13.6, 33.7)	0.65	(0.15, 2.88)	0.85	(0.21, 3.45)
High: CESD score 27-60	38.3	(26.7, 49.8)	**0.21**	**(0.05, 0.81)***	0.27	(0.06, 1.27)
Sexual body image worries (range=0-4)	2.0	(1.8, 2.3)	**0.48**	**(0.27, 0.89)***	0.48	(0.23, 1.01)
Sexual anxiety (range= 0-4)	2.1	(1.8, 2.4)	**0.58**	**(0.36, 0.92)***	**0.59**	**(0.35, 0.97)***
Fear of sex (range= 0-4;)	1.7	(1.4, 2.0)	0.76	(0.44, 1.30)	0.82	(0.44, 1.52)
Sexual satisfaction (range= 0-4)	1.3	(1.0, 1.6)	**1.64**	**(1.10, 2.45)***	1.53	(1.00, 2.34)
Condom self-efficacy (range= 0-6)	5.0	(4.8, 5.3)	0.74	(0.49, 1.13)	**0.54**	**(0.34, 0.88)***

† OR = odds ratio; CI = confidence interval; AOR= adjusted odds ratio.

*Association statistically significant at $p<0.05$.

[a] Adjusted for social transition status and demographic/background variables significant at $p<0.25$: age, Toronto residence, education, income-to-needs ratio, attraction, childhood sexual abuse and religiosity, genital surgery, and hormone use.

Findings for the second outcome—past-year sexual inactivity—are presented in Tables 2.3 and 2.4. In the multivariable model including all demographic and background variables, higher age (AOR for 1 year=1.11, 95% CI: 1.04, 1.19) was associated with greater odds of inactivity, and Toronto residence (AOR=0.06, 95% CI: 0.01, 0.29) and genital surgery (AOR=0.01, 95% CI: 0.00, 0.09) with lesser odds. Sexual inactivity was inversely associated with education. Childhood sexual abuse was positively associated with sexual inactivity (AOR=11.64, 95% CI: 2.02, 67.09), while primary attraction to men was negatively associated (AOR=0.10, 95% CI: 0.01, 0.97). As shown in Table 2.4, adjusting for demographic and background factors, social support (AOR=0.53, 95% CI: 0.29, 0.95) and moderate depressive symptoms (AOR=0.18, 95% CI: 0.03, 0.97) were negatively associated with sexual inactivity.

Table 2.3: Past-year sexual inactivity versus low-risk sex: Associations with demographic and background factors among transfeminine persons in Ontario, Canada (n=171)

	Bivariate associations		Full model[a]	
	OR†	**95% CI†**	**AOR†**	**95% CI**
Age (1 year)	**1.06**	**(1.01, 1.11)***	**1.11**	**(1.04, 1.19)***
Ethnoracial group				
Aboriginal	0.29	(0.05, 1.60)	1.49	(0.10, 23.00)
Non-Aboriginal white	1.00		1.00	
Non-Aboriginal racialized	**0.06**	**(0.01, 0.63)**	0.10	(0.00, 4.60)
Residence in metropolitan Toronto	**0.10**	**(0.03, 0.31)***	**0.06**	**(0.01, 0.29)***
Education				
Less than high school	0.46	(0.06, 3.55)	**0.03**	**(0.00, 0.44)***
High school diploma	0.61	(0.10, 3.80)	**0.02**	**(0.00, 0.19)***
Some postsecondary	0.73	(0.21, 2.53)	**0.17**	**(0.04, 0.77)***
Postsecondary graduate	1.00		1.00	
Income-to-needs ratio				
<$10,000 CAD	1.23	(0.26, 5.69)	5.54	(0.91, 33.67)
$10,000-19,999	1.84	(0.42, 8.01)	1.57	(0.24, 10.38)
$20,000-29,999	0.54	(0.11, 2.70)	1.30	(0.15, 11.06)
>$30,000	1.00		1.00	
Primarily attracted to men	0.27	(0.06, 1.16)	**0.10**	**(0.01, 0.97)***
Experienced childhood sexual abuse	2.66	(0.87, 8.17)	**11.64**	**(2.02, 67.09)***
Quite or extremely religious upbringing	2.04	(0.52, 8.08)	3.04	(0.43, 21.42)
Social transition status				
Living in felt gender full-time	1.00		1.00	
Living in felt gender part-time	1.06	(0.28, 4.00)	0.38	(0.06, 2.40)
Not living in felt gender	2.73	(0.60, 12.38)	3.18	(0.48, 21.28)
Perceived as cisgender (almost) always	0.95	(0.28, 3.28)	1.14	(0.24, 5.50)
Completed genital surgery	**0.09**	**(0.03, 0.34)***	**0.01**	**(0.00, 0.09)***
Using feminizing hormones	1.14	(0.32, 4.12)	8.03	(0.98, 65.77)

† OR = odds ratio; CI = confidence interval; AOR= adjusted odds ratio.

*Association statistically significant at $p<0.05$.

[a] Nagelkerke $R^2=0.5302$

Table 2.4: Past-year sexual inactivity versus low-risk sex: Crude and demographic-adjusted correlates among transfeminine persons in Ontario, Canada (n=171)

	Bivariate associations		Demographic-adjusted associations[a]	
	OR†	**95% CI†**	**AOR†**	**95% CI**
Lifetime transphobia scale score	0.95	(0.87, 1.03)	0.94	(0.83, 1.05)
Lifetime transphobic violence				
None	1.00		1.00	
Verbal harassment or threats	0.87	(0.25, 3.08)	3.36	(0.60, 18.94)
Physical or sexual assault	**0.20**	**(0.05, 0.76)***	0.16	(0.02, 1.19)
Social support	**0.56**	**(0.33, 0.94)***	**0.53**	**(0.29, 0.95)***
Strong parental support for gender	0.59	(0.19, 1.89)	0.90	(0.16, 5.06)
LGBT community involvement	0.39	(0.12, 1.27)	0.28	(0.07, 1.16)
Attended trans bar or club night event	0.71	(0.24, 2.09)	0.39	(0.10, 1.53)
Problem drinking	0.56	(0.13, 2.38)	0.58	(0.11, 3.15)
Past-year stimulant use	**0.20**	**(0.05, 0.90)***	0.36	(0.03, 4.50)
Depressive symptoms				
Low: CESD score <16	1.00		1.00	
Moderate: CESD score 16-26	0.83	(0.18, 3.77)	**0.18**	**(0.03, 0.97)***
High: CESD score 27-60	0.84	(0.22, 3.17)	0.24	(0.05, 1.23)
Sexual body image worries	1.31	(0.69, 2.48)	1.00	(0.48, 2.09)
Sexual anxiety	0.95	(0.62, 1.46)	0.86	(0.53, 1.37)
Fear of sex	1.27	(0.74, 2.19)	1.08	(0.62, 1.90)
Sexual satisfaction	0.72	(0.46, 1.12)	0.64	(0.36, 1.13)
Condom self-efficacy	0.98	(0.64, 1.51)	1.21	(0.70, 2.10)

† OR = odds ratio; CI = confidence interval; AOR= adjusted odds ratio.

*Association statistically significant at $p<0.05$.

[a] Adjusted for social transition status and demographic/background variables significant at $p<0.25$: age, Toronto residence, education, income-to-needs ratio, attraction, childhood sexual abuse and religiosity, genital surgery, and hormone use.

Sensitivity analyses (results not shown) revealed changes in the magnitude, statistical significance, and direction of some associations when insertive vaginal intercourse was recoded into the category for "low risk" sexual activity. In bivariate analyses, living part-time (versus full-time) in one's felt gender (OR=0.13, 95% CI: 0.02, 0.75) became associated with reduced sexual risk. Income-to-needs ratios of $10-29,999 CAD (versus $30,000 or above) were crudely

associated with higher odds of sexual risk, and this association persisted for incomes between $10-19,999 when adjusting for other demographics (AOR= 10.70, 95% CI: 1.02, 112.65). In the multivariable demographic model, the positive association between childhood religiosity and HIV/STI risk behaviour became statistically significant (AOR=7.39, 95% CI: 1.48, 36.93). Finally, adjusting for the same demographic and background variables as in the primary analyses, higher transphobia scale scores (AOR=1.39, CI: 1.10, 1.76) and past-year attendance at LGBT events (AOR=16.07, 95% CI: 1.91, 135.40) became significantly associated with HIV/ STI risk behaviour. Other findings remained consistent.

2.4 Discussion

We estimated the prevalence and correlates of both past-year HIV/STI-related sexual risk and inactivity in the transfeminine population (age 16+) of Canada's most populous province. To the best of our knowledge, this is the first study to explore sexual inactivity among transfeminine persons. Previously published results from our dataset indicated that 51% had no partnered sex in the past year,[3] and this proportion remains high (41%) when considering only those who had ever had sex. Demographic and background correlates were similar to those identified as predictive of low sexual desire and/or inactivity in cisgender populations, including older age, higher education, and childhood sexual abuse (CSA). The prevalence of CSA in this population (37.8%, 95% CI: 26.50, 50.0) appears higher than meta-analytic estimates for sexual minority natal males (21% for gay men, 25% for bisexual men[29]). For transfeminine persons, CSA was associated with sexual inactivity, but not HIV/STI risk behaviour. Residence outside metropolitan Toronto was strongly associated with inactivity, which may reflect a smaller pool of potential sexual partners, and fewer venues in which to meet potential partners. However, sexual satisfaction scores were not significantly associated with sexual inactivity. As intentions or desires for sexual behavior were not measured, our measure of past-year inactivity includes intentionally chosen, involuntary, and circumstantial abstinence.

Having completed genital surgery had the largest magnitude of effect in independently predicting both reduced sexual inactivity and HIV/STI risk behaviour, despite the fact that the reference group included individuals with no desire for vaginoplasty, in contrast to clinical research that has focused on trans women needing surgery.[30] With respect to genital surgery and HIV/STI risk behaviour, previous studies have largely found no association.[7,31,32]

However, access to surgery was somewhat less common in these samples (7-10%); some primarily sampled sex workers or trans women in primary partnerships, and definitions of surgery were sometimes unclear. Future research in this area should capture detail on surgical status, and neovaginal sexual risk, to inform behavioral and biomedical prevention interventions. Aside from surgical status, other trans-specific background variables were largely unassociated with HIV/STI risk behaviour, with the exception that before adjustment, sexual risk was elevated among those not living in their felt gender.

Our findings were largely inconsistent with previous research on HIV-related risk among transfeminine persons. We found little evidence to support minority stress or gender affirmation theories of HIV/STI risk in this broad transfeminine population. However, lower income and experiences of discrimination were positively, independently associated with high sexual risk in sensitivity analyses (when risk solely attributable to insertive vaginal intercourse was coded as "low risk"). This suggests that the factors that predict sexual risk for transfeminine persons differ by the natal sex of their partners, contributing to the discrepancy between findings from this sexually diverse population and from previous studies of trans women sexually active with cisgender men. The use of respondent-driven sampling across a large geographic region, in the context of a study not focused primarily on HIV risk, may also account for these differences.

Further research, including qualitative work, is needed to understand potential social and psychosocial drivers of sexual risk among transfeminine persons who are not primarily sexually active with cisgender men. In addition, data on sexual partner and network characteristics would enhance understanding of the likelihood of HIV/STI exposure via reported condomless sexual activity, particularly for sex with cisgender women, given low HIV prevalence among most female population subgroups in Canada and countries with similar HIV epidemic profiles.

These findings also suggest that in future research with transfeminine persons, behavioral components of sexual risk should be treated as separate outcomes where possible and that engagement in low-risk sex and sexual inactivity should be disentangled. Excluding sexually inactive participants could efficiently achieve this objective, but such an approach restricts

applicability of prevalence estimates to a subgroup that, per our findings, could constitute less than half of the transfeminine population.

2.4.1 Strengths and limitations

This study had several strengths including the use of respondent-driven sampling with a diverse province-wide population, a community-based participatory research approach, multi-mode data collection, and measures of sexual risk designed specifically to capture the diverse sexual behaviors and embodiments of transfeminine persons. The study also had some important limitations. Estimates are adjusted for bias related to network size, but RDS II weights do not account for unrelated sampling biases.[33] Confidence intervals are often wide, and should be cautiously interpreted considering the wide range of plausible values. In addition, our cross-sectional data preclude casual inference, although survey measures accounted for temporality to the extent possible through use of lifetime and past-year measures.

We also note the small proportion (6% weighted) of non-Aboriginal racialized persons in this study and particularly the absence of Black transfeminine participants,[22] in light of observed racial inequities in HIV infection among transfeminine Americans.[34] Black people constitute 4.3% of Ontario's population.[35] Given that Aboriginal persons, who are disproportionately impacted by HIV in Canada, were well represented (10% weighted) and that Black persons were well-represented among transmasculine participants,[3] we believe this may represent network patterns that resulted in under-recruitment of Black transfeminine persons (approximately seven Black transfeminine participants would be expected). In light of differences between American and Canadian Black populations that are relevant to HIV (e.g., over half of Black people in Canada were born outside the country[36]), we would urge caution in generalizing findings from Black transfeminine persons in the United States to those in Canada.

2.4.2 Conclusion

Notwithstanding these limitations, our findings provide further evidence of the heterogeneity of HIV-related risk in trans Ontarians, adding to previously published descriptive analyses.[3] Most prior research on HIV risk among transfeminine persons has focused on subgroups at increased vulnerability due to the confluence of biological (e.g., engaging in receptive anal sex), social-

structural (e.g., racialized poverty), and sexual-network (e.g., partnering with men who have sex with men) factors. This emphasis is sensible and necessary given limited resources and evidence of HIV crises in these subgroups. Yet, it results in research with limited generalizability. This may be particularly true for high-income settings beyond the United States where HIV epidemics are patterned differently (e.g., where ethnic/racial disparities are differentially shaped by unique historical trajectories[37]), overall HIV prevalence is relatively low, explicit human rights protections for trans people exist, and trans communities are highly heterogeneous in terms of sexual attraction and behavior.

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3 Chapter 3: HIV sexual risk among gay, bisexual, and other transgender men who have sex with men: A respondent-driven sampling survey[1]

3.1 Introduction

Transgender men who have sex with men have been labeled a key population at disproportionate risk of sexually transmitted HIV.[1] Yet, there is a dearth of research evidence regarding the HIV disease burden, prevalence of HIV-related sexual risk, and factors associated with sexual risk among transmasculine persons who are gay, bisexual, or who have sex with men (T-GBMSM). We use the term "transmasculine" to refer to individuals who were assigned a female sex at birth but identify as male or masculine. Contrary to traditional assumptions that most transmasculine persons identify as heterosexual and/or are exclusively sexually attracted to women, an estimated 63% of transmasculine Ontarians identified as gay, bisexual, or queer and/or reported past-year sex with men, while 21% had a past-year cisgender (non-trans) male sex partner.[2] Similarly, three-quarters of transmasculine participants in the largest United States transgender survey identified as sexual minorities.[3]

A review of research published through 2014 found only ten studies with laboratory-confirmed HIV seroprevalence data for transmasculine persons,[4] of which most found no HIV infections. Three studies documented HIV seroprevalence ranging from 2.0% to 4.3%.[5-7] Self-reported HIV prevalence ranged from 0-10%.[4] Most of these reports were based on small samples with one or two HIV-positive cases. The sole population-based estimate of HIV prevalence among transmasculine persons comes from Ontario, Canada, where an estimated 0.6% identified as HIV-positive; however, half had never been tested.[8] Two recent estimates of self-reported HIV prevalence in the subgroup of transmasculine persons who have sex with men are available from

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[1] A version of this chapter has been published: Scheim AI, Bauer GR, Travers R. HIV-related sexual risk among transgender men who are gay, bisexual, or have sex with men. J Acquir Immune Defic Syndr. 2017;74(4):e89–e96. doi: 10.1097/QAI.0000000000001222

internet-based studies in the United States[9] and globally[10], finding 1.2% (1/81) and 1.4% (1/69) prevalence, respectively.

Thus, limited available data suggest a low burden of HIV among T-GBMSM relative to cisgender (non-transgender) MSM and transgender women, though potentially higher than the broader population. In Ontario, seroprevalence among cisgender MSM was estimated to be 16% in 2011.[11] Among transgender women, pooled seroprevalence from urban convenience samples in high-income countries was 22%,[12] while self-reported prevalence was estimated at 4.3% in a broad, primarily online United States sample,[3] and 3% across Ontario.[8]

Despite consistent findings of relatively low HIV prevalence among transmasculine persons who have been tested for HIV, T-GBMSM are increasingly integrated in cisgender MSM sexual networks[13] where HIV prevalence is high. Estimates of HIV-related sexual risk behavior among T-GBMSM are highly variable[4] and most combine data from trans men of all sexual orientations, including those at low risk of sexually transmitted HIV by definition (i.e., those who only have sex with cisgender women). In one small study of transmasculine persons reporting recent sex with cisgender men, 45% had condomless vaginal or anal intercourse in the past three months.[9] Sexual mixing with cisgender MSM, combined with such levels of sexual risk behavior, may potentiate an increase in seroprevalence among T-GBMSM. Therefore, HIV prevention interventions targeted to T-GBMSM appear timely.

Only one study to date has identified correlates of HIV-related sexual risk in T-GBMSM,[14] employing a syndemic framework, which posits that HIV risk is only one component of a set of co-occurring, mutually reinforcing epidemics resulting from social stigma and deprivation.[15] Reisner and colleagues[14] found that among those living in their felt gender role, higher scores on an index of potentially syndemic conditions (summation of indicators for binge drinking, substance use, depression, anxiety, childhood abuse, and intimate partner violence) were associated with lifetime STI diagnosis, multiple recent sex partners, and condomless anal or vaginal intercourse at last sexual encounter. This suggests that T-GBMSM who are living in their felt gender role share pathways to sexual risk with cisgender MSM, among whom syndemic conditions have consistently been linked to HIV risk behaviour.[16-18]

Studies of urban transfeminine (i.e., male-to-female transgender) persons who have sex with men have found experiences of violence,[19] transphobia or trans-related stigma,[20] depressive symptoms,[19] substance use,[21,22] unstable housing,[23] and extreme poverty[24] to affect HIV-related sexual risk behaviour; in some cases these factors cluster together, suggesting syndemic production of HIV risk.[20,25]

Specific to transmasculine persons, social and medical transition status may contribute to sexual risk via increased sex drive related to testosterone therapy[26] or transition-related sexual experimentation,[27] including perceived shifts in sexual desire and attraction.[28] In addition, T-GBMSM have described seeking gender validation and affirmation as a gay or bisexual man through sexual activity, thereby reducing agency in negotiating condom use.[27,29] The need for gender affirmation may vary with transition status. As among transfeminine persons, experiences of stigma and violence related to trans status[26,30,31] have also been posited to increase risk behaviour for T-GBMSM, but this relationship has not been empirically assessed.

Building upon our previously published descriptive findings regarding gay, bisexual, queer, and other TMSM in Ontario,[2] the current analysis sought to identify factors associated with past-year HIV-related sexual risk for T-GBMSM. Within a minority stress framework, we assessed the impacts of discrimination and other forms of social exclusion on sexual risk among T-GBMSM, while also considering the role of gender transition, in addition to known correlates of sexual risk among transfeminine persons and cisgender MSM.

3.2 Methods

3.2.1 Study Design and Participants

Trans PULSE was a community-based research project that explored the health of trans people in Ontario, Canada's most populous province. "Trans" was defined broadly for recruitment, and included anyone whose gender identity did not match the sex they were assigned at birth; having taken steps to socially transition (e.g., through changing one's name) or medically transition (e.g., by taking hormones) was not required. In 2009-2010, 433 trans Ontarians aged 16 and above completed a respondent-driven sampling (RDS) survey via a self-administered questionnaire, online or using a visually identical paper copy. RDS is an adapted chain-referral

sampling method for hidden populations.[32,33] Combining systematic recruitment through participants' social networks with analytic methods that weight data on recruitment probability and account for non-independence within recruitment chains, RDS can generate estimates for all networked members of the target population. RDS II weights,[34] based on personal network size, were used for this analysis. Recruitment began with 16 seeds; 22 were added after 4-5 waves of recruitment were obtained (to ensure adequate chain length). Each participant received three tracked (virtual or paper) coupons to recruit peers. Ethics approval was obtained from Research Ethics Boards at The University of Western Ontario and Wilfrid Laurier University.

Of 227 transmasculine participants (i.e., those assigned a female sex a birth), 173 were coded as T-GBMSM, based on (a) endorsing a sexual minority identity (e.g., gay, bisexual, pansexual, queer) while not reporting exclusive attraction to cisgender women, or (b) reporting past-year sexual activity with a cisgender or trans man. T-GBMSM were excluded from this analysis if they were missing data for the outcome (n=13), or were missing data for more than 20% of covariates (n=2), resulting in an analytic sample of 158 participants.

3.2.2 Measures

Network size (for RDS estimation). Participants completed three eligibility questions, indicating whether or not they were 16 years of age or older; considered themselves "trans," of "trans experience," or "trans-identified"; and currently lived, worked, or received healthcare in Ontario. Next, they were asked: "How many other people do you personally know who could answer yes to all three eligibility questions?"

Demographics and background factors. Participants indicated their year of birth, educational attainment, lived gender (living in one's felt gender full-time, part-time, or not at all, dichotomized as full-time versus not for regression analyses), sexual orientation identity, and use of masculinizing hormones. Ethnoracial group was coded as Aboriginal (First Nations, Inuit, Métis, or another Indigenous group), non-Aboriginal racialized (i.e., person of color), or white. Residence in Toronto, Ontario's capital and most populous metropolitan area, was coded based on the first letter of the respondent's postal code. Income-to-needs ratio was calculated by dividing the mid-point of reported household income categories (ranging from <$5000 CDN to >$100,000) by the number of household members being supported. Sexual attraction was

categorized as primarily attracted to men (including transmasculine persons); primarily attracted to women (including transfeminine persons); attracted to multiple genders; or not attracted to others, and dichotomized into primarily attracted to men versus not. Childhood sexual abuse was defined as any unwanted sexual contact before age 16. Self-reported HIV status was not included in regression analyses because no T-GBMSM participants reported being HIV-positive.

Social exclusion and inclusion. An 11-item scale of self-reported transphobic discrimination (Cronbach's a= 0.81) was adapted from a measure of homophobia,[35] and assessed the frequency with which participants experienced enacted (e.g. being denied employment) and felt (e.g. hearing that trans people are not normal), trans-related stigma, with higher scores indicating greater exposure.[36] Separately, participants indicated whether they had ever experienced physical or sexual violence related to being trans. The Medical Outcomes Study Social Support Scale was used to measure social support.[37] The study team developed measures of perceived support for gender identity from a range of sources (or expected, for those who had not disclosed). For this analysis, received or expected support from parents was included and dichotomized as strongly supportive versus not (including "not applicable"), given evidence that parental support is uniquely important for trans mental and behavioral health.[38] Indication of past-year attendance at an LGBT community event or membership in an LGBT student or religious group, and attendance at a trans-specific bar or club night, were included as separate variables to reflect their potentially divergent relationships with sexual risk.

Substance use and mental health. Those scoring 2 or greater on the CAGE screener[39] were coded as having problematic alcohol use. Past-year stimulant use included any use of cocaine, crack, crystal methamphetamine, or other amphetamines. Center for Epidemiological Studies Depression scale[40] scores were categorized into low (<16), moderate (16-26), and high (27-60) depressive symptomatology. A scale of self-efficacy for negotiating condom use[41] was adapted to include other barrier methods and trans-specific situations (e.g., "how certain are you that you could ask a non-trans partner to use a protective barrier?"). This revised 8-item barrier negotiation scale had high internal consistency (Cronbach's a=0.92). The research team developed a measure of trans-specific worries in sexual situations (7 items, Cronbach's a=0.80), as a validated measure of this construct was not available. It includes items such as "I worry that

once I'm naked, people will not see me as the gender I am" and "I worry that there are very few people who would want to have sex with me".

HIV-related sexual risk. Participants reported whether they engaged in condomless receptive intercourse to ejaculation in the past year, for both vaginal and anal intercourse, and the type of partner involved (e.g., spouse, one-time partner, exchange partner). Sexual risk was classified as high for participants reporting any such condomless intercourse, unless it occurred within a monogamous relationship with a sero-concordant partner (i.e., if they were reported to have received a negative HIV test result following their last sexual risk activity). Those who had any other kind of past-year sexual activity with a partner were classified as low risk, while those with no past-year sex partners were considered at no risk.

3.2.3 Statistical analysis

Weighted frequencies and their 95% confidence intervals were calculated in SAS 9.3.[42] RDS II weights (inverse of network size, rescaled to the sample size)[34] were used to account for differential recruitment probabilities. Confidence intervals were estimated using Taylor linearization and variances were adjusted for clustering by shared recruiter. Crude and adjusted prevalence ratios (PRs and APRs) for high sexual risk, versus low or no risk, were estimated using average marginal predictions from logistic regression models[43] in SAS-callable SUDAAN 11.[44] For multivariable analyses only, simple imputation of the median, mean, or mode was used for variables with less than 10% missingness. Two variables had more than 10% missing: childhood sexual abuse (10.8%) and income-to-needs ratio (12.0%). These were multiply imputed using weighted sequential hot-deck imputation in SUDAAN, with 5 imputations.

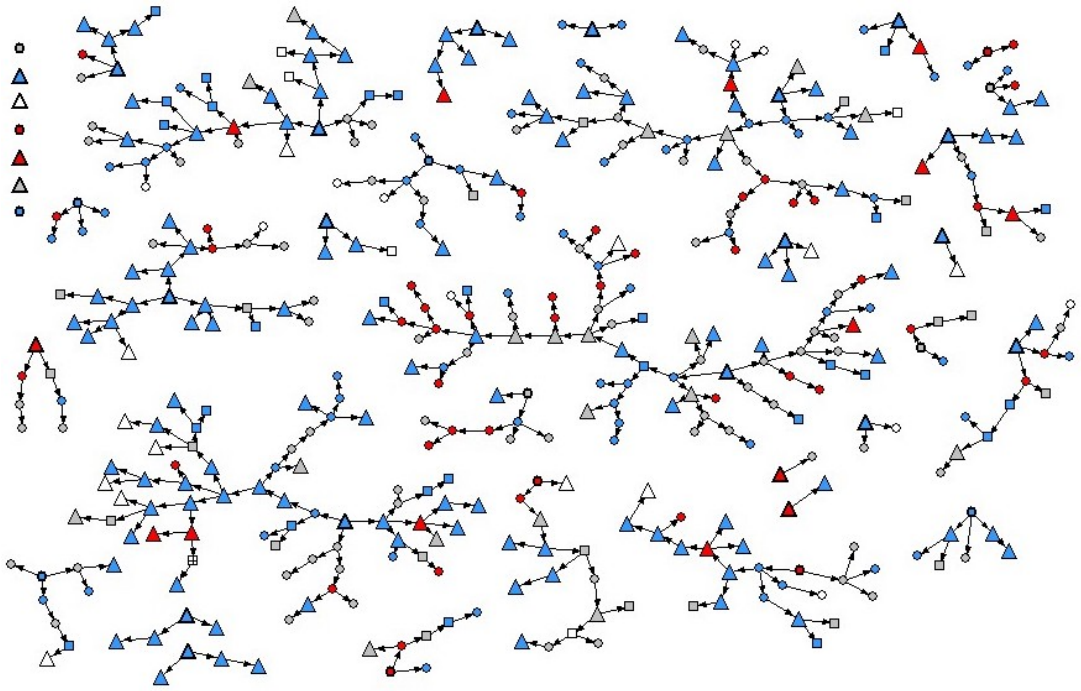
After identifying bivariate associations with socio-demographic and background variables, a model was built containing all with $p<0.25$. Next, both bivariate and adjusted prevalence ratios were estimated for each of the social exclusion/inclusion and substance use/mental health variables of interest. These associations were adjusted for age, childhood sexual abuse, and lived gender, based on the potential for these variables to act as confounders. Presentation of prevalence ratios using average marginal predictions requires selection of reference values for continuous variables, therefore ratios for scale variables are presented as comparisons of the weighted 75th versus 25th percentiles and those aged 40 or 30 are compared to those aged 20. As

this analysis was exploratory, and the absolute number of outcome events was small, we did not enter all variables of interest into a single multivariable model.

3.3 Results

Figure 3.1 is a recruitment network diagram for the full study sample (n=433) coded by T-GBMSM status and past-year HIV-related sexual risk.

Figure 3.1: Recruitment diagram for Trans PULSE respondent-driven sampling survey



Triangles=T-GBMSM; squares= other transmasculine persons; circles=transfeminine persons.

Red=high past-year HIV-related sexual risk; blue= low risk; grey=no past-year sex partners; white=missing.

Characteristics of Ontario T-GBMSM are described in Table 3.1. A minority reported being primarily or exclusively attracted to men (9.1%, 95% CI: 0.9, 17.3); most were attracted to multiple genders (70.7%, 95% CI: 59.0, 82.4). Similar to previously published results for all transmasculine Ontarians,[2] the most commonly endorsed sexual orientation identities were

queer, bisexual or *pansexual*, and *gay*. None reported being HIV-positive, but only 18.7% (95% CI: 9.2, 28.3) had tested for HIV in the past year; 39.3% (95% CI: 26.4, 52.2) had never been tested. An estimated 10.0% (95% CI: 1.5, 18.6) had past-year high sexual risk. Among the 34.2% (95% CI: 22.2, 46.3) with a past-year cisgender male sex partner (data not shown), this proportion rose to 29.3% (95% CI: 8.4, 50.2). Most risk was related to receptive vaginal intercourse: of those reporting any high-risk sexual activity, 64% (unweighted) reported condomless receptive vaginal intercourse only.

Table 3.1: Weighted characteristics of gay, bisexual, and other transmasculine persons who have sex with men in Ontario, Canada (n=158)

	% or $\bar{x}$	95% CI
Sociodemographic and background factors		
Age, years ($\bar{x}$)	29.8	(26.9, 32.7)
Ethnoracial group (%)		
Aboriginal	3.7	(0.2, 7.2)
Non-Aboriginal white	74.9	(63.6, 86.1)
Non-Aboriginal racialized	21.5	(10.6, 32.4)
Residence in Toronto area (%)	49.8	(36.2, 63.4)
Education (%)		
High school diploma or less	25.8	(12.7, 38.8)
Some postsecondary	26.0	(15.3, 36.7)
Postsecondary graduate	48.2	(35.3, 61.2)
Income-to-needs ratio (%)		
<$10,000 CDN per household member	24.0	(13.5, 34.5)
$10,000-19,999	33.6	(23.0, 44.3)
$20,000-29,999	25.4	(12.5, 38..2)
>$30,000	17.0	(9.3, 24.8)
Sexual attraction (%)		
Primarily to male-identified	9.1	(0.9, 17.3)
Primarily to female-identified	16.3	(6.5, 26.0)
Multiple genders	70.7	(59.0, 82.4)
Not attracted to anyone	3.9	(0.0, 9.9)
Childhood sexual abuse (%)	58.6	(45.9, 71.4)
Lived gender (%)		
Living full-time in felt gender	51.6	(38.3, 64.8)
Living part-time in felt gender	36.7	(24.9, 48.6)
Not living in felt gender	11.7	(2.9, 20.5)

Currently using hormones (%)	39.0	(27.1, 51.0)
Self-reported HIV status		
Positive	0.0	(--, --)[a]
Negative	82.8	(72.9, 92.6)
Don't know or prefer not to say	17.2	(7.4, 27.1)
Tested for HIV		
Yes, in the past year	18.7	(9.2, 28.3)
Yes, more than one year ago	41.9	(29.0, 54.8)
Never	39.3	(26.4, 52.2)

Social exclusion and inclusion		
Lifetime transphobia scale score (range= 0-33; $\bar{x}$)	13.3	(11.6, 14.9)
Lifetime transphobic violence (%)		
None	43.2	(29.7, 56.7)
Verbal harassment or threats	37.6	(26.3, 48.8)
Physical or sexual assault	19.3	(9.6, 29.0)
Social support (range=0-5; $\bar{x}$)	3.7	(3.5, 3.9)
Strong received or expected parental support for gender identity (%)	18.0	(10.9, 25.0)
Attended LGBT community, student, or religious event in past year (%)	38.4	(26.3, 50.5)
Attended trans-specific bar or club night, past year (%)	27.3	(17.1, 37.5)
Substance use and mental health		
Problem drinking (CAGE ≥ 2; %)	32.1	(20.2, 43.9)
Past-year stimulant use (%)	12.9	(4.3, 21.5)
Depressive symptoms (%)		
Low: CESD score <16	31.8	(20.7, 42.9)
Moderate: CESD score 16-26	25.8	(14.5, 37.0)
High: CESD score 27-60	42.4	(29.2, 55.7)
Sexual worries scale (range= 0-4; $\bar{x}$)	1.7	(1.5, 2.0)
Barrier negotiation scale (range= 0-6; $\bar{x}$)	5.0	(4.7, 5.3)
Past-year HIV/STI sexual risk		
No partnered sex (%)	15.0	(6.3, 23.7)
Low-risk	75.0	(64.2, 85.7)
High-risk	10.0	(1.5, 18.6)

[a] Cannot be estimated using RDS methods because 0 T-GBMSM reported being HIV-positive.

Crude associations and a multivariable model for socio-demographic and background factors are displayed in Table 3.2. Only childhood sexual abuse was associated with increased sexual risk in bivariate analyses. In the multivariable model, CSA remained associated with sexual risk behavior (APR=14.03, 95% CI: 2.32, 84.70). In addition, increasing age (APR for 40 years old versus 20= 4.02, 95% CI: 1.23, 13.14), having some post-secondary education versus graduating (APR=2.74, 95% CI: 1.18, 6.37), being primarily attracted to men (APR=5.54, 95% CI: 2.27, 13.54), and living in one's felt gender full time (APR=5.20, 95% CI: 1.11, 24.33) were associated with HIV-related sexual risk. Masculinizing hormone use was not associated with sexual risk.

Table 3.2: Associations of sociodemographic and background factors with HIV-related sexual risk among gay, bisexual, and other transmasculine persons who have sex with men in Ontario (n=158)

	Crude associations		**Demographic/ background model**	
	PR[†]	**95% CI[†]**	**APR[†]**	**95% CI**
Age				
30 versus 20 years old	1.64	(0.61, 4.38)	2.04	(0.98, 4.22)
40 versus 20 years old	2.61	(0.40, 17.25)	**4.02**	**(1.23, 13.14)**
Ethnoracial group Aboriginal or racialized, vs. white	0.24	(0.05, 1.14)	0.37	(0.09, 1.54)
Residence in Toronto area	0.86	(0.16, 4.72)	--[b]	--[b]
Education				
High school diploma or less	0.74	(0.09, 6.01)	1.01	(0.23, 4.38)
Some postsecondary	1.51	(0.22, 10.35)	**2.74**	**(1.18, 6.37)**
Postsecondary graduate	1.00		1.00	
Income-to-needs ratio			--[b]	--[b]
<$10,000 CDN	1.00			
$10,000-19,999	1.06	(0.15, 7.65)		
$20,000-29,999	1.40	(0.19, 10.35)		
>$30,000	0.33	(0.05, 2.09)		
Primarily attracted to men	4.36	(0.76, 24.92)	**5.54**	**(2.27, 13.54)**
Childhood sexual abuse	**18.78**	**(2.81, 125.35)**	**14.03**	**(2.32, 84.70)**
Living in felt gender	1.99	(0.27, 14.72)	**5.20**	**(1.11, 24.33)**

	Crude associations		Demographic/ background model	
	PR†	**95% CI†**	**APR†**	**95% CI**
Using masculinizing hormones	1.45	(0.27, 7.79)	0.35	(0.11, 1.11)

† PR = prevalence ratio; CI = confidence interval; APR= adjusted prevalence ratio.

Associations statistically significant at p<0.05 are bolded.

[b] Not retained in multivariable model because p>0.25.

Crude and adjusted associations for social exclusion and inclusion, substance use, and mental health factors are displayed in Table 3.3. Past-year stimulant use (APR=4.02, 95% CI: 1.31, 12.30) and moderate versus low depressive symptoms (APR=5.77, 95% CI: 1.14, 29.25) were associated with increased sexual risk after adjustment for age, childhood sexual abuse, and lived gender. Sexual body image worries were negatively associated with sexual risk for HIV (APR=0.43, 95% CI: 0.21, 0.90).

Table 3.3: Crude and adjusted odds ratios for correlates of HIV-related sexual risk among gay, bisexual, and other transmasculine persons who have sex with men in Ontario (n=158)

	Crude associations		Adjusted associations[a]	
	PR†	**95% CI†**	**APR†**	**95% CI**
Lifetime transphobia scale score, 75th versus 25th percentile	1.34	(0.43, 4.21)	1.13	(0.45, 2.84)
Lifetime transphobic violence				
None	1.00		1.00	
Verbal harassment or threats	0.18	(0.03, 1.07)	0.34	(0.06, 2.02)
Physical or sexual assault	1.89	(0.33, 10.72)	2.21	(0.52, 9.43)
Social support, 75th versus 25th percentile	0.99	(0.49, 2.01)	0.76	(0.43, 1.34)
Strong received or expected parental support for gender	0.19	(0.03, 1.12)	0.20	(0.03, 1.25)
Attended LGBT community, student, or religious event in past year	0.32	(0.09, 1.14)	0.49	(0.12, 1.97)
Attended trans-specific bar or club night, past year	2.12	(0.41, 11.09)	1.88	(0.52, 6.86)
Problem drinking	4.11	(0.96, 17.66)	3.40	(0.88, 13.17)

Past-year stimulant use	3.96	(0.77, 20.45)	**4.02**	**(1.31, 12.30)**
Depressive symptoms				
Low: CESD score <16	1.00		1.00	
Moderate: CESD score 16-26	**7.25**	**(1.54, 34.06)**	**5.77**	**(1.14, 29.25)**
High: CESD score 27-60	1.73	(0.31, 9.50)	1.58	(0.22, 11.45)
Sexual worries, 75th versus 25th percentile	0.72	(0.42, 1.24)	**0.43**	**(0.21, 0.90)**
Barrier negotiation, 75th versus 25th percentile	**0.61**	**(0.39, 0.94)**	0.84	(0.52, 1.37)

† PR = prevalence ratio; CI = confidence interval; APR= adjusted prevalence ratio.

Associations statistically significant at p<.05 are bolded.

[a] Adjusted for age, lived gender, and childhood sexual abuse.

3.4 Discussion

Drawing on data that are generalizable to the networked trans population of Canada's most populous province, we found no self-reported HIV infections, but low uptake of HIV testing. Thus, undiagnosed HIV infections are possible and should not be ruled out. This was a population recruited based on trans identity and/or status and sampled through trans social networks; participants were not recruited for being GB-MSM and were not necessarily living their day-to-day lives as men or transmasculine. While the vast majority of Ontario T-GBMSM (an estimated 91%) were not primarily or exclusively attracted to men, HIV-related sexual risk was higher among those who were, suggesting need for interventions for this subgroup. Considering preferences expressed by T-GBMSM,[29] interventions could be delivered not only through trans-specific initiatives, but also by meaningfully including interested transmasculine persons in existing services designed for cisgender gay and bisexual men.

Our findings have additional implications for the development and tailoring of HIV and other STI prevention interventions for T-GBMSM. They suggest that interventions should not focus on youth to the exclusion of adults, nor on residents of major urban centres to the exclusion of those residing in other settings. Residence in Toronto was unassociated with sexual risk, while increasing age was positively associated. Older T-GBMSM, who will be more likely to have lived substantial portions of their lives as women (potentially as sexual minority women), may face unique challenges in negotiating (safer) sexual relationships with cisgender men that deserve further investigation.

Contrary to theories postulated by T-GBMSM themselves in the qualitative research literature,[26,31] masculinizing hormone use did not impact HIV-related sexual risk in this analysis. While testosterone use may increase libido (and even sexual interest in cisgender men[27,45]), our results indicate that this does not necessarily equate to engagement in sexual risk behavior. Adjusting for other background and demographic factors, those living in their felt gender were more likely to have high HIV-related sexual risk. This difference does not appear attributable to being more likely to have any sexual partners (86% of T-GBMSM living in their felt gender had any past-year sex, versus 81% of those living in their felt gender part-time or less, p=0.57). Taken together, these findings suggest that social gender transition and affirmation may be more salient for understanding engagement in sexual risk behaviour among T-GBMSM.

These analyses considered factors previously associated with HIV-related sexual risk behavior among both transgender women and cisgender men who have sex with men. We found that social determinants of health associated with HIV risk behaviour among transgender women (low incomes,[24] transphobia,[20] and violence[19]) are not necessarily generalizable to T-GBMSM. These findings also challenge our minority stress hypothesis that discrimination would predict sexual risk. Rather, well-documented psychosocial correlates of sexual risk among cisgender MSM were associated with HIV risk for T-GBMSM, including childhood sexual abuse (CSA),[46,47] moderate depression,[48] and stimulant use.[49]

The reported frequency of CSA (58.6%, 95% CI: 45.9, 71.4) in this population is alarming, and is higher than the already elevated levels reported by cisgender sexual minority females and males (in the United States, this ranges from 19% of gay men to 44% of bisexual women[47]). Gender variance in childhood is associated with increased risk of CSA,[50,51] perhaps due to targeting of non-conforming children for abuse. Our finding of a strong (albeit imprecisely estimated) association between CSA and HIV-related sexual risk among T-GBMSM indicates that CSA should be considered in the design and delivery of HIV prevention, sexual health, and mental health initiatives. CSA is also related to increased risk of psychopathology and substance use,[52,53] sexual compulsivity,[54] and intimate partner violence.[55] These conditions may mediate the association between CSA and HIV-related sexual risk,[56] and CSA may confound associations between psychosocial conditions and sexual risk. Studies of HIV risk behavior among trans people have largely failed to collect data on CSA history. In light of these findings and the causal

importance of CSA for many health outcomes later in life, sensitive collection of CSA data should be considered in transgender sexual health research.

To inform interventions, future research could explore pathways between CSA, depression, substance use, and HIV risk among T-GBMSM, and the extent to which they are shared with cisgender MSM. For instance, does use of stimulants specifically to enhance sexual sensation and libido contribute to HIV risk among T-GBMSM? Do these mental health and substance use conditions *interact* to intensify HIV risk (above and beyond their combined individual effects) as suggested by syndemic theory?[57]

Finally, this study re-affirms previous findings[4] that despite sharing social vulnerabilities with transgender women and cisgender MSM, T-GBMSM demonstrate comparatively low prevalence of HIV infection and related sexual risk. While the present study did not identify any intervenable protective factors, understanding of such factors could contribute to prevention efforts both for transmasculine persons, and other sexual and gender minorities. However, we note that two-thirds of T-GBMSM were at low sexual risk almost by definition, as they had no cisgender male sex partners (transgender female sex partners were relatively uncommon for transmasculine persons,[2] and all HIV-related sexual risk was borne by the subgroup who had cisgender male sex partners). Qualitative research with Ontario T-GBMSM[58] has pointed to a paradoxical role of the exclusion that some encounter from gay and bisexual men's communities and sexual networks: while potentially harmful for their overall well-being, the limited sexual opportunities that result likely reduce HIV transmission risk. At the same time, trans men's resilient strategies for navigating sexual partnerships in the face of such exclusion, such as clearly negotiating sexual activities online in advance of meeting partners, may contribute to lower sexual risk among those who do have sex with cisgender men.

3.4.1 Strengths and Limitations

This represents only the second study to explore correlates of HIV-related sexual risk behavior among T-GBMSM. It also represents one of the largest samples of this population to date (15 of 27 studies in a 2015 review[4] had n<50). In addition to improving on previous research in this area by drawing on respondent-driven sampling data collected across Canada's most populous province, the present analysis benefited from the use of sexual behavior and risk measures

developed specifically for trans respondents, and from inclusion of key variables often excluded in transgender studies (e.g., childhood sexual abuse). Nevertheless, this study was not without limitations. First, the small number of outcome events (14, unweighted) limited statistical power. Confidence intervals were often wide, and care should be taken to interpret estimates in relation to the full range of plausible values.

Second, although RDS represents the best available strategy for obtaining a population-based sample of transgender people, generalizability of estimates rests on assumptions that may not be met in practice, and biases unrelated to network size are unaccounted for.[59] The survey questionnaire only inquired about condomless intercourse to ejaculation, and sexual risk was further defined as such activity outside a seroconcordant monogamous partnership. To the extent that delayed condom application,[60] withdrawal before ejaculation, and inaccurate perceptions of mutual monogamy and seroconcordance are prevalent, this measure will underestimate actual HIV-related sexual risk. However, this definition will also misclassify some sexual activity as high risk by including condomless intercourse with casual or non-monogamous partners known to be seroconcordant (data on HIV status of non-primary partners were unavailable). Finally, biomedical HIV prevention technologies (e.g., undetectable viral load, pre-exposure prophylaxis; PrEP) were not captured in these data, which were collected before the introduction of PrEP as a recommended intervention for MSM and transgender people.

3.4.2 Conclusion

In summary, we found that past-year sexual behavior posing high risk for HIV acquisition was uncommon overall in this broad population of T-GBMSM, but this was largely because a minority had any cisgender male sexual partners. Childhood sexual abuse emerged as a key predictor of sexual risk behavior, and should be considered as a contributor to mental health and health behaviour challenges for transmasculine persons in future research and interventions. Continued research, focused on T-GBMSM sexually active with cisgender men, is required to better understand HIV risk and vulnerability in this group. In the context of a perceived increase in sexual mixing with cisgender MSM,[13,31] identifying and intervening on predictors of sexual risk behavior among T-GBMSM is particularly timely.

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4 Chapter 4: Heavy episodic drinking among transgender persons: Disparities and predictors[1]

4.1 Introduction

Hazardous alcohol consumption contributes substantially to the global burden of morbidity and mortality.[1] Negative health consequences of alcohol use disproportionately impact poor and socially marginalized groups,[1] some of whom (e.g., sexual minorities[2]) also have higher rates of disordered and non-disordered use. Less is known about alcohol use among transgender (trans) people, those with a gender identity that differs from their birth-assigned sex. Trans people represent an estimated 0.6% of the adult population in the United States.[3] In a random sample of substance use research published in 2007 and 2012, only 1.3% of articles reported data on transgender identities.[4] Population-based estimates of alcohol use are particularly scarce due to the lack of measures to identify trans respondents in most population health surveys. Understanding of the epidemiology of alcohol use among trans people is further challenged by the limited and non-validated substance use measures often included in trans surveys, and absence of comparison groups.[5]

Much trans substance use research has focused on urban trans women living with or at high risk for HIV, who frequently report heavy alcohol use.[6,7] Findings from broader trans populations in the United States have been more mixed. In a population-based sample of Massachusetts adults including 131 transgender persons, no difference was found in the prevalence of past-month heavy episodic drinking (HED) by transgender status.[8] Other studies have been limited to national samples of U.S. adolescents and college students. Reisner and colleagues[9] found that trans youth reported higher past-year alcohol use than their cisgender (non-trans) peers, while Coulter et al.[10] found that trans students were less likely to report HED than cisgender (non-trans) males, but had a greater number of recent HED days.

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Disparities in alcohol misuse between cisgender and trans populations may be mediated by social stigma.[9] Associations between stigma and alcohol misuse are well-documented in non-trans minority populations.[2] Among trans people, problematic substance use has been conceptualized as a consequence of minority stress processes that result from a stigmatizing social environment. These processes include external, stigma-related stressors (e.g., violence), anticipation of such stressors, internalized stigma, and concealment of gender identity.[11,12] For example, violence and discrimination have been associated with increased risk of problematic alcohol use.[6,10,13,14]

Trans people face systemic barriers to employment, and may rely on sex work for income.[15] Trans sex workers have reported higher levels of substance use than other trans people,[5,6] perhaps due to greater minority stress,[6] exposure to violence, and social network norms.[15] In addition to enacted stigma in adulthood, sexual and gender minority populations disproportionately experience childhood sexual abuse. Such abuse is linked to increased risk of problematic alcohol use later in life.[16] However, while most trans people encounter some degree of stigma, negative coping responses are by no means inevitable. Potentially protective factors against alcohol misuse include family support.[17]

Gender transition, including social, medical, psychological, and legal processes of gender affirmation,[18] is associated with improved mental health for trans people[19] and could also be protective against alcohol misuse. However, findings regarding gender transition and alcohol use have been inconsistent, which may reflect countervailing impacts of heightened exposure to stigma resulting from transition. Among trans women in San Francisco, hormone therapy and breast augmentation were associated with lower odds of past-year HED.[20] Conversely, in a cohort of trans women in New York, heavy alcohol use was higher among those living full-time as women or taking hormones.[6]

In summary, findings regarding both disparities and predictors of HED in trans communities have been somewhat inconsistent. To date, no published research has investigated alcohol use among trans people in Canada, where the social and health context for trans people varies from the United States by virtue of greater human rights protections and a universal health care system. The objectives of the current study were (1) to describe the prevalence of HED among trans people in Ontario, Canada; (2) to compare HED prevalence to the age-standardized

cisgender population of Ontario; and (3) to assess the impacts of socio-demographic characteristics, gender transition, and social exclusion (e.g., discrimination) on HED.

4.2 Methods

4.2.1 Transgender study population

The Trans PULSE community-based participatory research project recruited 433 trans Ontarians via respondent-driven sampling (RDS) in 2009-2010, including 404 who completed alcohol use measures. Eligible participants needed to be 16 years of age or older; live, work, or receive health care in Ontario; and indicate that they identified as transgender, transsexual, or transitioned. This definition included individuals who identified as genderqueer or another non-binary gender identity, and participants were not required to have undergone any social or medical gender transition.

RDS is a chain-referral sampling and analysis method for hidden populations.[21] Beginning with 16 participants (commonly referred to as seeds) selected for maximum diversity, each respondent was provided with three tracked recruitment coupons for recruiting their peers. Twenty-two additional seeds were added after 4-5 waves of recruitment. Maximum chain length was ten waves beyond the seeds. Respondents completed a 60-90-minute survey online or by visually-identical paper copy. They were compensated with a $20 gift card, or could opt to donate the honorarium to a trans-related charity. Secondary incentives for recruitment of peers ($5 gift cards) were added in the final months of the study, with no perceptible impact on recruitment. Research ethics boards at The University of Western Ontario and Wilfrid Laurier University approved this study. Research procedures and demographic characteristics pertaining to the Trans PULSE study population have been described in greater detail previously.[22]

4.2.2 Cisgender study population

A portion of this analysis used data from the Canadian Community Health Survey (CCHS) from Ontarians aged 16+ (n=39,980). The 2009-2010 data cycles were used to match the time of recruitment of Trans PULSE data. CCHS is an ongoing cross-sectional survey of Canadians aged 12 and above employing a multi-stage, stratified, cluster sampling approach, with coverage of

over 97% of the Canadian population (excluding institutionalized persons and those living on First Nations reserves). Additional information about the survey methodology is available from Statistics Canada.[23] CCHS estimates describe the *assumed* cisgender population because the survey did not include measures to identify trans respondents. Under the reasonable assumption that the population prevalence of trans people in Ontario, Canada is relatively similar to that of the United States (about 0.6%[3]), the inclusion of trans persons within the assumed cisgender comparison group would not have a significant impact on results.

4.2.3 Measures

Heavy episodic drinking. Trans PULSE and CCHS participants were asked how often they consumed five or more alcoholic drinks on one occasion in the past year. Response options ranged from "never" to "more than once a week". For comparisons between the two populations and regression analyses, HED was defined as reporting consuming five or more alcoholic drinks on one occasion at least monthly in the past year.

Sociodemographic factors. Socio-demographic characteristics included age, gender spectrum (transfeminine or transmasculine, i.e. natal male or female respectively, including those who identify as neither men nor women), Toronto residence (Ontario's capital and largest urban center, based on postal code), ethno-racial group (Aboriginal, white, or non-Aboriginal person of color), educational attainment, and sexual minority identity (coded as yes if the respondent endorsed any non-heterosexual identity). Reported childhood physical or sexual abuse was included as a background factor.

Transition. Participants indicated how often they lived in their felt gender (dichotomized as full-time versus part-time or less) and described their medical transition status as not planning, unsure, or not applicable; planning but not begun; in process; or complete based on self-perceived needs.

Social exclusion and inclusion, sex work, and depression. The research team developed an 11-item scale measuring the frequency of lifetime experiences of both external and internalized anti-trans discrimination,[24] adapted from a measure of homophobia.[25,] Other social exclusion and inclusion variables included lifetime experience of physical or sexual assault related to being

trans (yes versus no), Medical Outcomes Study social support scale[26] scores (Cronbach's *a* in our data=0.97), employment status (full-time, part-time, student, or other), and low income status (Statistics Canada low-income cut-off; LICO[27]). Underhousing was defined as current homelessness, living in substandard or temporary housing, or trouble meeting housing costs in combination with household income below the LICO. Perceived or expected parental support for gender identity or expression was dichotomized as strongly supportive versus not. Both lifetime and current sex work were assessed in the questionnaire, and the latter was included in this analysis. Depressive symptoms were measured with the Center for Epidemiological Studies Depression scale[28] (Cronbach's *a*= 0.93).

4.2.4 Statistical analysis

Weighted frequencies and their associated 95% confidence intervals (CIs) for Ontario's networked trans population were calculated in SAS version 9.4.[29] RDS II weights were employed, which are estimated as the inverse of the number of target population members known, rescaled to sum to the sample size.[30] These weights adjust for unequal recruitment probabilities due to personal network size, generating estimates for the networked target population. CIs were estimated using Taylor series linearization and variances were adjusted for clustering by shared recruiter to account for non-independence within recruitment chains.[31]

For comparison with the trans population frequencies, overall and sex-specific past-year weighted prevalence estimates for HED among Ontarians aged 16+ (CCHS data) were directly standardized to the overall and gender-spectrum-specific age distributions of trans Ontarians. Six age categories were employed: 16-24, 25-34, 35-44, 45-54, 55-64, and 65+. This method (Giblon and Bauer, in preparation) enables comparisons of trans population prevalence with expected prevalence in the general population, were its age distribution to match the younger age distribution of the trans population, which is particularly pronounced among transmasculine persons.[22] We did not standardize for (assigned) sex, as proportions within the Trans PULSE data were equivalent to the Ontario population. Comparisons of HED prevalence were made between each gender spectrum and both (assumed cisgender) males and females in the broader Ontario population (i.e., by both natal sex and group most closely aligned with current gender identity), as alcohol misuse may have both biological and social components.

Standardized prevalence differences (SPDs) were estimated by subtracting the expected prevalences (age-adjusted from CCHS data) from observed prevalences of HED in the trans population. Confidence intervals for differences between proportions were constructed from CIs for single proportions using the Method of Variance Estimates Recovery.[32] The basic idea is to recover variance estimates needed for setting confidence limits for differences from CIs for single proportions. The resulting CIs for difference provide a means of testing for statistically significant differences between RDS-weighted proportions- for which standard statistical tests are inappropriate,[22,33] as well as proportions arising from different data structures. By definition, values contained in a 95% CI will be not be rejected at the 5% significance level. Therefore, we can conclude a difference in proportions is statistically different from zero at the 5% significance level whenever the 95% CI for the difference excludes 0.

Weighted logistic regression models were used to estimate prevalence ratios (PRs) via average marginal predictions[34] in SAS-callable SUDAAN version 11.[35] Age and scale scores were entered into regression models as continuous, but PRs are presented as comparisons of reference values, as required for their estimation. After estimating bivariate associations for all covariates, a multivariable socio-demographic model was fit to estimate adjusted prevalence ratios (APRs) for socio-demographic correlates. Next, a blockwise procedure was employed to fit multivariable models for other covariates of interest, adjusting for age and socio-demographic factors significant at $p<.05$ in the multivariable socio-demographic model. Blocks of variables related to transition, social exclusion/inclusion, sex work, and depression were entered in turn. For parsimony, variables were only retained in subsequent modeling steps if their p-value from a Wald F-test was <0.25. This modeling approach aimed (a) to account for temporal ordering to the extent possible with cross-sectional data and to control for non-modifiable demographic characteristics, (b) to avoid inappropriate adjustment for mediators, and (c) to assess the impacts of social exclusion above and beyond those of gender transition. Analyses were repeated with stratification by gender spectrum, but results did not substantively differ, and thus only analyses for the full sample are reported.

Of the 404 participants who completed alcohol use measures, seven were excluded from regression analyses because they were missing data on more than 20% of covariates. Participants excluded due to missing data were not significantly different than other participants with respect

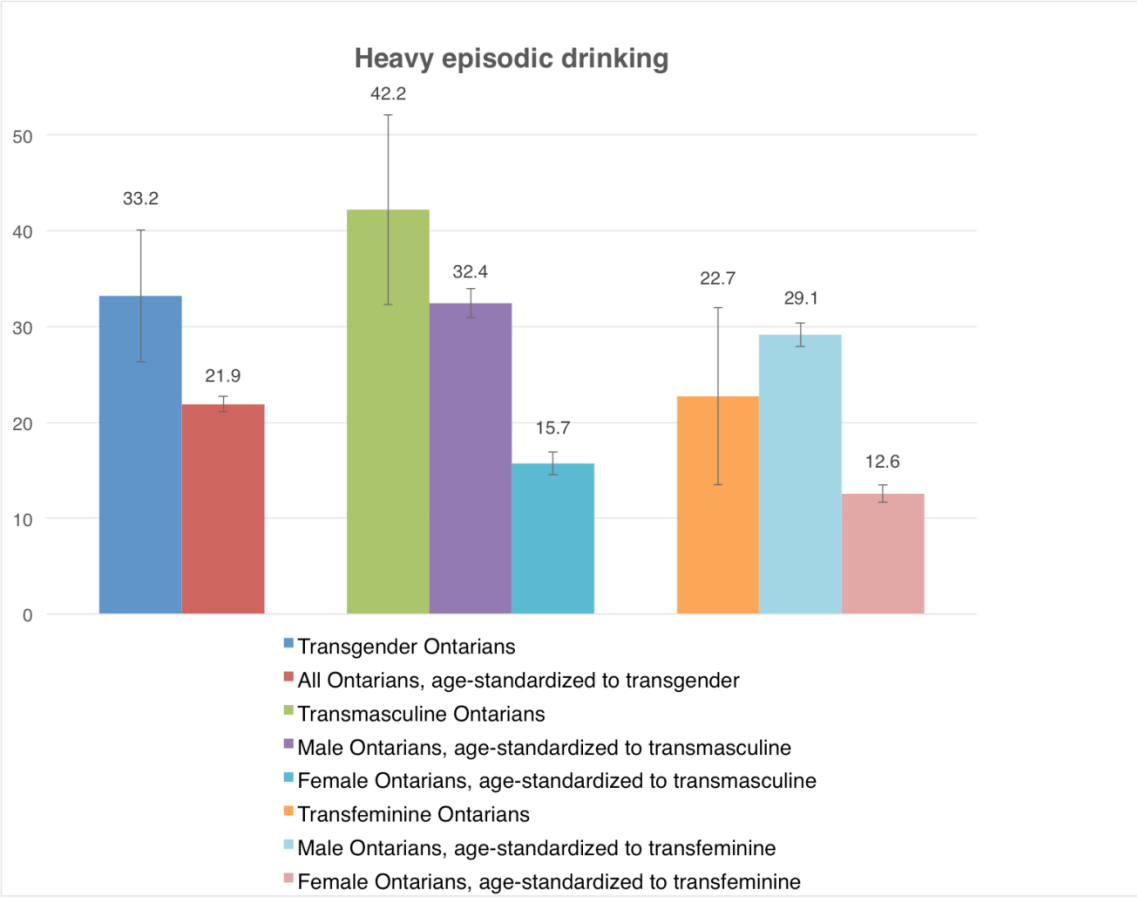
to the sociodemographic variables included in this analysis. For multivariable analyses only, simple imputation of the median, mean, or mode was used to avoid participant loss in a complete case analysis. Less than 2% of data were missing for all but three variables included in this analysis; no variables were missing more than 10% of data.

4.3 Results

4.3.1 Prevalence of heavy episodic drinking

Approximately one-third of trans Ontarians reported heavy episodic drinking at least monthly in the past year (33.2%, 95% CI: 26.3, 40.1), including 10.9% (95% CI: 5.8, 16.1) who engaged in HED weekly or more. As shown in Figure 4.1, this estimated prevalence of HED at least monthly was 1.5 times greater than the prevalence expected based on the age-standardized assumed cisgender population of Ontario (21.9%, 95% CI: 21.1, 22.7), with 11.3% of trans persons reporting HED beyond what would be expected (SPD=11.3%; 95% CI: 4.4, 18.2; p=.001).

Figure 4.1: Past-year heavy episodic drinking at least monthly among transgender Ontarians and the age-standardized Ontario population, 2009-2010.



Note: Error bars indicate 95% confidence intervals.

By gender spectrum, 22.7% (95% CI: 13.5, 32.0) of transfeminine persons and 42.2% (95% CI: 32.3, 52.1) of transmasculine persons reported HED at least monthly, a prevalence difference of 19.5% (95% CI: 5.9, 33.0; p=.005). This difference was attributable to higher levels of occasional binge drinking (one to three times per month) among transmasculine persons (31.1% versus 12.0%); equal proportions of transmasculine and transfeminine persons reported heavy drinking once a week or more (11.1% and 10.8% respectively). Transfeminine persons had a higher HED prevalence than female (SPD=10.1%; 95% CI: 0.9, 19.5; p=.033), but not male Ontarians (SPD= -6.4%; 95% CI: -15.7, 2.9; p=.177), age-standardized to the transfeminine age distribution. Transmasculine persons were 2.7 times more likely to report HED than the age-standardized female population (SPD= 26.5%; 95% CI: 16.5, 36.5; p<.000). In addition, the

higher HED prevalence among transmasculine individuals as compared to Ontario males approached statistical significance (SPD= 9.8%; 95% CI: -0.2, 19.8; p=.055).

4.3.2 Trans population characteristics and associations with HED

Weighted frequencies for socio-demographic characteristics and their bivariate and adjusted associations with HED are displayed in Table 4.1. In crude and adjusted sociodemographic models, transmasculine gender remained associated with greater HED (APR= 1.82; 95% CI: 1.09, 3.06). No other sociodemographic characteristics were associated with HED.

Table 4.1: Weighted socio-demographic characteristics of transgender people in Ontario, Canada and associations with heavy episodic drinking (n=397)

	Weighted frequencies		Heavy episodic drinking			
			Prevalence ratio (bivariate)		Adjusted prevalence ratio[a]	
	% or mean	(95% CI)	PR	(95% CI)	PR	(95% CI)
Age (years)[b]	32.5	(30.3, 34.7)				
30 versus 20 years old	--		0.88	(0.72, 1.07)	0.98	(0.81, 1.17)
40 versus 20 years old	--		0.76	(0.50, 1.16)	0.95	(0.66, 1.37)
Transmasculine spectrum	55.5	(47.6, 63.4)	1.93**	(1.19, 3.13)	1.82*	(1.09, 3.06)
Toronto residence	38.8	(30.9, 46.6)	1.34	(0.88, 2.03)	1.39	(0.92, 2.11)
Race/ethnicity						
White	77.6	(71.5, 83.7)	1.00		1.00	
Aboriginal	6.5	(3.2, 9.8)	0.60	(0.22, 1.60)	0.63	(0.24, 1.62)
Non-Aboriginal person of color	15.9	(10.5, 21.3)	0.72	(0.36, 1.44)	0.58	(0.29, 1.15)
Childhood abuse	70.0	(62.8, 77.1)	0.89	(0.56, 1.42)	0.89	(0.58, 1.35)
Education						
Less than high school	11.5	(6.8, 16.1)	1.95	(1.09, 3.49)	1.60	(0.90, 2.84)
High school diploma	16.1	(10.4, 21.8)	1.17	(0.58, 2.36)	0.91	(0.46, 1.78)
Some college/university	27.1	(20.1, 34.1)	1.52	(0.92, 2.53)	1.53	(0.98, 2.38)
College or university	45.3	(37.6, 53.0)	1.00		1.00	
Sexual minority	64.3	(56.5, 72.1)	0.77	(0.50, 1.18)	0.75	(0.52, 1.09)

*= p<.05, **= p≤.001 for Wald F-test

[a] Adjusted for all other variables in the table; Nagelkerke R2=0.15

[b] Modeled as continuous in logistic regression, reference levels required for presentation of prevalence ratios.

Weighted frequencies for potential predictors of HED and their bivariate associations are presented in Table 4.2, while results of blockwise regression analyses are presented in Table 4.3. All multivariable models in Table 4.3 were adjusted for age and gender spectrum. Across models 1-4, the magnitude and statistical significance of the APR for gender spectrum varied little from the initial adjusted value in Table 4.1 (results not shown; APRs ranged from 1.70-1.87, p-values from .01-.03). This indicates that gender variation in heavy episodic drinking was not attributable to differences in transition and social exclusion between gender spectra. In crude and adjusted analyses, current sex workers had an approximately two-fold higher HED prevalence (APR in final model=2.19, 95% CI: 1.36, 3.55). Neither transition status nor social exclusion/inclusion variables were associated with HED.

Table 4.2: Weighted frequencies and bivariate associations for potential predictors of heavy episodic drinking among transgender people in Ontario, Canada (n=397)

	Weighted frequencies		**Prevalence ratio (bivariate)**	
	% or mean	(95% CI)	PR	(95% CI)
Living full-time in felt gender	51.9	(43.5, 60.3)	1.04	(0.69, 1.57)
Medical transition status				
Complete	27.0	(20.4, 33.7)	1.00	
In process	24.3	(18.1, 30.5)	0.93	(0.51, 1.72)
Planning but not begun	28.5	(21.1, 35.9)	1.46	(0.87, 2.44)
Not planning, unsure, N/A	20.2	(13.1, 27.2)	0.85	(0.41, 1.75)
Transphobia				
Mean (range=0-33)	13.8	(12.8, 14.8)	--	--
75th versus 25th percentile	--		0.89	(0.65, 1.22)
Transphobic assault	20.3	(14.5, 26.1)	1.36	(0.87, 2.12)
Social support				
Mean (range=0-5)	3.5	(3.3, 3.7)	--	--
75th versus 25th percentile	--		0.97	(0.70, 1.36)
Strong parental support for gender	24.7	(18.5, 30.9)	0.86	(0.50, 1.49)
Below low income cut-off	43.7	(35.7, 51.7)	1.31	(0.81, 2.11)
Employment status				
Full time	34.7	(27.9, 41.4)	1.00	
Part time	15.8	(10.3, 21.3)	1.03	(0.53, 2.00)

Student Other	27.5 22.1	(20.5, 34.5) (15.3, 28.8)	0.94 0.84	(0.53, 1.66) (0.42, 1.70)
Underhoused or homeless	17.4	(11.5, 23.3)	1.26	(0.75, 2.11)
Current sex work	2.2	(0.0, 4.6)	2.36*	(1.33, 4.18)
Depressive symptoms Mean (range=0-60) 75th versus 25th percentile	 23.2 --	 (20.9, 25.4)	 -- 1.19	 -- (0.85, 1.65)

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*= p<.05, **= p≤.001 for Wald F-test

Table 4.3: Blockwise logistic regression predicting past-year heavy episodic drinking among transgender people in Ontario, Canada (n=397)

	Adjusted prevalence ratios[a]							
	Model 1[b]		Model 2		Model 3		Model 4	
	PR	(95% CI)	PR	(95% CI)	PR	(95% CI)	PR	(95% CI)
Living full-time in felt gender	1.09†	(0.65, 1.83)	--	--	--	--	--	--
Medical transition status								
Complete	1.00†							
In process	1.02	(0.56, 1.84)	--	--	--	--	--	--
Planning but not begun	1.37	(0.74, 2.54)						
Not planning, unsure, N/A	0.95	(0.43, 2.09)						
Transphobia: 75th vs. 25th percentile	--		0.80	(0.57, 1.13)	0.84†	(0.61, 1.16)	--	--
Transphobic assault	--		1.45	(0.97, 2.15)	1.36	(0.89, 2.09)	1.15	(0.76, 1.74)
Social support: 75th vs. 25th percentile	--		0.90†	(0.65, 1.26)	--	--	--	--
Strong parental support for gender	--		0.89†	(0.54, 1.49)	--	--	--	--
Below low income cut-off	--		1.18†	(0.70, 1.97)	--	--	--	--
Employment status	--							
Full time			1.00†					
Part time			0.94	(0.52, 1.69)	--	--	--	--
Student			0.78	(0.45, 1.38)				
Other			0.81	(0.42, 1.56)				
Underhoused or homeless	--		1.19†	(0.69, 2.04)	--	--	--	--
Current sex work	--		--		2.19*	(1.33, 3.60)	2.19*	(1.33, 3.61)
Depressive symptoms: 75th vs. 25th percentile	--		--		--		1.16	(0.86, 1.57)
Nagelkerke R^2	0.07		0.10		0.08		0.09	

[a]All models control for age and gender spectrum. [b] Model 1=gender transition; Model 2= social exclusion/inclusion factors added; Model 3= sex work added; Model 4=depressive symptoms added.

†p>.25, not included in subsequent models. *= p<.05, **= p≤.001 for Wald F-test.

4.4 Discussion

Despite the well-established public health impacts of alcohol use in Canada and the United States, and well-documented burden of alcohol misuse in marginalized populations, little research has addressed alcohol use among transgender adults. Drawing on data generalizable to the networked trans population of Canada's most populous province, we found that the estimated prevalence of HED monthly or more (33.2%) exceeded what would be expected based on the age distribution of trans Ontarians, particularly in comparison to the background female population. With the exceptions of transmasculine gender identity and sex work, sociodemographic characteristics, gender transition, and social exclusion factors were not associated with HED.

Transmasculine persons were more likely than transfeminine persons to engage in heavy episodic drinking at least monthly, and this effect was robust to adjustment for all other covariates in the regression models. Their HED prevalence far exceeded the age-standardized female population of Ontario, and was almost significantly higher than that of age-standardized males. This provocative finding indicates need for increased attention to the health behaviours of transmasculine persons, which have arguably been overshadowed to date by research and programmatic emphasis on substance use as it relates to HIV risk. The roles of gender expectations and beliefs on alcohol use and misuse among transmasculine persons are particularly worthy of further exploration. In the broader population, sex differences in alcohol use, misuse, and dependence have declined over time, but remain evident.[36] These shrinking sex differences in alcohol behaviors are hypothesized to relate to shifting social norms related to gender, and indicate that greater susceptibility to alcohol misuse among cisgender males cannot be solely attributed to biological factors. Our findings similarly indicate that gender identity and lived gender play a large role in alcohol misuse among trans people.

That gender disparities in the cisgender population are larger for heavy drinking behavior than for alcohol abuse or dependence[36] may help to explain our finding of no gender spectrum difference in the prevalence of frequent HED (weekly or more). Occasional HED among transmasculine persons may be influenced by sociocultural beliefs that equate excessive drinking behaviour with masculinity, or alcohol use may represent a stress-coping response that is relatively socially normative for transmasculine persons.

Estimated HED prevalence among transfeminine Ontarians fell between that of the age-adjusted cisgender female and male populations, and was only significantly different from the female population prevalence. Regardless of whether alcohol use patterns are attributed to natal sex or gender socialization, we might expect transfeminine persons to demonstrate greater HED prevalence than cisgender females. The observed disparity may not, therefore, be indicative of a health inequity.

With respect to other sociodemographic characteristics, age was, unexpectedly, not significantly associated with HED within the trans population. As has been shown for sexual minorities,[37] age-related declines in substance use may be less steep among trans people and therefore difficult to detect in this relatively young sample. We also did not find evidence for an effect of minority stress on HED, despite the frequency with which participants encountered transphobia, violence, and social exclusion. As some degree of exposure to transphobia is ubiquitous among trans people, we cannot conclude that minority stress does not play a role in hazardous alcohol use in this trans population. Self-reported stigma and discrimination may not contribute to intra-population variation in alcohol misuse within the trans population, yet exposure to social-structural transphobia could account for the inter-population disparities we have identified.

Finally, consistent with previous research among cisgender and transgender sex workers,[15] we found that current sex work was associated with HED, despite the low frequency of sex work in this population (2.2% were current sex workers[22]). The small number of sex workers in our study precludes exploration of specific contributors to alcohol use for this population; however, drinking may represent a coping strategy in response to sex-work-specific stressors and one that is normative within some sex workplace cultures.[38]

4.4.1 Strengths and limitations

The Trans PULSE survey employed validated alcohol use measures, including an HED measure directly comparable with Statistics Canada data for the same time period. Our novel use of age-standardized comparison data from the Canadian Community Health Survey overcame a consistent limitation of transgender health research, in which appropriate comparison groups are often lacking. Considering that trans people (particularly transmasculine persons) are younger than the background population, comparison of unstandardized prevalence can be misleading.

Bias can be compounded by comparison of population-based survey findings to results of urban, high-risk convenience samples that characterize many transgender substance use studies. In contrast, these data were obtained from across the one province that contains two-fifths of Canada's population. Demographic characteristics largely mirrored the background population, with the exception of younger age and lower incomes.[22]

Nevertheless, some limitations should be noted. CCHS data were standardized to RDS-weighted point estimates for the age distributions of trans Ontarians. Were trans status ascertained in the Canadian census, such census data would be preferable for standardization. However, given that we employed standardization to make comparisons to the same population that gave rise to the estimates, this limitation is unlikely to affect results. In addition, while these RDS II analyses account for bias related to personal network size, other sampling biases may persist. Homophily, the tendency to know and recruit like others, is of concern in chain-referral sampling, and alternative RDS estimators explicitly adjust for homophily in recruitment. However, previous unpublished sensitivity analyses with this data set revealed that with the exception of geographic variables, results were not impacted substantially by the choice of estimator. Ultimately, while respondent-driven sampling represents an improvement over convenience sampling, inclusion of questions to capture transgender status in population-based surveys will be necessary to overcome these limitations.

4.4.2 Conclusion

We identified disparities in heavy episodic drinking between transgender and cisgender residents of Canada's most populous province, which were particularly pronounced for transmasculine persons. These results should stimulate development of public health interventions and further research to address alcohol use among transmasculine persons.

4.5 References

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5 Chapter 5: Drug use among transgender people in Ontario, Canada[1]

5.1 Introduction

Transgender (trans) persons are those with a gender identity that differs from their birth-assigned sex, including individuals who are transfeminine (male birth-assigned sex with female or feminine gender identity) or transmasculine (female birth-assigned sex with male or masculine gender identity). Although population size estimates are not available for Canada, data from the United States indicate that trans persons constitute an estimated 0.6% of the adult population.[1]

Trans people continue to experience profound social stigma and exclusion, which contribute to institutional and interpersonal discrimination, violence, limited health care access, and internalization of anti-transgender attitudes.[2-5] Little substance use research has explicitly included trans persons,[6] and quantitative data on substance use among trans persons in Canada have been unavailable. However, limited existing evidence and the theory of minority stress[7-10] suggest that trans populations experience disparities in drug use related to social stigma and discrimination. Disparities in drug use may also be related to gender dysphoria, or psychological distress caused by lack of alignment between one's physical sex characteristics and gender identity.

Research to date on substance use in trans populations has primarily focused on urban transfeminine persons living with or at high risk of acquiring HIV, finding high levels of cocaine and methamphetamine use.[11-13] However, samples from HIV prevention studies are representative of the broader transfeminine population in Ontario, among whom HIV risk is low overall.[14] Moreover, drug use is an important outcome in its own right, irrespective of its association with sexually-transmitted HIV, given substantial impacts on morbidity and mortality related to mental health, suicide, and infectious disease.[15] In addition, a respondent-driven

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sampling survey (n=433) in Ontario, Canada, found that transmasculine persons had a higher prevalence of binge drinking than their transfeminine counterparts.[16] These facts underscore the need to examine substance use in broader trans populations, inclusive of multiple gender identities.

Data from mixed-gender convenience samples of trans adults indicate that drug use in these samples is lower than in HIV prevention research settings, but potentially higher than in the broader population. For example, one in five participants to a Massachusetts trans survey reported any past-year non-cannabis illicit drug use,[17] while one in ten participants to an online survey of trans people in the United States reported any such drug use in the past three months.[18] In comparison, non-cannabis illicit drug use was reported by approximately 2% of all Canadians aged 15+ over the past year[19] and 3% of all Americans aged 12+ over the past month[20] in 2013. Few data are available from high-income country settings outside the United States. However, in a report from an Australian trans convenience sample, 29% reported past-year illicit drug use (including cannabis).[21]

Discrimination and social exclusion have been associated with substance use among trans persons, and may partially account for the higher levels of use observed. For example, studies in the United States found that reported anti-transgender discrimination[22,23] and violence[11,24] predicted increased drug use among transfeminine adults. Depression, as a consequence of exposure to discrimination, may mediate the association with drug use.[11] Socio-economic marginalization (e.g., unemployment, poverty), which is common in trans populations,[25,26] is associated with drug use in the broader population.[27,28] In a context of barriers to formal employment, trans people report high levels of sex work involvement,[29] and sex work has in turn been associated with greater drug use in trans samples.[11,17] Conversely, social inclusion may be protective against substance use within trans populations. For instance, family support has been identified as a predictor of lower substance use among trans persons and sexual minority individuals.[30,31]

In addition to discrimination and social exclusion, gender dysphoria may potentiate substance use as a coping strategy. By alleviating gender dysphoria, medical gender transition through hormones and/or surgery may contribute to improved mental health[32] and reduced substance use.

However, gender transition may also increase exposure to minority stressors. Findings on the association between medical transition and substance use have been mixed, with one study of trans women in San Francisco finding lower drug use among those who have taken hormones and/or had surgery,[33] and another in New York finding the opposite.[11]

The present study draws on data from a respondent-driven sampling survey of 433 trans people in Ontario, Canada's most populous province, and from the Canadian Community Health Survey. We sought to compare past-year use of select substances (cocaine or crack and amphetamines, based on data availability) to the age-standardized cisgender male and female population of Ontario, hypothesizing that past-year prevalence would be higher among trans persons overall. Considering that drug use may be impacted both by biological sex and social gender, we did not have a priori hypotheses regarding transgender-cisgender disparities by gender identity.

Next, we built exploratory blockwise regression models to evaluate the impacts of socio-demographic characteristics, gender transition, and discrimination or social exclusion factors on past-year use of drugs associated with high risk of physical, psychological, and social harm to users. Considering potential inter-relationships between discrimination and both sex work and depression, these were included as covariates. We hypothesized that indicators of discrimination and exclusion (transphobia, transphobic violence, lower social support, lack of parental support for gender, lack of employment, low income, and underhousing or homelessness), sex work, and depressive symptoms would be associated with higher prevalence of drug use.

5.2 Methods

5.2.1 Transgender study population

The Trans PULSE community-based participatory research project recruited 433 trans Ontarians via respondent-driven sampling (RDS) in 2009–2010, including 406 who completed substance use measures. Eligible participants needed to be 16 years of age or older; live, work, or receive health care in Ontario; and consider themselves trans, based on self-identification. Participants were not required to have undergone any social or medical gender transition. RDS is a chain-

referral sampling and analysis method developed for stigmatized populations lacking appropriate sampling frames.[34]

Recruitment began with 16 seed participants selected for demographic diversity. Each respondent was provided with three tracked coupons for recruiting their peers. Twenty-two additional seeds were added after 4-5 waves of recruitment, and data collection continued until a maximum of 10 recruitment waves were obtained. Respondents completed the 60-90-minute questionnaire online or by visually identical paper copy. They were compensated with a $20 gift card, or could opt to donate the honorarium to a trans-related charity. Secondary incentives for recruitment of peers ($5 gift cards) were only offered in the final months of the study, and had no detectable impact on recruitment rates. The study received approval from Research Ethics Boards at The University of Western Ontario and Wilfrid Laurier University. Additional information about the Trans PULSE study has been published previously.[25]

5.2.2 Cisgender study population

Data on the prevalence of past-year cocaine or amphetamine use among Ontarians aged 16 and above (n = 39,980) were obtained from the 2009-2010 data cycles of the Canadian Community Health Survey (CCHS). Data on Trans PULSE-comparable items regarding use of other drugs (e.g., heroin) were not made available by Statistics Canada due to small cell sizes. CCHS is an annual multi-stage, stratified, cluster sampling cross-sectional survey of Canadians aged 12 and above employing both computer-assisted personal and telephone interviews. CCHS covers over 97% of the Canadian population, excluding institutionalized persons and those living on First Nations reserves. Additional information about CCHS methodology has been previously published online.[35] Measures to identify trans respondents are not currently included in CCHS, and therefore we have assumed respondents to be cisgender. Applying national U.S. estimates,[1] we would expect approximately 0.6% of this cisgender comparison group to be misclassified, with no anticipated substantive impact on results.

5.2.3 Measures

Past-year cocaine and amphetamine use. Separate CCHS items asked about use of "cocaine or crack" or "speed (amphetamines)" over the past year. Trans PULSE participants were provided

with a list of illicit substances and asked to indicate which they had used in the past year. Amphetamines were defined differently in the two surveys: in Trans PULSE use of crystal methamphetamine and "other amphetamines" were queried separately, while CCHS participants were only asked to report use of "speed (amphetamines)". To be conservative (as CCHS respondents may not have reported crystal methamphetamine use when asked about "speed"), only reported use of "other amphetamines" in Trans PULSE data was compared to reported amphetamine use in CCHS data, excluding crystal methamphetamine.

Past-year higher-risk drug use. A binary variable indicating any past-year drug use was created for regression analyses with Trans PULSE data. Given that an indicator of frequency or severity of use was not available, we limited attention to drugs posing significant risk of physical, psychological, and social harm to the user, based on Nutt et al.'s multi-criteria decision analysis.[36] Evaluation criteria for their ranking of user-side harms included drug- specific and drug-related mortality, morbidity, and mental impairment; risk of dependence; loss of tangibles (including criminal justice involvement); and loss of relationships. While not included in the ranking by Nutt et al., non-medical use of prescription opioids is a major source of drug-related morbidity and mortality in Canada (e.g., related to overdose).[37] Therefore, respondents were coded as engaging in higher-risk drug use if they reported any past year use of heroin, cocaine (crack or powder), crystal methamphetamine, other amphetamines, GHB, ketamine, or prescription narcotics not prescribed by a physician. Drug types queried in our survey but excluded from this outcome definition were cannabis, poppers (alkyl nitrites), hallucinogens, and ecstasy/MDMA.

Personal network size. For RDS weighting, Trans PULSE participants were asked "How many other people do you personally know who could answer yes to all three eligibility questions?" These questions were the eligibility criteria listed above.

Covariates. Socio-demographic and background characteristics included age, gender identity (transfeminine or transmasculine), ethno-racial group (Indigenous, white, or person of color), residence in Toronto (Ontario's capital and major urban center), report of childhood physical or sexual abuse, educational attainment (dichotomized as high school completion or less, versus any post-secondary education), and sexual minority identity. Gender transition variables were social

transition (living in felt gender full-time, versus part-time or less) and medical transition. The latter was self-reported as complete; in process; planning but not begun; or not planning, unsure, or not applicable.

Social stigma and exclusion factors included transphobia, operationalized with an 11-item scale of enacted and internalized transphobia (anti-transgender stigma; Cronbach's $\alpha = 0.81$[3]) and an indicator of experiencing transphobic physical or sexual violence, both over a lifetime frame. Social support was measured with the Medical Outcomes Study scale[38] (Cronbach's α in our data=0.97). Participants reported whether a range of important people in their lives were supportive of their gender identity or expression, or anticipated to be supportive if disclosure had not taken place. Given evidence for a unique impact of strong parental support,[32] a dichotomous measure of strong parental support (versus moderate or weak support) was included. Other factors indicating social exclusion were current employment status, low income status (below the Statistics Canada low income cut-off [39]), and homelessness or underhousing (defined as living in temporary or substandard housing, or having low income in combination with trouble meeting housing costs). Current sex work was self-reported in response to a question about current sources of paid work. Finally, past-week depressive symptoms were measured with the Center for Epidemiological Studies scale[40] (Cronbach's *a* in our data= 0.93).

5.2.4 Statistical analysis

To adjust for unequal recruitment probabilities, Trans PULSE data were analyzed with RDS II weights, which are estimated as the inverse of network size, rescaled to sum to the sample size.[41] Estimates are thus for the networked trans population in Ontario. Weighted frequencies and their 95% confidence intervals were calculated in SAS version 9.3,[42] employing Taylor series linearization and adjusting variances for clustering by shared recruiter.[43] Comparisons with CCHS data on the prevalence of past-year cocaine and amphetamine use were made by directly standardizing overall and sex-specific weighted estimates for Ontarians aged 16+ to the overall and gender-identity-specific age distributions of trans Ontarians. Six age categories were employed: 16–24, 25–34, 35–44, 45–54, 55–64, and 65+. Comparisons were made by both birth-assigned sex and current gender identity (i.e., between both gender identity groups and both males and females in the broader Ontario population). This method has been used and described

previously to compare the prevalence of heavy episodic drinking among transgender versus cisgender Ontarians,[16] while accounting for the substantially younger age distribution of the transgender population. Standardized prevalence differences (SPDs) were estimated by subtracting the age-standardized CCHS prevalence from observed prevalence in the trans population. This can be interpreted as the excess prevalence in the trans population as compared to what would be expected of the cisgender population, if the populations had the same age distribution. Confidence intervals around the SPD were constructed using the Method of Variance Estimates Recovery[44] to allow for comparison given the different structures of the two data sources. Differences in proportions are significant at $p < 0.05$ where the CI around the SPD excludes 0.

Predictors of higher-risk drug use were examined using Trans PULSE data. Prevalence ratios were estimated using average marginal predictions[45] from weighted logistic regression models in SAS-callable SUDAAN.[46] Bivariate associations were estimated for all covariates. Next, adjusted prevalence ratios (APRs) were estimated for socio-demographic and background factors. Finally, a series of blockwise multivariable models were fit, with variables entered in the following order: (1) gender transition, (2) social stigma and exclusion, (3) sex work, and (4) depressive symptoms. This exploratory modeling approach was intended to account for temporal ordering to the extent possible with cross-sectional data, and to assess the impacts of social exclusion factors while adjusting for gender transition. Each model was adjusted for age and for socio-demographic or background factors independently associated with the outcome at $p<0.10$ (ethno-racial group, Toronto residence, and childhood abuse). For each block, all variables were entered simultaneously. Variables were excluded from the following modeling step only if their p-value (for a Wald test in the multivariable model) was >0.25.[47] Results of analyses stratified by gender identity did not substantively differ and thus only analyses for the full sample are reported.

All available outcome data (n=406) were used to generate prevalence estimates in Table 1. For regression analyses, respondents were excluded if they were missing data on more than 20% of covariates (n=7), resulting in an analytic sample of 399.

5.3 Results

5.3.1 Drug use frequencies in the transgender population

As shown in Table 5.1, an estimated 12.3% (95% CI: 7.7, 17.0) of trans Ontarians had used at least one higher-risk drug in the past year, with no significant difference detected by gender identity. Powder cocaine was the most frequently reported drug (7.3%; 95% CI: 3.3, 11.4), and crystal methamphetamine least common (0.4%, 95% CI: 0.0, 0.7). Only use of crack cocaine varied significantly by gender identity, with transfeminine persons being more likely to report use (4.5%, 95% CI: 0.0, 9.7 versus 0.7%, 95% CI: 0.0, 1.5).

Table 5.1: Past-year drug use among transgender Ontarians, by gender identity (n=406)

	All Trans People		Transmasculine[a]		Transfeminine[a]	
	%	95% CI	%	95% CI	%	95% CI
Crack cocaine	2.4	(0.0, 4.9)	0.7*	(0.0, 1.5)	4.5*	(0.0, 9.7)
Powder cocaine	7.3	(3.3, 11.4)	9.4	(3.3, 15.5)	5.0	(0.0, 10.2)
Crystal methamphetamine	0.4	(0.0, 0.7)	0.4	(0.0, 0.9)	0.4	(0.0, 0.9)
Other amphetamine	1.6	(0.5, 2.7)	1.4	(0.0, 3.1)	1.9	(0.5, 3.4)
Ketamine	2.6	(1.1, 4.2)	2.9	(0.6, 5.3)	2.3	(0.3, 4.3)
Gamma Hydroxybutyrate (GHB)	0.6	(0.0, 1.4)	0.8	(0.0, 2.1)	0.4	(0.0, 1.0)
Heroin	0.6	(0.0, 1.4)	0.8	(0.0, 2.2)	0.4	(0.0, 1.2)
Non-medical use of prescription narcotics	6.2	(2.9, 9.6)	7.5	(2.6, 12.5)	4.7	(0.0, 9.6)
At least one of above	12.3	(7.7, 17.0)	13.2	(6.7, 19.7)	11.4	(4.3, 18.5)
More than one class of drug[b]	4.1	(1.7, 6.5)	5.2	(1.1, 9.4)	2.8	(0.8, 4.8)

[a] Transmasculine= assigned female at birth and identifies as male or masculine; transfeminine= assigned male at birth and identifies as female or feminine.

[b] Classes were defined as: cocaine (powder or crack), amphetamines, "club drugs" (Ketamine and GHB), and opiates (heroin, prescription narcotics).

*= $p<.05$ for difference between transmasculine and transfeminine persons.

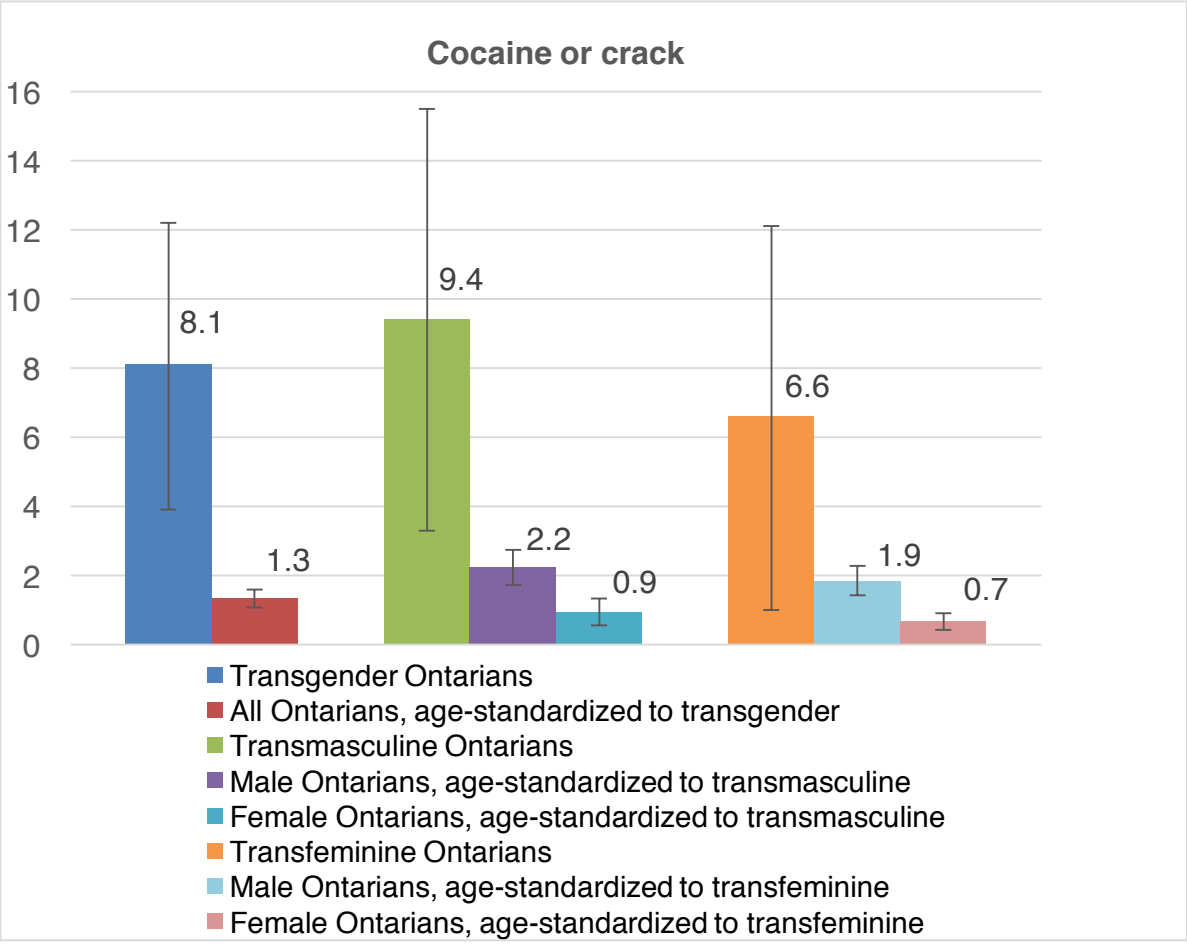
5.3.2 Drug use frequencies in comparison to Ontarians overall

Comparisons to the reference population data from CCHS are displayed in Figures 5.1 and 5.2. Compared to the age-standardized cisgender population, transgender Ontarians were more likely

than expected to use both cocaine (powder or crack) and amphetamines. Specifically, the estimated prevalence of past-year cocaine use was 6.8% (95% CI for standardized prevalence differences; SPD= 1.6, 10.9) greater among trans persons, while estimated amphetamine use was 1.6% (95% CI: 0.5, 2.7) greater. Put differently, there were an estimated 68 excess prevalent cases of past-year cocaine use per 1000 trans people, and 16 excess prevalent cases of amphetamine use, compared to what would be expected for the age-standardized reference population.

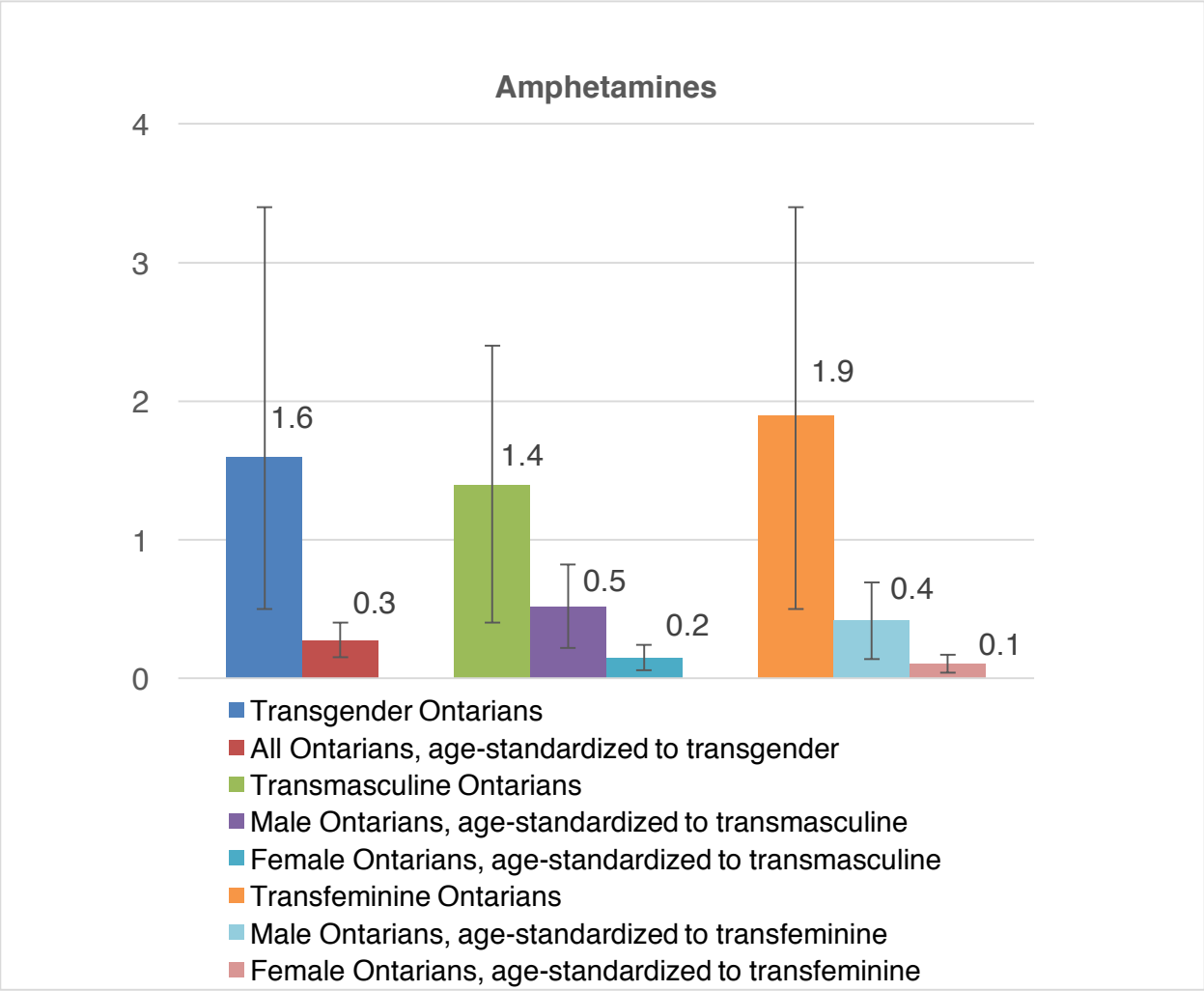
Next, analyses were stratified by gender identity, with data from cisgender males and females age-standardized to the relevant transgender age distribution (e.g., for comparisons with transmasculine persons, both cisgender males and females were age-standardized to the transmasculine age distribution). Transmasculine persons were significantly more likely to use cocaine than the cisgender reference populations, but not amphetamines. Transmasculine persons had a higher past-year prevalence of cocaine use as compared to both Ontario males (SPD= 7.2%, 95% CI: 1.0, 13.3) and females (SPD= 8.5%, 95% CI: 2.3, 14.6). In contrast, transfeminine persons were more likely to use amphetamines than both cisgender males (SPD= 1.5%, 95% CI: 0.1, 3.0) and females (SPD= 1.8%, 95% CI: 0.4, 3.3). However, their prevalence of cocaine use varied only in comparison to cisgender females (SPD= 5.9%, 95% CI: 0.3, 11.4).

Figure 5.1: Past-year cocaine or crack use among transgender Ontarians and the age-standardized Ontario population, 2009-2010



Note: Error bars indicate 95% confidence intervals.

Figure 5.2: Past-year amphetamine use among transgender Ontarians and the age-standardized Ontario population, 2009-2010



Note: Error bars indicate 95% confidence intervals.

5.3.3 Trans population characteristics and associations with drug use

Weighted frequencies of socio-demographic characteristics and their associations with past-year drug use within the transgender population are shown in Table 5.2. In both crude and adjusted analyses, childhood physical or sexual abuse (APR=2.80, 95% CI: 1.18, 6.63), and Toronto residence (APR=3.15, 95% CI: 1.42, 6.99) were associated with higher prevalence of drug use, while people of color had a lower prevalence than whites (APR=0.24, 95% CI: 0.08, 0.65).

Table 5.2: Weighted socio-demographic and background characteristics of transgender people in Ontario, Canada and associations with past-year drug use (n=399)

	Weighted frequencies		Prevalence ratio (bivariate)		Adjusted prevalence ratio[a]	
	%	(95% CI)	PR	(95% CI)	PR	(95% CI)
Age (years)[b]						
Median, IQR	28.7	22.1- 38.7	--	--	--	--
30 versus 20	--	--	0.81	(0.62, 1.07)	0.81	(0.59, 1.12)
40 versus 20	--	--	0.65	(0.37, 1.15)	0.66	(0.33, 1.29)
Gender identity						
Transmasculine	55.6	(47.7, 63.4)	1.31	(0.57, 2.97)	1.09	(0.49, 2.43)
Transfeminine	44.4	(36.6, 52.3)	1.00		1.00	
Toronto residence	38.8	(31.0, 46.7)	2.67*	(1.13, 6.30)	3.15**	(1.42, 6.99)
Race/ethnicity						
White	77.6	(71.5, 83.8)	1.00*		1.00*	
Indigenous	6.5	(3.2, 9.8)	0.79	(0.28, 2.23)	0.63	(0.15, 2.62)
Person of color	15.8	(10.5, 21.2)	0.29	(0.10, 0.79)	0.24	(0.08, 0.65)
Childhood abuse	69.5	(62.4, 76.6)	3.08*	(1.29, 7.33)	2.80*	(1.18, 6.63)
High school education or less	27.5	(20.1, 34.9)	0.55	(0.25, 1.20)	0.51	(0.20, 2.19)
Sexual minority	64.3	(56.6, 72.1)	1.35	(0.59, 3.10)	0.95	(0.42, 2.19)

*= p<.05, **= p≤.001 for Wald F-test

[a] Nagelkerke R^2=0.18

[b]Modeled as continuous in logistic regression, reference levels required for presentation of prevalence ratios.

5.3.4 Predictors of drug use

Results of blockwise logistic regression models predicting drug use are presented in Table 5.3, alongside bivariate prevalence ratios and weighted frequencies for each covariate. Experiences of transphobia, transphobic physical or sexual assault, homelessness or underhousing, and sex work were crudely associated with drug use. Multivariable models were adjusted for age, race/ethnicity, Toronto residence, and childhood abuse. In model 1, where transition status variables were added, neither social nor medical gender transition was significantly associated with drug use (results not shown). In model 2, including social stigma/exclusion variables, transphobic physical or sexual assault (APR= 2.11, 95% CI: 1.07, 4.17), greater social support (APR= 1.61, 95% CI: 1.11, 2.33), and being underhoused or homeless (APR= 2.34, 95% CI: 1.02, 5.38) were positively associated with drug use. In model 3, adding current sex work to

retained social stigma and exclusion variables, sex work was associated with greater drug use (APR=3.82, 95% CI: 1.22, 11.94). Social support remained positively correlated with drug use, while associations with transphobic assault and homelessness or underhousing were attenuated and lost statistical significance. In model 4, depressive symptoms were not associated with past-year drug use.

Table 5.3: Blockwise logistic regression predicting past-year drug use among transgender people in Ontario, Canada (n=399), controlling for socio-demographic and background characteristics

	Weighted frequencies		Prevalence ratio (bivariate)		Adjusted prevalence ratios[a]					
					Model 2[b]		Model 3		Model 4	
	% or median	(95% CI) or IQR	PR	(95% CI)	PR	(95% CI)	PR	(95% CI)	PR	(95% CI)
Living full-time in felt gender	52.0	(43.6, 60.4)	1.60	(0.68, 3.79)	--	--	--	--	--	--
Medical transition status										
Complete	27.1	(20.4, 33.8)	1.00							
In process	24.3	(18.2, 30.5)	0.64	(0.29, 1.38)	--	--	--	--	--	--
Planning but not begun	28.4	(21.1, 35.8)	0.42	(0.11, 1.57)						
Not planning, unsure, N/A	20.1	(13.1, 27.2)	0.83	(0.31, 2.22)						
Transphobia										
Median, IQR	12.8	9.0-18.2					--	--	--	--
75th versus 25th percentile	--	--	1.69*	(1.10, 2.60)	1.08†	(0.71, 1.67)				
Transphobic assault	20.3	(14.4, 26.1)	3.09**	(1.47, 6.47)	2.11*	(1.07, 4.17)	1.84	(0.94, 3.57)	1.82	(0.92, 3.61)
Social support										
Median, IQR	3.6	2.8-4.3								
75th versus 25th percentile	--	--	1.37	(1.00, 1.90)	1.61*	(1.11, 2.33)	1.59**	(1.15, 2.19)	1.61**	(1.14, 2.27)
Strong parental support for gender	24.7	(18.5, 30.9)	0.49	(0.23, 1.05)	0.52	(0.25, 1.07)	0.55	(0.28, 1.07)	0.55	(0.29, 1.06)
Below low income cut-off	43.8	(35.8, 51.8)	1.69	(0.78, 3.69)	0.95†	(0.47, 1.92)	--	--	--	--
Employment status										
Full or part-time	50.5	(42.9, 58.1)	1.00		1.00†		--	--	--	--
Student	27.5	(20.5, 34.5)	1.16	(0.48, 2.81)	1.01	(0.44, 2.31)				
Other	22.0	(15.3, 28.8)	0.79	(0.31, 2.03)	0.78	(0.34, 1.80)				
Underhoused/ homeless	17.6	(11.7, 23.5)	2.74*	(1.23, 6.08)	2.34*	(1.02, 5.38)	1.83	(0.75, 4.44)	1.84	(0.77, 4.40)
Current sex work	2.2	(0.0, 4.6)	7.48**	(3.97, 14.08)			3.82*	(1.22, 11.94)	3.82*	(1.22, 11.99)
Depressive symptoms										
Median, IQR	22.5	10.7-32.8								
75th versus 25th percentile	--	--	1.06	(0.67, 1.68)					1.05	(0.67, 1.63)

[a]All models control for age, ethnoracial group, Toronto residence, and childhood sexual or physical abuse.

[b] Model 1 (transition status variables) not displayed; p-values for all variables were > 0.25. Model 2= social exclusion/inclusion factors; Model 3= sex work added; Model 4=depressive symptoms added.

[†]$p>0.25$, not included in subsequent models. *= $p<0.05$, **= $p\leq0.001$ for Wald F-test

5.4 Discussion

Drawing on data from a province-wide respondent-driven sampling survey, we found that an estimated 12.3% of trans Ontarians reported past-year use of illicit drugs associated with a high risk of harm to the user, most commonly cocaine or non-prescribed opioids. In comparison to the reference (cisgender) population in the same period, directly standardized to reflect the younger transgender age distribution, trans persons were five to six times more likely to report past-year use of cocaine and amphetamines. While data on non-medical prescription opioid use (NMPOU) in the cisgender population were not available for standardized comparisons, an estimated 2.0 % of Ontario adults reported NMPOU in 2008-9,[48] as compared to the 6.2% we have estimated for the trans Ontario population. Drug use within the trans population was associated with socio-demographic and background characteristics (white race, major urban residence, and childhood abuse), transphobic violence, homelessness or underhousing, and sex work.

5.4.1 Strengths and limitations

This is the first study to estimate the prevalence of drug use among trans Canadians, and draws on respondent-driven sampling data, which are, in theory, generalizable to the networked transgender population of Ontario (i.e., those knowing at least one other trans person). However, while RDS II weights adjust for unequal recruitment probabilities due to network size, other sampling biases may remain.[49] For instance, specific groups may be consistently under- or over-recruited, or be more likely to decline participation even if recruited. Ultimately, inclusion of measures to identify trans respondents in Canadian population health surveys will be will be critical to advancing understanding of health disparities. Comparison to CCHS was based on availability of data for the same categories of drugs as included in Trans PULSE. To be conservative, we compared reported use of “speed (amphetamines)” in CCHS to “other amphetamines” in Trans PULSE. This underestimate the disparity in use to the extent that crystal methamphetamine users responded affirmatively to the CCHS question.

The Trans PULSE survey did not collect data on the frequency of drug use in the past year. Reported use may have been intermittent, or even a single event, and is not indicative of problematic use or dependence. To mitigate the limitations of the available outcome data, we

restricted attention to drugs posing higher risk of harms to users. Nevertheless, respondents may have experienced high risk related to problematic use of other drugs. Self-reporting of drug use is also subject to social desirability bias. While Trans PULSE was self-administered (with the option to retain anonymity), the CCHS was interviewer-administered, and therefore reporting bias may contribute to overestimation of prevalence differences. In addition, the data are cross-sectional and thus causality cannot be inferred. Further, some exposures were measured over the same time frame as drug use (e.g., sex work), and are potential effects of drug use.

5.4.2 Implications

Consistent with prior research, indicators of social stigma and exclusion were associated with drug use within the trans population.[20-22] Interestingly, while discriminatory violence was related to drug use, transphobia overall was not. The addition of sex work to regression models attenuated the estimated prevalence ratios for transphobic assault and underhousing, suggesting that sex work may mediate and/or confound associations between these factors and drug use. A previous study in New York found that sex work was prospectively associated with transphobic violence, and in turn, with depressive symptoms and substance use.[11] Research including larger numbers of transgender sex workers, ideally longitudinal, is required to elucidate the relationships between these factors over time and across geographic contexts.

Greater social support was consistently positively associated with drug use. This unexpected finding warrants future investigation. As we examined any past-year drug use, much of which would be occasional recreational use, it is plausible that individuals engaging in such use are more socially well-connected.

Gender identity was not associated with drug use among trans persons. Few studies have directly compared substance use by gender identity, and those studies have had conflicting findings.[17,18] In this same study population, transmasculine gender was robustly associated with heavy episodic drinking, while social exclusion variables—with the exception of sex work—were unassociated.[16] However, there was no gender identity difference in the prevalence of very frequent (weekly or more) binge drinking. Taken together, these findings suggest that the impact of gender norms on transgender substance use behavior may be stronger for more socially normative use (e.g., occasional heavy drinking), with social marginalization more salient for

predicting higher-risk substance use or dependence. Social and medical gender transition statuses were also not significantly associated with drug use, suggesting that factors other than gender dysphoria may account for the high prevalence of drug use in this population. Indeed, results indicate that drug use is particularly elevated among trans Ontarians who have experienced victimization (childhood abuse, transphobic assault), homelessness or underhousing, and sex work. Culturally competent substance use prevention and treatment services that consider the impact of these experiences are warranted.

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6 Chapter 6: The intersectional discrimination index: Development and validation of measures of self-reported experienced and anticipated discrimination

6.1 Introduction

6.1.1 Discrimination and health

Discrimination refers to a range of explicit and implicit policies, practices, and behaviours that perpetuate inequities between socially defined groups, including institutionalized and legal subjugation, de facto discrimination by ostensibly neutral policies, and interpersonal slights.[1] Most research on discrimination and health has focused on perceived discrimination self-reported by its targets.[1] Such discrimination represents one mechanism by which non-dominant group membership may be linked to poorer health outcomes, and thus represents an important area of investigation for research aiming to intervene on the processes that maintain health disparaties.[2,3]

Perceived discrimination is frequently understood as a psychosocial stressor that contributes to the higher overall burden of stress experienced by non-dominant social groups,[4,5] within the psychological and sociological stress frameworks first elaborated by Lazarus and Folkman[6] and Pearlin, respectively.[7] Discrimination may also impact health via social resistance, whereby discriminated group members actively engage in risk behaviours as a means of expressing their dissatisfaction with discriminatory social arrangements, and alienation from dominant society and its norms.[8,9] Further, discrimination events can diminish health directly when they involve loss of economic resources to maintain health, physical injury, or denial of health care.[1] A growing body of research links self-reported discrimination with poorer health outcomes, with the most robust evidence for deleterious impacts of racial and ethnic discrimination on psychological distress and negative mental health outcomes among racial and ethnic minorities.[1,10,11]

6.1.2 Intersectional discrimination

A meta-analysis of research on self-reported discrimination and health published from 1986-2007 found that most focused on racism (66%), and less commonly on sexism (17%) or discrimination against sexual minorities (6%).[12] Some studies have explicitly investigated discrimination on the bases of multiple social statuses,[13-17] however, this appears rare.[18,19] Intersectional research on discrimination and health has been identified as an area in need of development.[2,18] Crenshaw[20] coined *intersectionality* to describe how Black women's experiences of discrimination were qualitatively unique, rather than merely a combination of experiences of white women and Black men. Intersectionality has become a central framework for understanding the multiple, interacting, and context-dependent forms of social and health advantage or disadvantage that individuals experience on the bases of social status and position.[21,22]

Intersectionality scholars are heterogeneous in their ontological and methodological orientations.[21] Social scientific and population health research approaches tend to apply an intercategorical approach to intersectionality, one that takes the critical realist perspective that while existing categories of social status and position (e.g., race, gender) are socially constructed and provisional categories, they nevertheless reflect real and socially meaningful groupings. As applied to the study of discrimination and health, intercategorical intersectionality involves examining the potentially interacting impacts of multiple, multidimensional categories of social status and position on outcomes of interest.[2,21] Intersectionality argues that health inequalities do not necessarily increase linearly with each additional marginalized social status, and that the study of one form of discrimination or privilege at a time (e.g., racism, sexism), will obscure the experiences of groups facing intersecting forms of discrimination.[2,22] Moreover, an intersectional perspective also suggests that individuals belonging to multiple socially marginalized groups may be unable to identify a single basis for any given act of discrimination they experience, raising questions as to the validity of survey measures which require participants to do so.[23]

6.1.3 Measuring intersectional discrimination

Corresponding to a remarkable growth in public health and social science research on discrimination over the past two decades,[1] the set of instruments available to measure

discrimination has expanded rapidly. For instance, a 2006 review identified 152 self-report instruments for racism alone.[24] Despite this proliferation of discrimination measures, few have been developed specifically to assess discrimination across multiple social statuses or positions. Two exceptions are scales developed by Bastos et al. for the Brazilian context[25] and by Bogart et al. to evaluate racial/ethnic, sexual orientation, and HIV stigma concurrently.[26]

Of the most commonly used and widely validated measures of (racial/ethnic) discrimination,[11] two have particular potential to be used for cross-group discrimination: Krieger et al.'s Experiences of Discrimination (EOD)[27] and Williams et al.'s Everyday and Major Discrimination measures.[28] The former asks "'"Have you ever experienced discrimination, been prevented from doing something, or been hassled or made to feel inferior in any of the following situations because of your race, ethnicity, or color?" across 9 domains, but has been adapted to include other stem endings ("e.g., "because of your sex"), such as in the 2004–2005 United States National Epidemiologic Survey of Alcohol and Related Conditions.[17,29] Williams' measures[28] inquire about "unfair" treatment in interactions with various institutions or domains (major discrimination), or about specific instances of poor or inferior treatment (everyday discrimination). Those endorsing any discrimination experiences are asked to indicate the main reason they attribute to the experience (or in some adaptations, multiple main reasons[15]).

While these extant measures are candidates for use in intersectional analyses, they present substantial challenges. First, their items were not developed to tap into the manifestations of discrimination across non-dominant social groups. For example, the Everyday and Major Discrimination measures[28] were designed to ascertain racial discrimination against African-Americans. Thus, they include items which may be less salient for other racial and non-racial minority groups[30,31] (e.g., related to perceptions of the respondent as frightening) – and even for Black women[32] – and exclude items relevant to a number of discriminated groups (e.g., being ostracized in public).

Measures that employ parallel question sets for each type of discrimination[17,26] impose a high respondent burden and preclude valid assessment of total discrimination burden because respondents may report the same discrimination experience (e.g., being harassed) multiple times (e.g., related both to gender and to race). Without the ability to estimate exposure to

discrimination overall, researchers are limited either to conduct analyses within subgroups at risk of the exposure (e.g., intersecting effects of racial, sexual, and HIV-related discrimination among ethnic minority men who have sex with men living with HIV[26]) or, in broader population samples, to analyzing the effect of exposure to any discrimination in combination with the number or combination of attributions reported.[17] These limitations severely limit ability to evaluate the role of self-reported discrimination in mediating health inequities in population health research, and to testing hypotheses consistent with scientific knowledge about the impacts of cumulative and chronic stressors.[33-35]

6.1.4 The present study

Considering the limitations of existing measures for intersectional population health research concerned with the impacts of multiple forms of discrimination, we sought to develop a new measure, which we titled the Intersectional Discrimination Index (InDI). The index consists of three components which assess anticipated, day-to-day, and major discrimination respectively. Considering evidence that perceived discrimination's deleterious impact is not dependent on the grounds it is attributed to,[18] and following the approach recommended for evaluation by Bauer,[2] we aimed to develop a single index that can be administered and scored without need for attributions to specific grounds. Instead, data on social status and position (i.e., socio-demographic measures) can be used to compare the experiences and outcomes of groups at relevant intersections.

The InDI was developed and refined through literature review, expert consultation, and pilot testing. To evaluate the InDI's validity and reliability, it was administered to survey panel members in Canada and the United States sampled for maximum racial/ethnic and sexual diversity, along with socio-demographic, mental health, and substance use measures. A subgroup completed a follow-up survey including the InDI and the most comprehensive versions of Williams' Everyday[28] and Major[36] Discrimination. These data were used to examine acceptability and data quality, internal consistency and dimensionality, construct validity (including associations with the Williams measures and established health correlates of discrimination), and test-retest reliability. Considering the need for a well-developed empirical and theoretical basis for validation hypotheses, as well as sufficient sample sizes, these analyses

of validity and reliability consider one axis of social status or position at a time (e.g., race/ethnicity, sexual orientation). A companion paper (Bauer and Scheim, in preparation) will demonstrate the utility of the InDI for intersectional analyses of health outcomes through worked examples.

6.2 Methods

6.2.1 InDI Development

Development of the InDI began with a narrative review of public health and social scientific literature on (a) intersectionality, (b) theoretical models linking stigma, discrimination, and mental health, (c) measuring self-reported discrimination, and (d) development of self-report measures. Informed by this review, we decided to develop a multidimensional index to reflect the nature of discrimination-related stressors, including major or disruptive life events, chronic or ongoing stressors, traumatic or violent events (frequently excluded in discrimination measures[37]), as well as anticipatory stress related to expecting future discrimination.[18,38] Many items were adapted from existing discrimination and victimization measures, while others were generated by the investigators to cover manifestation of discrimination not included in extant measures (e.g., dissolution of personal relationships). A construct map[39] was used to ensure balanced coverage of all discrimination domains (e.g., institutional settings,[1,40,41] interpersonal relationships,[32] and chronic slights[42]) and of discrimination types reflecting various affective bases of prejudice (e.g., disgust versus fear). Further detail on item development for each component is provided below.

To gather input on the draft InDI, we held telephone and videoconference consultations with eight experts from Canada, the United States, and Australia, including epidemiologists, psychologists, and policy analysts from the Canadian and Ontario Human Rights Commissions. After revising item content and wording based on expert feedback, we pilot-tested the second version of the InDI with ten graduate students to obtain feedback on item and instruction clarity, face validity, and sufficiency of response options. The index was also reviewed for readability using the Flesch-Kincaid Grade Level, and wording was revised until a 7th grade level was reached. The final index contains the three sub-measures described below: anticipated, day-to-day, and major discrimination. The InDI is included as Appendix B. Rather than asking respondents to attribute the bases of discriminatory experiences or expectations (i.e., social

identities or statuses), the InDI solicits experiences "because of who you are", with the following definition provided at the outset and midway through the questionnaire:

> These questions are about experiences related to **who you are**. This includes both how you describe yourself and how others might describe you. For example, your skin colour, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

Anticipated discrimination. The minority stress framework suggests that the stress and vigilance associated with anticipation of discrimination are important contributors to stigma-related mental health inequities.[43,44] Yet, the construct is rarely included in measures of discrimination.[38] Existing measures tend to either simultaneously evaluate anticipated stigma and subsequent behavioural reactions (i.e., include double-barreled questions), inquire only about generalized expectations of discrimination against one's social group, or focus on specific concealable stigmas (e.g., mental illness).[45,46] Therefore, we developed items to assess anticipation of discrimination, as well as expectations of safety and equitable treatment. Items were based on the domains covered by the Major Discrimination component. For each of 11 statements, respondents were asked to indicate agreement on a 5-point Likert-type scale (strongly disagree to strongly agree). For example, one item reads: "Because of who I am, I might have trouble finding or keeping a job." To avoid priming respondents to anticipate discrimination by recalling past discrimination events, these items were asked first.

Day-to-day discrimination. This component included 18 items assessing the frequency and recentness of day-to-day discrimination (never, lifetime but not past-year, once or twice in the past year, many times in the past year). Day-to-day discrimination items were informed by Williams' Everyday Discrimination scale and Sue's[42,47] framework of *microaggressions*: "...everyday verbal, nonverbal, and environmental slights, snubs, or insults, whether intentional or unintentional, that communicate hostile, derogatory, or negative messages to target persons based solely upon their marginalized group membership."[42] To ensure representation of items that reflect both the overlapping and distinct biases and stereotypes that contribute to discrimination across non-dominant social groups, we referred to Cuddy et al.'s Stereotype Content Model (SCM) and Behaviour from Intergroup Affect and Stereotypes (BIAS) map.[48] The SCM delineates two dimensions on which positive or negative group stereotypes are based – warmth and competence. In turn, the BIAS map predicts affective and behavioural responses to

social groups based on their position along each dimension. For example, groups socially stereotyped as high in competence but low in warmth tend to be envied, and thus treated with a combination of active harm and passive facilitation, whereas groups stereotyped as low on both dimensions actively harmed and neglected based on feelings of contempt. As reporting of day-to-day discrimination may be particularly susceptible to confounding with current mental health status, we tried to avoid items requiring extremely subjective appraisals or comparisons (e.g., "people act as if they're better than you are"). A sample item reads: "Because of who you are, have you heard, saw, or read others joking or laughing about you (or people like you)?"

Major Discrimination. Eleven items measured major events over the lifetime (never, once, or more than once). To generate past-year frequencies, respondents endorsing any lifetime discrimination were asked whether the specified event had occurred at least once in the past year. For utility in monitoring the prevalence of justiciable forms of discrimination,[49] and to limit confounding with current health status, items referred to specific manifestations of discrimination (rather than asking respondents to report "discrimination" per se) and included objective end-points where possible (e.g., stopped or arrested by police, rather than 'harassed'). For example, health care discrimination is assessed with: "Because of who you are, has a health care provider ever refused you care?" Items related to violence and property damage were adapted from measures by Herek[50] and the Statistics Canada General Social Survey Victimization Survey.[51]

6.2.2 Data Collection

Legerweb was contracted to collect data from a target sample of 3000, split evenly between residents of Canada and the United States. Legerweb is a Canadian web survey panel provider and builder. Since 2004, they have managed a panel with over 400,000 active members. They conduct market research, opinion research, and scientific research for academic clients. Eligible participants were Canadian or American residents aged 18+ who participate in English-language Legerweb survey panels. Quota sampling was employed with the following targets per country: 250 in each of six major ethno-racial groups (Middle Eastern, Asian, Black, Indigenous, Latino/ Hispanic, White) and 250 who identify as lesbian, gay, bisexual, or transgender (LGBT, of any ethno-racial background). Race/ethnicity demographic questions and a screening question to

ascertain LGBT status ("Do you consider yourself lesbian, gay, bisexual, or transgender, or a similar identity?") were employed for quota sampling. At baseline, participants completed a 30-minute questionnaire including the InDI; mental health and substance use measures; and indicators of socio-demographics characteristics and targetable attributes (e.g., perceived race/ethnicity, apparent disability, wearing religious garb). A random sample of 150 participants participated in a 10-15-minute follow-up survey 2-4 weeks after completing the baseline survey. The follow-up survey included the InDI, as well as Williams' Everyday[28] and Major[36] Discrimination measures. The Non-Medical Research Ethics Board at the University of Western Ontario approved this study (see Appendix E).

6.2.3 Measures

Copies of the baseline and follow-up questionnaires are included as Appendices C and D. All measures were based on self-report.

Intersectional Discrimination Index. Responses to anticipated discrimination items were scored from 0 (strongly disagree) to 4 (strongly agree). Mean scores (0-4) were calculated for individuals who completed at least 9/11 items, with positively worded items reverse-scored. Each lifetime major discrimination item was coded as 0 (never), 1 (once), or 2 (more than once), for a lifetime major discrimination tally ranging from 0-26. Each past-year major discrimination item was coded as 0 (no) or 1 (yes), for a past-year major discrimination tally ranging from 0-13. Lifetime day-to-day discrimination was coded as 1 for yes (versus 0 for no) for each item that respondents endorsed (lifetime or past-year), for a tally ranging from 0-18. Past-year day-to-day discrimination items were coded as 0 for no (never, or not in the past year), 1 for once or twice in the past year, and 2 for many times in the past year, for a tally ranging from 0-36. For major and day-to-day discrimination, missing values were imputed to "no/never" if respondents had completed at least 80% of items; if 20% or more of items were missing, sum scores were not calculated.

Conceptually, major and day-to-day discrimination events are not indicators of a unidimensional underlying cause, and are not necessarily expected to be correlated with each other.[37] Therefore, a priori decision was made to analyze both sub-components as causal indicators (i.e., items that

aggregate to form a construct, rather than items that reflect the level of a single underlying construct[39,52,53]), and thus not to subject them to procedures that assume effect indicators (e.g., measures of internal consistency, factor analysis). Scores for each of the three components are not intended to be summed into a single overall score.

Attributions. Although attributions to specific grounds are not part of the InDI, a universal attribution question was included for exploratory purposes. It asked: "Thinking of all of the times that you have been treated unfairly or poorly because of who you are, how often do you think each of the following was a reason why others treated you this way?". An expansive list of possible reasons was provided (see Table 6.12), including a write-in option for "other". For clarity, each attribution was proceeded by the word "your" (e.g., "Your mental health or substance use disorder"). A four-point response scale included the options "never a reason", "sometimes a reason", "always a reason", and "not sure if this was a reason". In these analyses, attributions were dichotomized as sometimes or always a reason versus never or unsure.

Williams Everyday and Major Discrimination (follow-up survey only). The Williams Everyday Discrimination scale (see Items in Appendix D) asks about experiences "in your day-to-day life", without specifying a timeframe. It was summed overall (ignoring attributions), with each item assigned a score from 0 (never) to almost every day (5) for a total possible range of 45 points. The Williams Major Discrimination measure includes 9 binary items over a lifetime frame, and was scored from 0 (no specified major discrimination event) to 9 (all events).

Demographics. Participants reported their sex assigned at birth and the gender in which they lived in day-to-day life. This information was used to classify respondents as cisgender (non-transgender) men, cisgender women, transgender women (male birth sex, lives as female, sometimes female, or non-binary), and transgender men (female birth sex, lives as male, sometimes male, or non-binary). Individuals who were classified as transgender and/or who reported a gay, lesbian, or bisexual sexual orientation were classified as LGBT.

Race/ethnicity was assessed with a check-all-that-apply item, using separate response options for each country to reflect differences in ethno-racial categorization. To create consistent and mutually exclusive ethno-racial categories across countries, respondents were assigned to race/ethnicity categories using the following hierarchical coding sequence: white (white race/ethnicity only), Indigenous (any First Nations/Inuit/Métis or Alaska Native/American Indian

ancestry), Latino/Hispanic (any Hispanic or Latin American ethnicity), Middle Eastern (any Middle Eastern/Arab ethnicity), Black (any Black, African-Canadian, or African-American race), and Asian (any East, Southeast, or South Asian ethnicity, or Native Hawaiian/Pacific Islander in the United States). These criteria were applied such that individuals were assigned to the first category (in the ordered list above) that they endorsed. For instance, someone who indicated being Indigenous and Latino was classified as Indigenous. For analyses stratified by racial/ethnic minority status, respondents were coded as Indigenous and/or racialized (i.e., of color) versus white. Parallel questions ascertained immigration history in Canada and the United States, and a binary variable was created to reflect native-born versus immigrant status in the respondent's country of residence.

A dichotomous item asked participants to indicate if they had a physical, sensory, learning, or psychiatric disability. Income-to-needs ratio was calculated by dividing annual household income by the number persons supported, in CAD and USD respectively. For regression analyses, country-specific income quartiles were calculated, and a single income quartile variable (1^{st} to 4^{th}) was created for both countries. Missing values were imputed based on the country-specific median income-to-needs ratio. Other demographic and background variables included age (continuous), educational attainment, urban/suburban or rural residence, and religion.

Health outcomes. Considering that psychological distress is the outcome most consistently associated with self-reported discrimination,[1,11,12] as well as the potential for health effects of discrimination to vary by group (e.g., greater average impacts on affective disorders and anxiety for women, and on substance use for men),[54,55] we evaluated the impacts of discrimination on a composite outcome including one or more of the following: psychological distress, hazardous drinking, and current smoking.

Psychological distress was measured with the six-item K6 measure developed by Kessler.[56] Items are scored from 0 (never) to 4 (all the time), for a total score of 0-24. The K6 was developed to estimate the prevalence of serious mental illness, and has shown good sensitivity and excellent specificity in U.S. population samples when dichotomized at a score of 13 or above and compared to DSM-IV diagnoses via structured clinical interviews.[56,57] Therefore, we defined psychological distress as a K6 score greater than or equal to 13.

The Alcohol Use Disorders Identification Tool (AUDIT) identified probable hazardous or harmful drinking, using the recommended cut-point of 8 or more (of 40 possible points).[58,59] TheAUDIT is a widely-used and well-validated measure, and was found to have high sensitivity and specificity when initially validated among primary care patients in six countries.[58] Current smoking was defined, consistent with the Canadian Community Health Survey and the BRFSS, as indicating (1) having smoked at least 100 cigarettes over the lifetime (defined as 4 packs in Canada and 5 in the U.S.) and (2) currently smoking daily or occasionally. Childhood physical or sexual abuse (before age 16) was included as a potential confounder, classified as yes, no, or unsure/rather not say/missing.

6.2.4 Statistical Analysis

Dimensionality and internal consistency of anticipated discrimination. For the effect indicator subscale (anticipated discrimination), exploratory (EFA) and confirmatory (CFA) factor analyses were conducted in MPlus v7.4.[60] An *a priori* decision was made to split the data by country, with Canadian respondent data used for EFA, and United States respondent data used for CFA. The MLR estimator (maximum likelihood with robust standard errors) was used to account for non-normality (platykurtosis) in the outcome distribution and the use of Likert items. For EFA, 1 and 2 factor solutions were requested, using Geomin oblique rotation to allow for correlated factors. Eigenvalues, factor loadings, and goodness of fit statistics were examined to evaluate dimensionality. Goodness of fit for CFA was evaluated using parsimony, incremental, and absolute indices (Root Mean Square Error of Approximation, Comparative Fit Index, Standardized Mean Square Residual).[61] Internal consistency (Cronbach's alpha) and item-total correlations were estimated in SAS 9.4.

Frequencies. Descriptive statistics stratified by country were calculated in SAS v9.4,[62] including median and mean item responses and mean scores for anticipated discrimination and item endorsement, frequency tally, and proportion reporting any exposure for both day-to-day and major discrimination. Data quality, acceptability, and scaling were evaluated by examining missing data patterns, maximum endorsement frequencies (to identify floor and ceiling effects), and distribution of scores across the full possible range. Attributions were described for the full sample, stratified by racial/ethnic minority status (white versus racialized and/or Indigenous) and

by LGBT status, with chi-square tests for differences in proportions.

Construct validity. Known-groups comparisons were conducted to ensure that, as hypothesized, members of minority groups report more discrimination than members of majority groups. Median scores on each InDI component were calculated for racial/ethnic and sexual/ gender majority and minority groups (white versus racialized and/or Indigenous; LGBT versus non-LGBT) and Wilcoxon rank-sum tests were used to identify statistically significant differences in medians at $p<0.05$.

Next, to determine if InDI scores were associated with well-documented effects of perceived discrimination, logistic regression models were fit (separately for each of the three components over the lifetime and past year) to estimate associations with the composite variable including one or more of the following: psychological distress, hazardous drinking, and smoking. Models were adjusted for age, childhood physical or sexual abuse, and income quartile. Models were fit for the full sample, as well as stratified by racial/ethnic minority and LGBT status.

Finally, for the subgroup of 150 who completed the follow-up survey, day-to-day and major discrimination frequency scores on the InDI were compared to the corresponding Williams measures. Moderate correlation and agreement were expected, as the InDI was designed to capture a wider range of discrimination experiences relative to existing discrimination measures. Spearman correlations and their 95% confidence intervals were calculated for both day-to-day and major discrimination. In addition, respondents were classified as reporting low, moderate, or high discrimination on each measure by splitting each distribution into tertiles. Agreement between these classifications for both day-to-day and major discrimination was assessed with the kappa statistic.

Test-retest reliability. Using data from the follow-up survey, test-retest reliability was assessed for anticipated discrimination scale scores and lifetime frequencies of both day-to-day and major discrimination. Test-retest reliability was quantified using intraclass correlation coefficient (ICC) estimates and their 95% confidence intervals. These estimates were obtained using a model adjusted for the number of days between baseline and follow-up surveys, via the ICC9 SAS Macro.[63]

6.3 Results

6.3.1 Sample Characteristics

The final baseline sample included 2642 respondents, including 1065 in Canada and 1577 in the United States. The follow-up questionnaire included 150 participants, including 83 in Canada and 67 in the United States. Demographic characteristics are described in Table 6.1.

Table 6.1: Demographic characteristics of survey participants, stratified by country

	Baseline		**Follow-up**	
	Canada (n=1065) n (%)	**United States (n=1577)** n (%)	**Canada (n=83)** n (%)	**United States (n=67)** n (%)
Age (median, IQR)	36 (48-27)	44 (57-34)	30 (25-41)	49 (36-61)
Lived gender				
Cisgender male	466 (43.8)	749 (47.5)	38 (45.8)	30 (44.8)
Cisgender female	559 (52.5)	764 (48.5)	45 (54.2)	36 (53.7)
Trans man or transmasculine	20 (1.9)	31 (2.0)	0 (0.0)	1 (1.5)
Trans woman or transfeminine	19 (1.8)	31 (2.0)	0 (0.0)	0 (0.0)
Missing	1 (0.1)	2 (0.1)	0 (0.0)	0 (0.0)
Sexual orientation				
Straight or heterosexual	865 (81.2)	1322 (83.8)	71 (85.5)	53 (79.1)
Bisexual	99 (9.3)	65 (4.1)	6 (7.2)	5 (7.5)
Gay or lesbian	50 (4.7)	161 (10.2)	4 (4.8)	9 (13.4)
Not sure	35 (3.3)	15 (1.0)	2 (2.4)	0 (0.0)
Asexual	10 (0.9)	10 (0.6)	0 (0.0)	0 (0.0)
Missing	6 (0.6)	4 (0.3)	0 (0.0)	0 (0.0)
Lesbian, gay, bisexual, and/or transgender	174 (16.3)	255 (16.2)	10 (12.1)	14 (20.9)
Race/ethnicity				
White	187 (17.6)	198 (12.6)	11 (13.3)	8 (11.9)
Indigenous	162 (15.2)	251 (15.9)	7 (8.4)	18 (26.9)
Latin American/ Hispanic	114 (10.7)	261 (16.6)	4 (4.8)	4 (6.0)
Middle Eastern	112 (10.5)	247 (15.7)	5 (6.0)	1 (1.5)
Black	245 (23.0)	246 (15.6)	15 (18.1)	12 (17.9)
Asian	245 (23.0)	374 (23.7)	41 (49.4)	24 (35.8)
Born in Canada/United States				
Yes	581 (54.6)	1121 (71.1)	40 (48.2)	52 (77.6)
No	484 (45.4)	456 (28.9)	43 (51.8)	15 (22.4)

Has a disability				
Yes	210 (19.7)	333 (21.1)	15 (18.1)	16 (23.9)
No	848 (79.6)	1236 (78.4)	68 (81.9)	51 (76.1)
Missing	7 (0.7)	8 (0.5)	0 (0.0)	0 (0.0)
Educational attainment				
High school or less	186 (17.5)	209 (13.3)	15 (18.1)	9 (13.4)
Community college/ trade school	343 (32.2)	379 (24.0)	22 (26.5)	18 (26.9)
Some university	96 (9.0)	204 (12.9)	7 (8.4)	5 (7.5)
Bachelor's degree	302 (28.4)	483 (30.6)	27 (32.5)	21 (31.3)
Graduate degree	136 (12.8)	300 (19.0)	11 (13.3)	14 (20.9)
Missing	2 (0.2)	2 (0.1)	1 (1.2)	0 (0.0)
Income-to-needs ratio[a]				
Less than $10k	185 (17.4)	200 (12.7)	14 (16.9)	12 (17.9)
$10-19.9k	258 (24.2)	341 (21.6)	18 (21.7)	11 (16.4)
$20-29.9k	168 (15.8)	263 (16.7)	17 (20.5)	15 (22.4)
$30-49.9k	211 (19.8)	386 (24.5)	21 (25.3)	14 (20.9)
$50k or more	123 (11.6)	270 (17.1)	8 (9.6)	11 (16.4)
Missing	120 (11.3)	117 (7.4)	5 (6.0)	4 (6.0)
Residence				
Urban or suburban	935 (87.8)	1327 (84.2)	75 (90.4)	59 (88.1)
Rural	128 (12.0)	243 (15.4)	8 (9.6)	8 (11.9)
Missing	2 (0.2)	7 (0.4)	0 (0.0)	0 (0.0)
Religion				
Christian or Catholic	523 (49.1)	904 (57.3)	38 (46.8)	33 (49.3)
Buddhist	23 (2.2)	56 (3.6)	5 (6.0)	3 (4.5)
Hindu	29 (2.7)	54 (3.4)	3 (3.6)	2 (3.0)
Jewish	6 (0.6)	33 (2.1)	1 (1.2)	2 (3.0)
Muslim	92 (8.6)	146 (9.3)	7 (8.4)	0 (0.0)
Sikh	15 (1.4)	0 (0.0)	4 (4.8)	0 (0.0)
Other or no religion	376 (35.3)	382 (24.2)	25 (30.1)	27 (40.3)
Missing	1 (0.1)	2 (0.1)	0 (0.0)	0 (0.0)

[a] Household income divided by number of persons supported, in Canadian and United States dollars, respectively

6.3.2 Structure of Anticipated Discrimination

In initial exploratory factor analyses including Canadian participants who provided anticipated discrimination data (n=1063), the two positively worded scale items ("I am confident that I will be treated with as much respect as my peers" and "I feel safe in my neighbourhood") were found to have weak loadings (0.337 and 0.277 in the one-factor model, respectively). Loadings remained below 0.40 when a two-factor solution was evaluated. In addition, both items had

lower item-total correlations (0.30 and 0.26). As these items assess expectations of positive treatment and safety, which are conceptually distinct from the absence of anticipated discrimination, these items were excluded from further analyses. Results of subsequent exploratory factor analyses including the remaining 9 items are presented in Table 6.2. One and two-factor solutions were requested. Examination of eigenvalues (5.175 for Factor 1 and 0.741 for Factor 2) and the scree plot (Figure 6.1) supported a one-factor solution. However, model fit was improved from suboptimal (RMSEA=0.091; CFI=0.927) to good (RMSEA=0.06; CFI=0.976) when a two-factor solution was applied. Conceptually, items that loaded primarily on the first factor pertained to anticipated discrimination in interactions with institutions (e.g., health care, employment) while items which loaded primarily on the second pertained to anticipated discrimination in interpersonal interactions (e.g., violence and harassment, difficulty forming relationships).

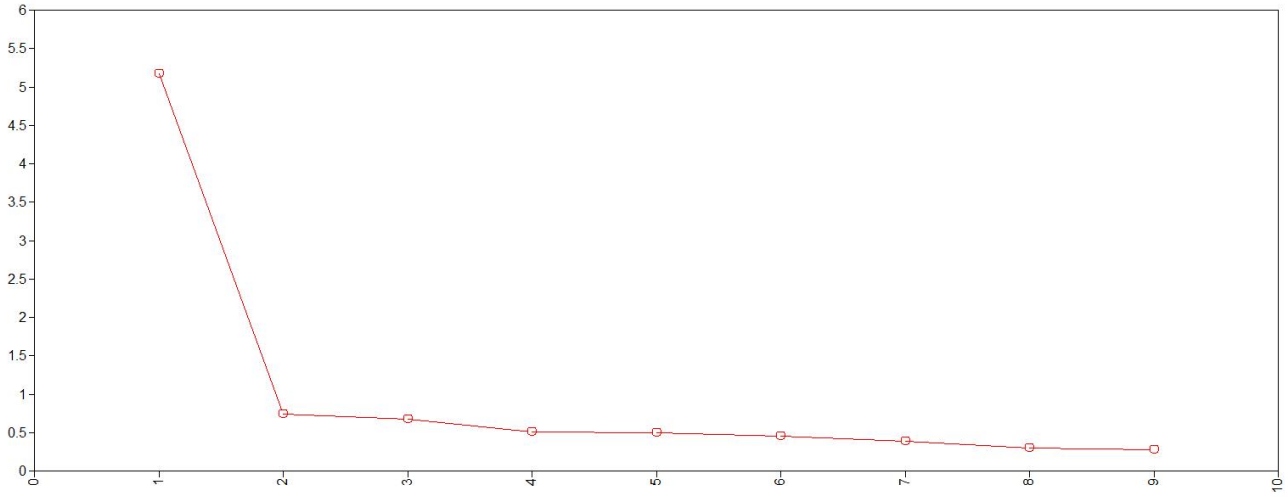
Table 6.2: Exploratory Factor Analysis of Anticipated Discrimination among Canadian respondents (n=1063)

Item	One-factor model loadings	Two-factor model loadings	
		1	2
1. Because of who I am, a doctor or nurse, or other health care provider might treat me poorly.	0.72*	0.69*	0.04
2. Because of who I am, I might have trouble finding or keeping a job.	0.75*	1.08*	-0.31*
3. Because of who I am, I might have trouble getting an apartment or house	0.80*	0.78*	0.04
5. I worry about being treated unfairly by a teacher, supervisor, or employer.	0.72*	0.73*	0.01
6. I may be denied a bank account, loan, or mortgage because of who I am.	0.72*	0.51*	0.23*
8. I worry about being harassed or stopped by police or security.	0.66*	0.35*	0.34*
9. Because of who I am, people might try to attack me physically.	0.74*	0.00	0.83*
10. I expect to be pointed at, called names, or harassed when in public.	0.75*	0.01	0.83*

11. I fear that I will have a hard time finding friendship or romance because of who I am.	0.63*	0.30*	0.38*
Eigenvalue	--	5.175	0.741
Correlation between factors	--	0.818*	
Root Mean Square Error of Approximation (95% CI)	0.091 (0.082, 0.102)	0.06 (0.050, 0.075)	
Comparative Fit Index	0.927	0.976	

Note: Models fit with Maximum Likelihood Estimator with robust standard errors, with Geomin oblique rotation method. Coefficients statistically significant at $p<0.05$ are indicated with an asterisk.

Figure 6.1: Scree Plot, Exploratory Factor Analysis of Anticipated Discrimination among Canadian respondents (n=1063)



To validate a two-factor solution, data from participants in the United States who provided anticipated discrimination data (n=1577) were subjected to confirmatory factor analysis. A two-factor solution was requested with original Anticipated Discrimination items 1, 2, 3, 5, 6, and 8 loading on Factor 1, and items 9-11 loading on Factor 2. Results are shown in Table 6.3. The specified model fit the data well, with all indices showing good-to-ideal fit (RMSEA=0.052; CFI=0.980; SMSR=0.020).[61] However, the two factors were highly correlated (0.93). Cronbach's alpha coefficient (not shown in tables) for the full 9-item scale was 0.93. Values for the institutional (6 items) and interpersonal (3 items) anticipated discrimination subscales were 0.90 and 0.84, respectively. Item-total correlations with the full 9-item scale ranged from 0.68 to 0.79.

Table 6.3: Confirmatory Factor Analysis of Anticipated Discrimination among United States respondents (n=1577)

Item	Factor Loadings			
	Factor 1- Institutional		Factor 2- Interpersonal	
	Unstan-dardized (SE)	Standar-dized	Unstan-dardized (SE)	Standar-dized
1. Because of who I am, a doctor or nurse, or other health care provider might treat me poorly.	1.00 (--)	0.81		
2. Because of who I am, I might have trouble finding or keeping a job.	1.07* (.03)	0.80		
3. Because of who I am, I might have trouble getting an apartment or house	1.10* (.03)	0.86		
5. I worry about being treated unfairly by a teacher, supervisor, or employer.	1.02* (.03)	0.78		
6. I may be denied a bank account, loan, or mortgage because of who I am.	0.99* (.03)	0.79		
8. I worry about being harassed or stopped by police or security.	0.98* (.03)	0.73		
9. Because of who I am, people might try to attack me physically.			1.00 (--)	0.83
10. I expect to be pointed at, called names, or harassed when in public.			1.03* (.02)	0.86
11. I fear that I will have a hard time finding friendship or romance because of who I am.			0.99* (.03)	0.80
Standardized correlation between factors	0.93*			
Root Mean Square Error of Approximation (90% CI)	0.052 (0.043, 0.060)			
Comparative Fit Index	0.980			
Standardized Mean Square Residual	0.020			

Note: Models fit with Maximum Likelihood Estimator with robust standard errors. Coefficients statistically significant at $p<0.05$ are indicated with an asterisk.

Taken together, these results indicate that the Anticipated Discrimination scale has two substantively interpretable factors, Anticipated Institutional Discrimination and Anticipated

Interpersonal Discrimination. Nevertheless, considering the high inter-factor and item-total correlations observed, it is acceptable to create a composite score for the full scale.

6.3.3 Discrimination Frequencies and Data Quality

Frequencies for anticipated, day-to-day, and major discrimination are displayed in Tables 6.4 to 6.7 (Canada) and 6.8 to 6.11 (United States). All items took the full range of possible values in both countries. Less than 1.0% of data were missing for almost all items, except for past-year major events (range from 0.4%-1.7%), which were measured with a follow-up question after respondents indicated experiencing a major discrimination event over the lifetime. As shown in Tables 6.4 and 6.8, on average, respondents slightly disagreed that they anticipated discrimination (mean score [SD]= 1.5 [0.9] in Canada; 1.4 [1.0] in the United States). In Tables 6.5 and 6.9, most respondents reported any day-to-day discrimination over the lifetime (87.8% in Canada, 79.1% in the United States), any day-to-day discrimination over the past year (63.4% in Canada, 54.1% in the United States), or any major discrimination over the lifetime (70.8% in Canada, 62.5% in the United States). In both countries, just under one-third of respondents reported major discrimination in the past year (32.9% in Canada, 27.5% in the United States).

Table 6.4: Anticipated discrimination* reported on the Intersectional Discrimination Index among participants in Canada (n=1065)

Because of who I am….	**Median** (IQR)	**Mean** (SD)	**[Min, Max]**	**Missing** (n)
A doctor or nurse, or other health care provider might treat me poorly.	1 (0-2)	1.4 (1.2)	[0,4]	3
I might have trouble finding or keeping a job.	2 (1-3)	1.8 (1.3)	[0,4]	3
I might have trouble getting an apartment or house.	1 (1-3)	1.5 (1.2)	[0,4]	5
I worry about being treated unfairly by a teacher, supervisor, or employer.	2 (1-3)	1.8 (1.2)	[0,4]	8
I may be denied a bank account, loan, or mortgage.	1 (0-2)	1.2 (1.1)	[0,4]	6
I worry about being harassed or stopped by police or security.	1 (0-3)	1.5 (1.2)	[0,4]	2
People might try to attack me physically.	1 (0-2)	1.4 (1.2)	[0,4]	3
I expect to be pointed at, called names, or harassed when in public.	1 (0-2)	1.2 (1.1)	[0,4]	6
I fear that I will have a hard time finding friendship or romance.	1 (0-2)	1.4 (1.2)	[0,4]	2
Mean score (range= 0-4)[b]	1.4 (0.9-2.1)	1.5 (0.9)	[0,4]	2

*0=strongly disagree, 4=strongly agree; higher scores equal stronger agreement

[a] For participants who completed at least 80% of items.

Table 6.5: Enacted discrimination reported on the Intersectional Discrimination Index among participants in Canada (n=1065)

	Frequency score* Median (IQR) [Min, Max]	Proportion reporting any n (%)	Missing n (%)
Day-to-day discrimination, lifetime (range=0-18)	8 (3-14) [0, 18]	935 (87.8)	4 (0.4)
Day-to-day discrimination, past-year (range=0-36)	2 (0-7) [0, 36]	675 (63.4)	4 (0.4)
Major discrimination, lifetime (range=0-26)	2 (0-6) [0, 26]	754 (70.8)	2 (0.2)
Major discrimination, past-year (range=0-13)	0 (0-1) [0, 13]	350 (32.9)	10 (0.9)

*Total scores computed for those who completed at least 80% of items.

Table 6.6: Frequency of day-to-day discrimination reported on the Intersectional Discrimination Index among participants in Canada (n= 1065)

	Never n (%)	**Lifetime only** n (%)	**Once or twice in past year** n (%)	**Many times in past year** n (%)	**Missing** n (%)
Treated poorly or unfairly by a healthcare provider	707 (66.4)	239 (22.4)	85 (8.0)	33 (3.1)	1 (0.1)
Treated poorly or unfairly by a teacher or professor	629 (59.1)	333 (31.3)	74 (7.0)	27 (2.5)	2 (0.2)
Treated poorly or unfairly by a supervisor or employer	502 (47.1)	370 (34.7)	130 (12.2)	58 (5.5)	5 (0.5)
Treated poorly or unfairly by a coworker or classmate	445 (41.8)	424 (39.8)	119 (11.2)	72 (6.8)	5 (0.5)
Treated poorly or unfairly by a customer service representative	470 (44.1)	315 (29.6)	185 (17.4)	90 (8.5)	5 (0.5)
Treated poorly or unfairly by police, border, security officer	665 (62.4)	245 (23.0)	100 (9.4)	49 (4.6)	6 (0.6)
Treated poorly or unfairly by a transportation provider	708 (66.5)	214 (20.1)	95 (8.9)	44 (4.1)	4 (0.4)
Treated poorly or unfairly by a landlord	742 (69.7)	208 (19.5)	71 (6.7)	40 (3.8)	4 (0.4)
Treated poorly or unfairly by a relative or friend	621 (58.3)	254 (23.9)	117 (11.0)	69 (6.5)	4 (0.4)
Heard, saw, or read others joking or laughing about you (or people like you)	334 (31.4)	374 (35.1)	195 (18.3)	160 (15.0)	2 (0.2)
Treated as if unfriendly, unhelpful, or rude	491 (46.1)	300 (28.2)	187 (17.6)	83 (7.8)	4 (0.4)
Called names or heard/saw identity used as an insult	439 (41.2)	344 (32.3)	164 (15.4)	113 (10.6)	5 (0.5)
Treated as if others are afraid of you	635 (59.6)	235 (22.1)	120 (11.3)	70 (6.6)	5 (0.5)
Stared or pointed at in public	582 (54.7)	279 (26.2)	129 (12.1)	69 (6.5)	6 (0.6)
Told that you should think, act, or look more like others	570 (53.5)	271 (25.5)	129 (12.1)	90 (8.5)	5 (0.5)
Heard that you or people like you don’t belong	548 (51.5)	293 (27.5)	125 (11.7)	94 (8.8)	5 (0.5)
Asked inappropriate, offensive, or overly personal questions	458 (43.0)	332 (31.2)	173 (16.2)	98 (9.2)	4 (0.4)
Treated as if you are less smart or capable than others	491 (46.1)	287 (27.0)	173 (16.2)	109 (10.2)	5 (0.5)

Table 6.7: Frequency of major discrimination events reported on the Intersectional Discrimination Index among participants in Canada (n= 1065)

	Lifetime n (%)	**Past year** n (%)
Refused health care		
Missing	2 (0.2)	4 (0.4)
No	950 (89.2)	1005 (94.4)
Yes	80 (7.5)	56 (5.3)
Yes, more than once	33 (3.1)	
Fired, dismissed, or turned down for a job post-interview		
Missing	3 (0.3)	11 (1.0)
No	666 (62.5)	930 (87.3)
Yes	243 (22.8)	124 (11.6)
Yes, more than once	153 (14.4)	
Evicted or denied housing		
Missing	5 (0.5)	8 (0.8)
No	889 (83.5)	1003 (94.2)
Yes	129 (12.1)	54 (5.1)
Yes, more than once	42 (3.9)	
Unreasonably stopped, searched, or arrested by police or security		
Missing	5 (0.5)	17 (1.6)
No	755 (70.9)	948 (89.0)
Yes	182 (17.1)	100 (9.4)
Yes, more than once	123 (11.6)	
Unreasonably suspended or expelled from school		
Missing	3 (0.3)	9 (0.9)
No	948 (89.0)	1038 (97.5)
Yes	88 (8.3)	18 (1.7)
Yes, more than once	26 (2.4)	
Unable to open a bank account or get a loan		
Missing	6 (0.6)	10 (0.9)
No	914 (85.8)	992 (93.2)
Yes	97 (9.1)	63 (5.9)
Yes, more than once	48 (4.5)	
Had to move to another city, state/province, or country		
Missing	7 (0.7)	12 (1.1)
No	888 (83.4)	1008 (94.7)
Yes	133 (12.5)	45 (4.2)
Yes, more than once	37 (3.5)	

	Lifetime n (%)	**Past year** n (%)
Lost a close relationship		
Missing	4 (0.4)	9 (0.9)
No	719 (67.5)	923 (86.7)
Yes	213 (20.0)	133 (12.5)
Yes, more than once	129 (12.1)	
Repeatedly harassed at work, school, home, or when accessing services		
Missing	8 (0.8)	14 (1.3)
No	716 (67.2)	918 (86.2)
Yes	219 (20.6)	133 (12.5)
Yes, more than one place	122 (11.5)	
Threatened with violence		
Missing	8 (0.8)	15 (1.4)
No	774 (72.7)	968 (90.1)
Yes	170 (16.0)	82 (7.7)
Yes, more than once	113 (10.6)	
Physically assaulted		
Missing	5 (0.5)	16 (1.5)
No	774 (72.7)	987 (92.7)
Yes	177 (16.6)	62 (5.8)
Yes, more than once	109 (10.2)	
Sexually assaulted		
Missing	6 (0.6)	12 (1.1)
No	823 (77.3)	995 (93.4)
Yes	129 (12.1)	58 (5.5)
Yes, more than once	107 (10.1)	
Property stolen, vandalized, or damaged		
Missing	5 (0.5)	11 (1.0)
No	812 (76.2)	981 (92.1)
Yes	158 (14.8)	73 (6.9)
Yes, more than once	90 (8.5)	

Table 6.8: Anticipated discrimination* reported on the Intersectional Discrimination Index among participants in the United States (n=1577)

Because of who I am….	**Median** (IQR)	**Mean** (SD)	**[Min, Max]**	**Missing** (n)
A doctor or nurse, or other health care provider might treat me poorly.	1 (0-2)	1.3 (1.2)	[0,4]	0
I might have trouble finding or keeping a job.	1 (0-3)	1.5 (1.3)	[0,4]	3
I might have trouble getting an apartment or house.	1 (0-2)	1.4 (1.2)	[0,4]	3
I worry about being treated unfairly by a teacher, supervisor, or employer.	1 (0-3)	1.6 (1.3)	[0,4]	3
I may be denied a bank account, loan, or mortgage.	1 (0-2)	1.3 (1.2)	[0,4]	7
I worry about being harassed or stopped by police or security.	1 (0-3)	1.5 (1.3)	[0,4]	4
People might try to attack me physically.	1 (0-2)	1.5 (1.3)	[0,4]	7
I expect to be pointed at, called names, or harassed when in public.	1 (0-2)	1.3 (1.3)	[0,4]	7
I fear that I will have a hard time finding friendship or romance.	1 (0-2)	1.3 (1.3)	[0,4]	4
Mean score (range= 0-4)[a]	1.3 (0.6-2.1)	1.4 (1.0)	[0,4]	1

*0=strongly disagree, 4=strongly agree; higher scores equal stronger agreement

[a] For participants who completed at least 80% of items.

Table 6.9: Enacted discrimination reported on the Intersectional Discrimination Index among participants in the United States (n=1577)

	Frequency score* Median (IQR) [Min, Max]	Proportion reporting any n (%)	Missing n (%)
Day-to-day discrimination, lifetime (range=0-18)	7 (1-14) [0, 18]	1248 (79.1)	6 (0.4)
Day-to-day discrimination, past-year (range=0-36)	1 (0-8) [0, 36]	853 (54.1)	6 (0.4)
Major discrimination, lifetime (range=0-26)	2 (0-5) [0, 26]	985 (62.5)	7 (0.4)
Major discrimination, past-year (range=0-13)	0 (0-1) [0, 13]	434 (27.5)	20 (1.3)

*Total scores computed for those who completed at least 80% of items.

Table 6.10: Frequency of day-to-day discrimination reported on the Intersectional Discrimination Index among participants in the United States (n=1577)

	Never n (%)	**Lifetime only** n (%)	**Once or twice in past year** n (%)	**Many times in past year** n (%)	**Missing** n (%)
Treated poorly or unfairly by a healthcare provider	1039 (65.9)	303 (19.2)	156 (9.9)	79 (5.0)	0 (0.0)
Treated poorly or unfairly by a teacher or professor	999 (63.4)	373 (23.7)	150 (9.5)	51 (3.2)	4 (0.3)
Treated poorly or unfairly by a supervisor or employer	810 (51.4)	477 (30.3)	187 (11.9)	101 (6.4)	2 (0.1)
Treated poorly or unfairly by a coworker or classmate	757 (48.0)	530 (33.6)	177 (11.2)	111 (7.0)	2 (0.1)
Treated poorly or unfairly by a customer service representative	786 (49.8)	420 (26.6)	255 (16.2)	106 (6.7)	10 (0.6)
Treated poorly or unfairly by police, border, security officer	996 (63.2)	308 (19.6)	181 (11.5)	86 (5.5)	6 (0.4)
Treated poorly or unfairly by a transportation provider	1155 (73.2)	222 (14.1)	134 (8.5)	63 (4.0)	3 (0.2)
Treated poorly or unfairly by a landlord	1126 (71.4)	263 (16.7)	123 (7.8)	63 (4.0)	2 (0.1)
Treated poorly or unfairly by a relative or friend	874 (55.4)	394 (25.0)	185 (11.7)	122 (7.7)	2 (0.1)
Heard, saw, or read others joking or laughing about you (or people like you)	635 (40.3)	480 (30.4)	270 (17.1)	185 (11.7)	7 (0.4)
Treated as if unfriendly, unhelpful, or rude	792 (50.2)	364 (23.1)	277 (17.6)	137 (8.7)	7 (0.4)
Called names or heard/saw identity used as an insult	761 (48.3)	433 (27.5)	228 (14.5)	149 (9.5)	6 (0.4)
Treated as if others are afraid of you	964 (61.1)	306 (19.4)	187 (11.9)	115 (7.3)	5 (0.3)
Stared or pointed at in public	917 (58.2)	319 (20.2)	184 (11.7)	149 (9.5)	8 (0.5)
Told that you should think, act, or look more like others	919 (58.3)	341 (21.6)	210 (13.3)	100 (6.3)	7 (0.4)
Heard that you or people like you don’t belong	905 (57.4)	345 (21.9)	172 (10.9)	145 (9.2)	10 (0.6)
Asked inappropriate, offensive, or overly personal questions	800 (50.7)	402 (25.5)	219 (13.9)	148 (9.4)	8 (0.5)
Treated as if you are less smart or capable than others	797 (50.5)	403 (25.6)	227 (14.4)	144 (9.1)	6 (0.4)

Table 6.11: Frequency of major discrimination events reported on the Intersectional Discrimination Index among participants in the United States (n=1577)

	Lifetime n (%)	**Past year** n (%)
Refused health care		
Missing	3 (0.2)	11 (0.7)
No	1369 (86.8)	1448 (91.8)
Yes	148 (9.4)	118 (7.5)
Yes, more than once	57 (3.6)	
Fired, dismissed, or turned down for a job post-interview		
Missing	7 (0.4)	18 (1.1)
No	1090 (69.1)	1414 (89.7)
Yes	298 (18.9)	145 (9.2)
Yes, more than once	182 (11.5)	
Evicted or denied housing		
Missing	6 (0.4)	15 (1.0)
No	1341 (85.0)	1479 (93.8)
Yes	165 (10.5)	83 (5.3)
Yes, more than once	65 (4.1)	
Unreasonably stopped, searched, or arrested by police or security		
Missing	13 (0.8)	20 (1.3)
No	1177 (74.6)	1419 (90.0)
Yes	233 (14.8)	138 (8.8)
Yes, more than once	154 (9.8)	
Unreasonably suspended or expelled from school		
Missing	10 (0.6)	19 (1.2)
No	1416 (89.8)	1503 (95.3)
Yes	111 (7.0)	55 (3.5)
Yes, more than once	40 (2.5)	
Unable to open a bank account or get a loan		
Missing	12 (0.8)	18 (1.1)
No	1360 (86.2)	1469 (93.2)
Yes	136 (8.6)	90 (5.7)
Yes, more than once	69 (4.4)	

	Lifetime n (%)	**Past year** n (%)
Had to move to another city, state/province, or country		
Missing	13 (0.8)	20 (1.3)
No	1364 (86.5)	1478 (93.7)
Yes	141 (8.9)	79 (5.0)
Yes, more than once	59 (3.7)	
Lost a close relationship		
Missing	8 (0.5)	22 (1.4)
No	1137 (72.1)	1405 (89.1)
Yes	226 (14.3)	150 (9.5)
Yes, more than once	206 (13.1)	
Repeatedly harassed at work, school, home, or when accessing services		
Missing	7 (0.4)	13 (0.8)
No	1156 (73.3)	1406 (89.2)
Yes	260 (16.5)	158 (10.0)
Yes, more than once	154 (9.8)	
Threatened with violence		
Missing	13 (0.8)	26 (1.7)
No	1242 (78.8)	1458 (92.5)
Yes	187 (11.9)	93 (5.9)
Yes, more than once	135 (8.6)	
Physically assaulted		
Missing	9 (0.6)	20 (1.3)
No	1238 (78.5)	1479 (93.8)
Yes	176 (11.2)	78 (5.0)
Yes, more than once	154 (9.8)	
Sexually assaulted		
Missing	4 (0.3)	11 (0.7)
No	1293 (82.0)	1481 (93.9)
Yes	150 (9.5)	85 (5.4)
Yes, more than once	130 (8.2)	
Property stolen, vandalized, or damaged		
Missing	10 (0.6)	24 (1.5)
No	1180 (74.8)	1442 (91.4)
Yes	253 (16.0)	111 (7.0)
Yes, more than once	134 (8.5)	

6.3.4 Attributions

Among those who had a score greater than 0 on the day-to-day and/or major discrimination measure across both countries (n=2254), attributions for discrimination are described in Table 6.12. Overall, ethnicity (58.2%), race (55.0%), and gender (48.2%) were the most common attributions provided. As expected, ethnicity, race, and citizenship or country of origin were more common attributions among non-white versus white respondents (all $p<0.001$). LGBT respondents were more likely to attribute discrimination to sexual orientation or transgender status (both $p<0.001$) than non-LGBT respondents. They were also significantly more likely to attribute discrimination to age, income, mental health or substance use, disability, or weight.

Table 6.12: Attributions among those reporting any lifetime discrimination

	Overall (n=2254) n (%)	**White (n=292) n (%)**	**Non-white (n=1962) n (%)**	**LGBT (n=395) n (%)**	**Non-LGBT (n=1853) n (%)**
Age	870 (38.6)	114 (39.0)	756 (38.5)	175 (44.3)*	693 (37.4)
Gender	1087 (48.2)	144 (49.3)	943 (48.1)	238 (60.3)**	847 (45.7)
Transgender/ gender non-conforming	297 (13.2)	37 (12.7)	260 (13.3)	120 (30.4)**	177 (9.6)
Sexual orientation	463 (20.5)	63 (21.6)	400 (20.4)	267 (67.6)**	196 (10.6)
Citizenship or country of origin	888 (39.4)	68 (23.3)**	820 (41.8)	161 (40.8)	726 (39.2)
Income	848 (37.6)	111 (38.0)	737 (37.6)	168 (42.5)*	679 (36.6)
Education	717 (31.8)	83 (28.4)	634 (32.3)	124 (31.4)	591 (31.9)
Mental health or substance use	463 (20.5)	67 (23.0)	396 (20.2)	134 (33.9)**	329 (17.8)
Disability	420 (18.6)	59 (20.2)	361 (18.4)	101 (25.6)**	319 (17.2)
Race	1240 (55.0)	65 (22.3)**	1175 (59.9)	227 (57.5)	1011 (54.6)
Ethnicity	1312 (58.2)	85 (29.1)**	1227 (62.5)	241 (61.0)	1068 (57.6)
Religion	754 (33.5)	90 (30.8)	664 (33.8)	137 (34.7)	614 (33.1)
Language	815 (36.2)	93 (31.9)	722 (36.8)	155 (39.2)	657 (35.5)
Weight	782 (34.7)	116 (39.7)	666 (33.9)	187 (47.3)**	594 (32.0)

*= $p<0.05$, compared to cell to the right. **= $p<0.001$, compared to cell to the right.

For the full sample, other attributions written in included those related to appearance or dress (n=28), height (n=15), family structure or relationship status (n=10), veteran status (n=4),

criminal record (n=3), or having an interracial relationship or family (n=4). Occasionally, write-in attributions suggested a broader interpretation of the phrase "because of who I am" than intended, including political or moral views (n=10), "just because" or similar responses (n=11), or the respondent's intelligence or attractiveness (n=7).

6.3.5 Known groups comparisons

Median frequencies for all InDI components were significantly higher among Indigenous or racialized individuals, as compared to white individuals, including anticipated discrimination (1.4 vs. 1.0, $p<0.001$), past-year day-to-day discrimination (2.0 vs. 0, $p<0.001$), lifetime day-to-day discrimination (8.0 vs. 4.0, $p<0.001$), past-year major discrimination (0 [IQR=0-1] vs. 0 [IQR=0-0], $p=0.018$) and lifetime major discrimination (2.0 vs. 1.0 $p=0.004$). Similarly, LGBT individuals had significantly higher frequencies for all discrimination types as compared to cisgender heterosexual individuals (all $p<0.001$), including anticipated discrimination (1.9 vs. 1.2), past-year day-to-day discrimination (3.5 vs. 1.0), lifetime day-to-day discrimination (11.0 vs. 7.0), past-year major discrimination (0 [IQR=0-2] vs. 0 [IQR=0-1]) and lifetime major discrimination (4.0 vs. 2.0).

6.3.6 Associations with health outcomes

Of 2572 participants who provided complete data on health conditions, 37.9% (n=1001) were classified as having a negative mental health or health behaviour outcome based on meeting at least one of the following criteria: severe psychological distress (17.0%, n=437), current smoking (22.4%, n=577), or hazardous drinking (16.6%, n=428). As shown in Table 6.13, greater anticipated, day-to-day (lifetime and past year), and major (lifetime and past-year) discrimination were each positively associated with negative mental health or health behaviour outcomes after controlling for age, income quartile, and childhood abuse. Results of models stratified by race/ethnicity and LGBT minority statuses did not differ appreciably for day-to-day or major discrimination (not shown). However, when stratified by race/ethnicity, anticipated discrimination was significantly associated with health outcomes among Indigenous or racialized respondents (n=2197; AOR for 1-unit change=1.68, 95% CI: 1.52, 1.86), but not white respondents (n=373; AOR=1.26, 95% CI: 0.98, 1.63).

Table 6.13: Logistic regression of composite mental and behavioural health outcome[a] on InDI components

	OR[b] for 1-unit change (95% CI)	AOR[c] for 1-unit change (95% CI)
Anticipated discrimination, current (range=0-4) [n=2570]	1.86 (1.70, 2.03)*	1.58 (1.44, 1.73)*
Day-to-day discrimination, lifetime (range=0-18) [n=2564]	1.12 (1.11, 1.14)*	1.10 (1.08, 1.11)*
Day-to-day discrimination, past-year (range=0-36) [n=2564]	1.11 (1.09, 1.12)*	1.08 (1.07, 1.10)*
Major discrimination, lifetime (range=0-26) [n=2566]	1.17 (1.14, 1.19)*	1.14 (1.11, 1.16)*
Major discrimination, past-year (range=0-13) [n=2545]	1.62 (1.51, 1.74)*	1.46 (1.36, 1.56)*

[a] One or more of: severe psychological distress, current smoking, hazardous alcohol use.

[b] OR=odds ratio.

[c] AOR=adjusted odds ratio; adjusted for age, income quartile, and childhood physical or sexual abuse.

*p<0.0001

6.3.7 Correlation and agreement with Williams measures

Frequency scores on the InDI and Williams everyday/day-to-day discrimination components (both completed at follow-up) were strongly positively correlated (Spearman's *r*=0.83, 95% CI: 0.77, 0.87). When categorized into low, moderate, or high discrimination based on tertiles, agreement between the day-to-day discrimination measures was moderate (weighted kappa=0.61, 95% CI: 0.51, 0.71). Twenty-three participants were classified as experiencing more day-to-day discrimination on the Williams scale as compared to the InDI, and 23 were classified higher on the InDI. For major discrimination, correlation between the two measures was also high (Spearman's *r*=0.76, 95% CI: 0.69, 0.82), while agreement was moderate (weighted kappa=0.56, 95% CI: 0.46, 0.66). Twenty participants were classified as reporting greater major discrimination on the Williams measure as compared to the InDI, while 33 participants reported greater major discrimination on the InDI.

6.3.8 Test-retest reliability

Adjusting for the number of days between baseline and follow-up survey completion (mean=43, range=21 to 63), the intra-class correlation coefficient (ICC) for test-retest reliability of anticipated discrimination (n=150) was 0.72 (95% CI: 0.63, 0.79). ICCs for lifetime day-to-day and major discrimination frequencies (n=149) were 0.78 (95% CI: 0.71, 0.83) and 0.72 (0.63, 0.79) respectively.

6.4 Discussion

6.4.1 Prevalence of discrimination

We developed and evaluated the Intersectional Discrimination Index, which includes measures of anticipated, day-to-day, and major discrimination for use in intersectional analyses of discrimination and health. Our attribution-free scale of anticipated discrimination is novel, and thus comparisons to existing measures were not possible. Moreover, given intentional oversampling of racial/ethnic and sexual/gender minorities and lack of weighting to reflect population demographics, prevalence estimates should not be over-interpreted. However, we note that the proportion of United States respondents reporting lifetime day-to-day or major discrimination (79.1% and 62.5%, respectively) are broadly comparable to the results of a 2015 survey weighted to reflect the U.S. population, in which 68% reported lifetime everyday and 47% reported lifetime major discrimination on a modified version of the Williams discrimination measures.[64] Similarly, between-country unadjusted prevalence differences in our sample may reflect sociodemographic differences (e.g., the younger average age of Canadian respondents. However, the higher prevalence of discrimination reported by Canadians (87.8% lifetime day-to-day discrimination, 70.8% lifetime major discrimination) warrant further investigation.

6.4.2 Anticipated discrimination

After removing two positively-worded items that may have been tapping a different construct (anticipation of positive treatment versus the absence of anticipated discrimination), we found support for use of the InDI Anticipated Discrimination measure as a unidimensional scale, with a similar structure in both Canada and the United States. We also found evidence of construct

validity. As hypothesized, anticipated discrimination scores were higher among racial/ethnic and sexual/gender minority groups. Anticipated discrimination was associated with negative mental and behavioural health outcomes within the full sample, and among racial/ethnic and sexual/gender minorities, but not among white respondents as a group. Future research could explore the possibility that anticipated discrimination has a stronger impact on health within groups that experience a higher level of enacted (day-to-day or major) discrimination.

6.4.3 Day-to-day and major discrimination

Known groups comparisons and associations with mental and behavioural health outcomes provided evidence of construct validity for both enacted discrimination components of the InDI. Both forms of discrimination were reported significantly more often by Indigenous or racialized and LGBT persons, versus white and non-LGBT individuals. Consistent with expectations, lifetime and past-year reports of both discrimination types were associated with higher odds of severe psychological distress, smoking, or hazardous drinking among the full sample, and when stratified by racial/ethnic and sexual/gender minority statuses.

Among the 150 follow-up survey participants, correlation and agreement with the measures developed by Williams et al.[28] were high, particularly for day-to-day/everyday discrimination. In developing the InDI, we aimed to ground discrimination reports in more concrete domains or events than previous measures, while also covering a broader range of discrimination types. For day-to-day discrimination, it does not appear that the InDI had broader coverage: the number of respondents who were in a higher tertile of the response distribution for the Williams measure as compared to the InDI was equal to the number who were in a higher tertile for the InDI. In contrast, the InDI appeared to tap more major discrimination events than the Williams index. Our ability to draw conclusions about the relative performance and content validity of the two instrument sets is limited by the small follow-up survey sample.

6.4.4 Test re-test validity

Test re-test reliabilities for anticipated, lifetime day-to-day, and lifetime major discrimination were high (ICC=0.72-0.78); while not directly comparable, these coefficients are higher than the test-retest correlations reported for the Experiences of Discrimination measure by Krieger et al.[27]

While ICCs were adjusted for the number of days between baseline and follow-up, all participants completed follow-up at least three weeks after baseline. Thus, these estimates should be taken as lower bounds of test-retest reliability.

6.4.5 Strengths and Limitations

The development and validation of the InDI had several strengths, as well as limitations, that should be noted. To our knowledge, the InDI is the first set of discrimination measures developed explicitly to assess the phenomenon across all types or bases of discrimination, taking an intersectional approach that does not require respondents to indicate which social status(es) or position(s) they believe to have been targeted for discrimination. This evaluation benefited from a large binational sample, including neighbouring countries that share important similarities (e.g., sociodemographic heterogeneity) as well as differences (e.g., immigration policies and patterns [65]) that may impact the nature and measurement of discrimination.

Establishing construct validity requires a theoretical and empirical basis for hypotheses (e.g., regarding expected variation in discrimination prevalence and health associations). Therefore, these analyses were not structured to evaluate the performance of the measures intersectionally (e.g., across groups cross-stratified by multiple sociodemographic variables), nor among specific ethno-racial groups or minority populations that have been understudied in the discrimination and health literature (e.g., people with disabilities). Considering this preliminary evidence of the validity and reliability of the InDI, we plan to conduct further, exploratory analyses to investigate its measurement properties across additional axes of social status and position, including interactions of multiple non-dominant social statuses.

Based on concerns about recall of day-to-day discrimination over the long-term, as well as the expected low frequencies of past year major discrimination, frequency response options for the two components were not aligned. The approximate number of discrimination events (one versus two or more) was measured over the past year for day-to-day discrimination, and over the lifetime for major discrimination. Nevertheless, examination of the item frequencies for lifetime versus past-year day-to-day discrimination suggests some degree of telescoping, with high proportions of those indicating lifetime discrimination also indicating past-year discrimination.

However, this may also reflect the chronic nature of day-to-day discrimination, as a phenomenon that often reoccurs with regularity among members of minority groups.[42] An optimal timeframe for measuring discrimination cannot be identified from existing research, as most measures include a single (or unspecified) timeframe, and because the relevant timeframe will vary by type of discrimination (e.g., cumulative, lagged, or immediate effects) and health outcome (e.g., latency period).[24] The InDI could be used to further investigate the temporal relationships between discrimination and health, responding to calls for better integration of life course frameworks within the field.[66] Investigators using the InDI may opt to adapt the response scales presented here to fit their research questions and study designs.

Finally, the InDI and these analyses are subject to similar limitations as all research on self-reported, perceived discrimination. For instance, reporting of discrimination may be influenced by personality traits, response styles, or current mental health status. The current study did not examine personality traits or response styles. However, evidence to date indicates that associations between reported discrimination and health outcomes persist after control for personality traits or styles (particularly social desirability), and longitudinally when discrimination is measured prior to health outcomes.[18] Further, the construct validity of social desirability scales as measures of response style (versus adaptive impression management) has been questioned.[67]

6.4.6 Conclusion and next steps

In conclusion, the InDI measures of anticipated, day-to-day, and major discrimination show great promise for use in intersectional discrimination research in population health, and potentially in other fields (e.g., for social science research interested in monitoring the prevalence of discrimination over time). In this bi-national validity and reliability study, the InDI measures demonstrated strong construct validity and test-retest reliability. The InDI is substantively novel in several respects, including a wider range of manifestations of discrimination than extant measures developed from models of racism, and using the stem “because of who you are” in lieu of attributions to specific bases of discrimination.

To support investigators in selecting discrimination measures, future research should evaluate the unique contribution of the InDI as compared to scales currently in common use, particularly those initially developed to measure racism in the United States but more recently adapted for studies of multiple discrimination types. We have not recommended the use of an overall InDI summary score because the appropriate weights to assign to each component are unknown. However, future research could also consider the potential for combined scores with empirically-derived weights. To provide guidance on applications of the InDI, we are preparing a companion paper that uses the InDI measures in combination with data on socio-demographic characteristics and targetable attributes (e.g., visibility of stigmatized statuses) to conduct intersectional analyses of the impacts of discrimination on specific health outcomes.

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7 Chapter 7: Integrated Discussion

7.1 Introduction

This thesis sought to examine the impacts of discrimination on health risk behaviours in Ontario's transgender population, and to develop and evaluate the validity of an intersectional index of discrimination for population health research. Specifically, Chapters 2-5 explored relationships between self-reported discrimination— alongside other potential determinants of transgender health—and HIV-related sexual risk behaviour, heavy episodic drinking, and illicit drug use among transgender Ontarians. These chapters drew on data from the Trans PULSE Project, a Canadian Institutes of Health Research-funded community-based research project which surveyed 433 trans Ontarians in 2009-2010, using respondent-driven sampling. Chapter 6 described the development of the Intersectional Discrimination Index, and provided initial evidence of the index's reliability and validity in a bi-national sample of 2642 Canadians and Americans. This chapter will review key findings and their implications for health and social service delivery, and future research.

7.2 Summary of Key Findings

7.2.1 HIV-related sexual risk among transgender Ontarians

7.2.1.1 Transfeminine persons

In many settings, transfeminine persons who have sex with men are the population most heavily impacted by HIV,[1] and risk for HIV has been correlated with experiences of discrimination[2-4] as well as social and medical gender transition.[5] Chapter 2 adds to the limited evidence base regarding HIV and other sexually transmitted infection risk in broader transfeminine populations, particularly outside the United States.[6-8] Uniquely, this chapter also considered whether similar factors might predict both HIV sexual risk and sexual inactivity. Sexual inactivity was approximately twice as common in this population: of those who had ever had sex, 40.8% (95% CI: 28.9, 52.6) reported no past-year sex partners while 20.9% (95% CI: 11.7, 30.2) were at high HIV/STI-related risk. This contrasts with previous studies of transfeminine persons, which have

often been designed explicitly to address HIV-related sexual risk, and thus have recruited highly sexually active samples.[1]

Among sexually-experienced transfeminine persons overall, anti-transgender discrimination and violence were not independently associated with HIV/STI sexual risk or inactivity, nor were indicators of social exclusion (e.g., lack of social or parental support). Rather, a gender transition factor—having completed genital surgery—was associated with lower odds of both outcomes, relative to low-risk sex.

In a sensitivity analysis employing a restricted definition of HIV-related sexual risk excluding insertive vaginal intercourse, results were more comparable to the extant literature, with lower incomes[9,10] and experiences of transphobia[2-4] being positively associated with sexual risk. This suggests that impacts of discrimination and social exclusion on trans people's sexual health are context-dependent. In the U.S. context, one study postulated that differential exposure to early trauma and abuse among transfeminine persons attracted to men (who generally "come out" and transition at younger ages) may shape their later HIV risk and susceptibility to effects of discrimination and violence in adulthood.[11]

7.2.1.2 Transmasculine persons

Relative to their transfeminine counterparts, the sexual health of transmasculine persons has been greatly understudied.[12] Two recent reviews of the literature on transgender men's sexual health noted that research to date has relied on very small convenience samples, and— related to small samples—analytic studies to identify contributors to sexual risk behaviour are lacking.[13,14] Considering the limited potential for sexual transmission of HIV between transmasculine persons and cisgender female partners, Chapter 3 focused on HIV-related sexual risk among transmasculine persons who identified as sexual minorities (e.g., gay, bisexual, queer), and/or who reported sex with men in the past year (T-GBMSM).

In this group, discrimination and social exclusion were not associated with sexual risk. Factors most strongly related to HIV risk among cisgender men who have sex with men— childhood sexual abuse,[15,16] depression,[17] and stimulant use[18]—were predictive instead. In addition,

contrary to findings among transfeminine Ontarians, gender transition was related to higher sexual risk, and in this case, it was social rather than medical transition that had an impact.

7.2.2 Substance use among transgender Ontarians

Chapters 4 and 5 drew on Trans PULSE and Canadian Community Health Survey data to identify predictors of heavy episodic drinking and illicit drug use among trans Ontarians, and disparities in relation to the overall provincial population.

7.2.2.1 Heavy episodic drinking

As described in Chapter 4, the past-year prevalence of heavy episodic drinking (HED) at least monthly was higher among trans persons than expected based on the Ontario population, standardized to the trans age distribution. When stratified by gender spectrum, disparities were particularly pronounced for transmasculine persons, who had the highest estimated prevalence (42.2%). Neither discrimination nor gender transition were associated with heavy episodic drinking. In multivariable analyses, transmasculine gender spectrum and engagement in sex work were the only predictors of greater HED. The latter finding is consistent with high levels of substance use in studies of sex workers,[19] however, as employment in sex work was relatively uncommon in this population (2.2%), it is unlikely to represent an important contributor to the large disparities identified.

7.2.2.2 Illicit drug use

Past-year prevalences of both cocaine and amphetamine use were higher among trans Ontarians than in the age-standardized Ontario population. By gender spectrum, differences were less pronounced than for HED, and varied by substance. Within the trans population, only one gender spectrum difference in past-year drug use was detected (transfeminine persons were more likely to use crack cocaine). Correlations with past-year use of illicit drugs (associated with higher risk of harm to users) within the trans population were complex. Gender transition was not associated in bivariable or multivariable models. Both anti-transgender violence and underhousing (an indicator of social exclusion) were associated with increased drug use, while transphobia scale scores were not. Contrary to expectations of our minority social stress approach, social support

was positively associated with drug use. Further, when current sex work was added to the multivariable model, violence and underhousing were no longer significant predictors of drug use, suggesting mediation and/or confounding. This should be cautiously interpreted given the small number of sex workers in the sample.

7.2.3 Implications for understanding impacts of gender affirmation on transgender health behaviours

Guided by minority stress and gender affirmation frameworks, the exploratory analyses in Chapters 2-4 considered the relationships between health behaviours and anti-transgender discrimination (transphobia) and violence, as well as gender transition, among trans Ontarians. This section reflects on the implications of all four chapters for understanding the role of gender spectrum and transition on HIV-related sexual risk and substance use. The following section (7.2.4) reflects on implications related to discrimination and health risk behaviours.

Transmasculine persons were significantly more likely than transfeminine persons to report heavy episodic drinking monthly or more, but the prevalences of very frequent (weekly or more) HED and of illicit drug use did not vary by gender spectrum. While psychopharmacologic and neuroendocrine research indicates that cisgender females are more susceptible to substance use initiation, dependence, and addiction,[20] substance misuse remains heavily concentrated in cisgender males.[21,22] However, the disparity in substance use between cisgender men and women has been declining across recent birth cohorts, and there is no plausible biological (sex-based) explanation for this narrowing gap.[22] Rather, both cisgender population data and the current study indicate that social gender is a salient determinant of substance use behaviour. Studies of transgender populations offer a more direct way to disentangle natal sex and gender (i.e., biological versus social) effects, which are largely confounded in cisgender populations. As discussed in Chapter 5, results in this thesis lend further support to the importance of gender identity (as opposed to natal sex) in shaping patterns of substance use. While hormonal transition might alter sex-linked patterns of substance use, were biological sex a more salient determinant of substance use, we would expect to see higher prevalence of HED and illicit drug use among transfeminine persons; this is particularly true considering that less than half were using hormone therapy, and most had transitioned within the previous few years.[23]

As postulated by gender affirmation approaches to health risk behaviours among transfeminine persons,[24,25] it is plausible that some transmasculine persons engage in drinking behaviours associated with masculinity as part of affirming gender identity. Qualitative research on the motivations underlying health risk behaviours among transmasculine persons is needed to contextualize findings of this thesis.

Gender spectrum differences in HIV-related sexual risk behaviour cannot be directly compared, given the different subpopulations studied: all sexually-experienced transfeminine persons versus T-GBMSM. In the former group, approximately 1 in 5 had at least one high-risk sexual encounter in the past year, in the latter group, 1 in 10 did so. While this implies that transfeminine persons are more likely to engage in HIV-related sexual risk, it is important to recall that the outcome was defined to include vaginal or anal intercourse to ejaculation (with a "flesh" penis). Therefore, transfeminine persons had more ways to engage in HIV risk behaviour than did T-GBMSM (because ~99% could not be the insertive partner in intercourse we defined as high-risk). Finally, a comprehensive evaluation of gender spectrum differences in HIV risk behaviour would need to consider the actual HIV/STI risk associated with reported behaviour, particularly partner characteristics, on which data were not collected.

With respect to social and medical gender transition, no impact on substance use was evident. The relationship between transition and sexual risk behaviour varied by gender spectrum. Having genital surgery predicted better sexual health outcomes among transfeminine persons (higher odds of low-risk sex versus risky sex or inactivity). The negative association with sexual inactivity may reflect reduced gender dysphoria as well as enhanced access to sexual partners, considering the difficulties transfeminine individuals can face in finding respectful partners.[8] Genital surgery was associated with a 92% reduction in the estimated odds of HIV-related sexual risk, while feminizing hormone use was not significantly related. This is consistent with the expectation of the gender affirmation framework that those with access to external and internal gender affirmation will be less inclined to seek affirmation through sexual interactions, potentiating risk behaviour.[24] It also suggests that genital surgery is particularly important in this regard, which is not surprising given the social emphasis placed on genitalia in defining womanhood.[26]

Among transmasculine persons at the time of data collection, genital surgery was extremely uncommon (~1%[23]; 4 of 227 transmasculine participants). In this group, social transition (but not hormone therapy) was associated with higher HIV-related sexual risk. This, too, appears consistent with the gender affirmation framework: T-GBMSM have reported that following social transition, sexual activity with gay and bisexual cisgender men can be an important source of gender affirmation for which they are sometimes willing to take health risks.[27,28]

7.2.4 Implications for understanding impacts of minority stress on transgender health behaviours

As measured (with a scale including internalized, anticipated, and enacted stigma[29]), transphobia was largely unassociated with the outcomes examined in this thesis, while anti-transgender violence was correlated with illicit drug use only. This is in contrast to previous Trans PULSE findings of associations between transphobia and both depressive symptomatology[30,31] and suicidality.[32]

This pattern of results could be interpreted to indicate that transphobia is not a key determinant of health risk behaviours among trans Ontarians. Across populations, discrimination is more consistently associated with psychological distress than with health behaviours.[33,34] Yet, alternative explanations remain to be explored. First, exposure to some degree of transphobia is nearly ubiquitous among trans Ontarians: 98% reported at least one experience.[29] Within-group analyses cannot detect effects of invariant exposures[35,36]—in this case, to any discrimination. Rather, these thesis analyses asked whether increasing exposure to transphobia predicted risky health behaviours within the trans population. Schwartz and Meyer[35] argue that social stress theory proposes a larger model, in which group disadvantage negatively impacts health directly, and mediated by discrimination-related stressors. An ideal test of this model would use between-groups and mediational analyses "that can capture the workings of stress…[and] its differential effect" (p. 1116). To evaluate the effects of discrimination on behavioural health disparities identified in this thesis, such a complete test would require discrimination measures that work across social groups (so that discrimination can be evaluated as a mediator of disparities). Reisner et al. provide a model of such an approach in a paper focused on gender minority

disparities in adolescent substance use,[37] in which the hypothesized mediator (bullying) was a discrimination-related stressor, but measured without attribution to specific social positions.

It may also be the case that various forms of transphobia are differentially related to mental health versus health behaviour outcomes. The Trans PULSE transphobia scale included 11 items. Of these, four might be considered major discrimination events following this thesis' schema: being physically assaulted, denied employment, having to move, or being harassed by police. As such discrete events can be independent of one another, they should be measured comprehensively (i.e., sampling from all domains) and analyzed as an index or checklist rather than as a psychometric scale.[38-40]

Another three items could be classified as day-to-day discrimination experiences: being made fun of, hearing that trans people are not normal, or being objectified or fetishized sexually. The remaining four items reflect internalized and/or anticipated stigma: feeling that being trans embarrassed one's family, trying to "pass" as non-trans, worrying about growing old alone, and fearing dying young. If, as the social stress and discrimination literatures suggest, categories of discrimination stressors are differentially associated with health outcomes,[41] combining them into a single scale may obscure effects. In addition, these types of discrimination vary in terms of duration and chronicity of exposure, and potentially in etiologic period (the lag between exposure and consequent health outcome).[38,42,43]

At the same time, the distribution of risky health behaviours within trans populations may be distributed unevenly based on multiple, intersecting forms of discrimination. Marcellin investigated the interacting effects of racism and transphobia on HIV-related sexual risk in her thesis.[29,44] As previously discussed, this analysis was limited by the fact that the study employed transphobia and racism scales with a number of overlapping items. Discrimination that trans people may experience due to other social statuses or positions was not assessed. Nevertheless, she found that transphobia did predict increased HIV-related risk behaviour, but only among Indigenous or racialized trans persons who were exposed to high levels of racism as well. Therefore, while we can provisionally conclude that discrimination is more strongly related to internalizing mental health conditions than to health behaviours among trans Ontarians, further research should employ more comprehensive and intersectional measures of discrimination to

test this hypothesis. The Intersectional Discrimination Index developed as part of this thesis is a candidate for such a measure.

7.2.5 Validity and reliability of the Intersectional Discrimination Index

As described in Chapter 6, the Intersectional Discrimination Index (InDI) was developed through a literature review, construct map, and series of expert consultations to measure anticipated, day-to-day, and major discrimination related to any social status or position. In this thesis, initial validity and reliability analyses were conducted with a focus on measurement properties among racial/ethnic and sexual/gender minorities, groups for which the body of research on measuring discrimination and its health consequences is more developed. Online survey panel members in Canada and the United States (n=2642) completed socio-demographic questions, the InDI, and measures of mental and behavioural health. No data quality or acceptability concerns were identified: missing data did not exceed 1.7% for any variable, and all items took the full range of possible values. In test-retest reliability analyses, the InDI components demonstrated strong reliability in comparison to other discrimination measures in the literature,[45] with intra-cluster correlation coefficients between 0.72-0.78.

After removal of two positively worded items that may have tapped a different construct, factor analyses of the Anticipated Discrimination InDI scale found support for two interpretable factors: anticipated institutional (6 items) and anticipated interpersonal discrimination (3 items). Due to a very high factor inter-correlation (0.93) and high item-total correlations for the full 9-item scale, use of the overall scale score (rather than subscales) appears suitable.

Results of known-groups comparisons consistently supported the hypothesis that racial/ethnic and sexual/gender minorities would report significantly higher levels of each discrimination type relative to the respective majority group (white persons or cisgender heterosexuals). All but one of the hypothesized associations between discrimination and health were detected, employing a composite mental and behavioral health outcome (1 or more of psychological stress, smoking, hazardous drinking). Specifically, in the full sample, day-to-day and major discrimination over both the lifetime and the past year, as well as anticipated discrimination, were associated with higher odds of reporting one or more of the negative health outcomes. The pattern of results did not differ when stratified, except when examining anticipated discrimination stratified by

race/ethnicity: among white respondents only, anticipated discrimination was not significantly associated with health outcomes. Limited variation in anticipated discrimination, or limited salience of anticipated discrimination for members of socially dominant groups, are potential explanations for this finding.

Results of comparisons to the Williams Everyday and Major Discrimination items,[46] however, were less conclusive with respect to the potential incremental validity of the InDI; Spearman correlations between the measures using a lifetime frame were high (0.76 and 0.83). When agreement was assessed using tertiles to classify scores as low, moderate, or high, the level of agreement was moderate. The InDI demonstrated a slight advantage only for major discrimination, by tapping a wider range of discrimination experiences (and thus a greater number of experiences).

Day-to-day discrimination frequencies may depend less on the specific instrument used, as the experiences are less discrete and may be more likely to cluster, whether because of characteristics associated with being targeted for discrimination, or with perceiving and reporting. It is also possible that differences in coverage between the two sets of measures were washed out by the combination of the wider scope implied by the Williams item stem ("unfair" treatment without reference to social position) and the wider range of discrimination manifestations queried by the InDI. These possibilities require further research, as the small follow-up sample size (n=150) limited our ability to conduct more in-depth analyses to explore the incremental validity of the InDI relative to the Williams measures. Priming may have also contributed to the high correlation and agreement observed. While correlations were calculated between scores for the InDI completed at baseline and the Williams measures completed at follow-up, respondents also completed the InDI a second time (to estimate test-retest reliability) immediately preceding the Williams measures.

7.2.6 Implications for measuring discrimination in population health research

The development of the InDI was initially motivated by practical and conceptual problems we encountered in investigating the impacts of discrimination using Trans PULSE Project data. Building on common approaches in the discrimination and health literature, the Trans PULSE survey included two discrimination measures—one for racism, and another for transphobia.

While the research team was interested in assessing other forms of discrimination, they decided that adding yet another scale would not be feasible in the context of a survey that was already 87 pages long.

From an intersectional perspective, requiring participants to disaggregate experiences of discrimination into those based on race/ethnicity and those based on trans status was problematic.[47,48] Considering this challenge, and that fact that the two scales included a number of parallel items (e.g., being turned down for a job, objectified sexually, harassed by police), it is likely that they were "double-counting" some experiences. In addition, as discussed in section 7.2.4, the scales collapsed multiple dimensions of discrimination (day-to-day, major, anticipated, and internalized) that may have differential impacts on health (e.g., for depression versus heavy drinking) and etiologic periods.

The Introduction to this thesis showed that these motivating problems are not unique to Trans PULSE, but are common in studies wherein multiple dimensions of discrimination, and/or multiple bases of discrimination are of interest. Despite increasing attention to both discrimination[33,34] and intersectionality[49,50] in population health research, there have been few attempts to develop universal instruments to measure discrimination, and little conceptual debate about the promises and pitfalls of such attempts.[51] The InDI was intended to fill this gap by explicitly measuring enacted (day-to-day and major) and anticipated discrimination based on social position or status—versus generic "unfair treatment" — irrespective of attribution. To this end, the item stems ask respondents to report experienced based on "who you are", defined as: "…both how you describe yourself and how others might describe you. For example, your skin colour, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income."

Although we were concerned that this inclusive stem could encourage reporting of generic (non-discriminatory) mistreatment, results indicate that almost all respondents interpreted the wording as intended. To evaluate this possibility, an overall attribution question was asked of all those who reported any discrimination. Only 28 respondents (1.1%) wrote-in an attribution that falls outside of our definition of social discrimination (e.g., mistreatment based on personality).

Beyond the question stem, a central feasibility question for the InDI was whether the same item sets could meaningfully tap discrimination experiences across population groups defined by intersecting social positions along lines of race, ethnicity, class, immigration status, gender, sexuality, and so on. In developing the InDI, we drew on conceptual models of the functions and manifestations of stigma and discrimination[52,53] and strove to select a representative set of items. This thesis focused on evaluating performance across race, ethnicity, sexuality, and gender identity, finding evidence that the measure performed well among both racial/ethnic and sexual/gender minority groups.

In summary, the analyses described in Chapter 6 provide preliminary evidence that the Intersectional Discrimination Index can resolve the challenges to intersectional population health research on discrimination that motivated its development. Questions remain concerning incremental validity relative to existing discrimination measures, and the measures' validity across the full range of non-dominant social statuses and positions. Using the dataset collected for this thesis, we will be able to investigate the latter, drawing on information collected pertaining to social status and position, as well as targetable attributes (e.g., visible membership in a religious minority group, perceived gender non-conformity).

7.2.7 Implications for prevention and health services

Findings of Chapters 2-5 have important implications for providers of health and social services to trans individuals and communities. First, service providers should take note of the heterogeneity of health behaviour risk within trans communities. The disproportionate burden of HIV and substance use risks among trans people—including disparities demonstrated in this thesis— should be recognized and responded to. However, we estimated that over the previous year, 79% of sexually-experienced transfeminine Ontarians and 90% of T-GBMSM were at low or no risk of sexually-transmitted HIV, while 67% of trans Ontarians did not drink heavily on a regular basis and 88% did not use drugs associated with a high risk of harm to themselves.

Hence, trans people constitute a "vulnerable" population rather than an "at-risk" population; Frohlich and Potvin define the former as a group "at risk of risks" due to social-structural conditions, while the latter comprise those individuals at highest risk of a specific health outcome.[54] Of course, most-at-risk subgroups exist within any vulnerable population; one task of

this thesis was to identify such groups in Ontario's trans population. Since the 1985 publication of Geoffrey Rose's seminal contribution,[55] a lively debate has been taking place in the public and population health literature regarding the relative merits of disease prevention efforts focused on the whole population versus on "high-risk" groups.[54,56-58] Neither is necessarily the correct approach; rather, over the longer-term, macrostructural conditions and ubiquitous exposures must be addressed to shift the population distribution of health while, at the same time, implementing interventions to prevent morbidity and mortality in those at highest immediate risk.[57]

Applying this framework to interventions within the trans population, it becomes apparent that supra-individual interventions are required to shift the entire distribution of health in trans populations, considering the ubiquity of some degree of social exclusion and the high burden of mental health conditions in particular.[30-32] However, in the shorter-term, services should prioritize prevention of HIV infection and substance use-related harms among the minority of trans persons who are currently at-risk. This is particularly the case when delivering services that are most appropriate for people already at some risk; for example, a blanket HIV testing campaign for transfeminine communities may not be an appropriate use of resources when half of the population is not sexually active. Universal approaches can also contribute to stigma by labelling entire vulnerable populations as at-risk. Moreover, such universal approaches risk worsening inequalities because they rely on individual agency, which is most challenged among those at higher risk due to social-structural conditions.[54] For example, for trans sex workers (who we found to be at elevated risk of potentially hazardous substance use), efforts to promote access to substance use services in the trans population at large may be less useful than targeted services which address the specific barriers they face.[59,60]

In addition to considering the appropriate balance of overall trans population versus high-risk prevention strategies, service providers should recognize heterogeneity of trans populations with respect to gender spectrum and processes of social and medical gender affirmation, and take an individualized approach to prevention, avoiding assumptions. Contrary to the assumption that transfeminine persons are primarily impacted by substance use,[19] we found that any past-year use of illicit drugs did not vary by gender spectrum, while heavy drinking was concentrated among transmasculine persons.

Providers should be alert to potential changes in health behaviours related to various facets of gender affirmation: social and medical, as well as forms not evaluated in the Trans PULSE study (e.g., psychological self-affirmation of gender identity[61]). Among transfeminine persons, genital surgery was associated with lower prevalence of sexual risk and inactivity. While this association warrants further study, particularly longitudinally, these potential benefits may be considered in decision-making processes related to individual treatment plans and health system policies regarding access to surgery. Providers should also note that gender affirmation, while potentially health-promoting overall, can also be associated with health risks (e.g., HIV risk behaviour among T-GBMSM).

To address sexual health, physicians and other health care providers who interact with trans patients should ensure to take complete sexual histories and to inquire about changes in sexual behaviour and related risks, following cultural competence guidelines.[62] For transfeminine persons, the majority of whom were at HIV/STI risk due to insertive genital sex (i.e., with cisgender women or transmasculine persons), sexually transmitted infections screening should be considered irrespective of apparent HIV risk. Of course, sexual health extends beyond the avoidance of disease, encompassing sexual well-being and pleasure. Primary care providers have a role to play in screening and counselling for problems patients may have with achieving desired sexual intimacy,[63] and our results suggest that such attention is particularly indicated for transfeminine individuals. Similarly, brief screening for problematic alcohol use is an evidence-based primary care intervention[64] that should be implemented in trans patient care, considering the heavy burden of binge drinking documented in Chapter 4.

Beyond primary care settings, the results of this thesis have implications for specialized HIV prevention and substance use treatment services. Related to HIV prevention among T-GBMSM, in previous studies, a preference for accessing services for gay and bisexual men has been expressed.[29] In this study, key determinants of HIV risk among cisgender gay and bisexual men were also associated with such risk among T-GBMSM, lending support to the feasibility of these preferences. Given the small size of the population, inclusion within such existing services (e.g., those delivered by AIDS Service Organizations across Ontario) may also be more efficient. It is likely that T-GBMSM who are primarily attracted to men and who are living in their felt gender (particularly if they identify as men) will be most comfortable accessing such services; these

groups were also those found to be at elevated risk of HIV in this study. Service-side barriers to inclusion (e.g., lack of inclusive policies or provider practices), however, may limit the ability of T-GBMSM to take advantage of prevention programming.[65] Results described in Chapters 4 and 5 indicate need for substance use prevention and treatment for trans sex workers. Flexible, mobile or street-based outreach programs with peer involvement have shown effectiveness for linking marginalized sex workers with substance use treatment in other settings.[60]

7.2.8 Implications for future research

At present, information on transgender status is not collected in any Statistics Canada surveys, including the Canadian Community Health Survey (CCHS), the primary source of data on the health status of Canadians. Given this, we evaluated trans-cisgender disparities in substance use by comparing respondent-driven sampling survey data from Trans PULSE to CCHS data, standardized to the trans population age distribution. While RDS data are theoretically generalizable to the networked target population, this generalizability rests on assumptions that may not be met in practice.[66] Measurement and survey mode differences are further threats to the validity of our estimated prevalence differences. Ultimately, better understanding of the health of the trans population in Canada, and disparities with cisgender Canadians, will require inclusion of measures to assess sex assigned at birth and gender identity and/or lived gender in population health surveys.[67] In the United States, some population-based surveys and surveillance systems have begun collecting and reporting data on trans status, and the results are confirming some disparities hypothesized based on convenience and respondent-driven sampling data, while challenging others.[68-70]

To consider the impact of discrimination as a predictor of poor health outcomes within the trans population, future research should employ measures of discrimination that disaggregate its various dimensions, which may have different antecedents, and consequences for health. To consider discrimination as a potential mediator of disparities with cisgender populations, surveys which include both cisgender and trans populations (including but not limited to population-based surveys) will need to include cross-group discrimination measures, such as the InDI.

The results of this thesis also raise the intriguing possibility that discrimination is a less salient predictor of trans health risk behaviours in Canada, as compared to the United States. In a recent

24-country survey of public opinion on transgender issues, Canada had the third-highest score in support of trans rights, while the United States ranked 8th. In 2012, gender identity and expression were added as protected grounds under the Ontario Human Rights Code. As of March 2017, such protections formally exist in nine provinces and one territory, with legislation pending in The Yukon, New Brunswick, and federally.[71] While Trans PULSE study data predate these legal changes, these advances nonetheless reflect a social climate that is more favorable to trans people, as compared to the United States, where the right of trans people to use the washroom that aligns with their gender identity continues to be a contentious subject of public policy debate and legal struggle.[72] In the United States, "structural stigma", including negative public opinion as well as laws and policies that marginalize sexual and gender minorities, has been associated with poor health outcomes among sexual and gender minority adults and adolescents.[73-75] Thankfully, variation in legal protections based on gender identity, expression, and sexuality within Canada is likely insufficient for such multi-level analyses. However, cross-national research would offer novel opportunities to examine relationships between trans human rights policy and legislation, experiences of discrimination, and health outcomes.

The development and validation of the Intersectional Discrimination Index also raises several intriguing questions for future research. In addition to assessing incremental validity against the Williams Everyday and Major Discrimination[46] measures in larger samples, comparisons could be made with other measures that have been used to evaluate discrimination across groups, such as Krieger's Experiences of Discrimination scale.[45] Further, while this thesis provided initial evidence of English-language validity and reliability in Canada and the United States, validation of translated versions (particularly French and Spanish) and validation or adaptation for other country contexts would increase the InDI's utility for comparative research and multilingual population health surveys. Also, while measuring discrimination for its own sake is important (e.g., to monitor trends in discrimination), we developed the InDI with the intent to study the effects of discrimination on mental and behavioural health, and their roles as mediators of health inequalities. Thus, we are preparing a companion paper to Chapter 6 which will demonstrate the use of the InDI for such analyses, with an intersectional analytic approach.

Finally, the unadjusted descriptive results in Chapter 6 indicate that reports of discrimination were higher among Canadian respondents, contrary to expectations. This may be an artifact of

demographic differences, particularly the younger median age of Canadian participants. The data collected as part of this thesis can also be used to determine whether cross-national differences are artefactual, or robust to adjustment for demographic differences. If self-reported discrimination is indeed more prevalent among Canadians than among demographically-similar Americans, this would not necessarily conflict with the observation that Canada appears to offer a more hospitable social environment for trans persons and other minority groups. Rather, Canadians may perceive more discrimination precisely because a more hospitable climate contributes to a greater expectation of fair treatment, and higher sensitivity to violations of this expectation. A higher prevalence of perceived discrimination also need not translate into a stronger relationship between discrimination and health outcomes. Temporal changes in discrimination also warrant investigation, as the current political climate in the United States has been associated with concerns about persistent and rising discrimination across multiple bases (e.g., race, gender, religion)[76] and increases in hate-motivated violence.[77] These unfolding events make evident the timeliness and urgency of research on discrimination and health.

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Appendices

Appendix A: Trans PULSE Project Survey

PLEASE NOTE:

This copy of the survey is for informational use only. Please do not fill out and submit this copy of the survey.

To collect information from surveys, Trans PULSE is using a method called "respondent-driven sampling." This strategy requires that once completed, people that have been invited to participate pass the survey along to other people they know and who are eligible to complete it also. You should only fill out and submit the survey if you have been approached to do so. The reason for this is that this method allows us to produce more accurate statistics. Following this, the information produced from this method of collection will be considered more reliable by policymakers and other stakeholders.

Please feel free to read over this copy of the survey. If you have any questions or comments, do not hesitate to contact us at [redacted] or email us at [redacted]

Trans PULSE Provincial Survey 2009

Introduction

Thank you so much for taking the time to answer the questions in this survey. The results will go a long way to help promote equality for trans communities in Ontario and beyond. We greatly appreciate your contribution.

This survey will eventually be completed by 1000 trans-identified people and people of trans experience across Ontario. We've chosen particular kinds of questions to make sure that the results are useful to trans communities, meaningful to us, and able to affect our lives for the better.

Why is this survey important?

This survey is important because it is driven and owned by community members who want to improve our quality of life. It's essential to be able to have every voice heard and to have the real experiences of what it is like to be trans or to transition in Ontario in order for services to change and to understand how the health of our community is affected by the problems and challenges thrown our way.

Where did the questions on this survey come from?

Some of the questions in this survey were designed by members of our communities, and other questions come from existing surveys so we can compare our results to theirs. This will enhance the success of our study in creating change and improving things for us.

We know that some of the questions on the survey may seem very straightforward and basic. What's really unique about this survey is that we've written many questions that relate to our real lives. For example, the supports in our lives, how we feel about ourselves, the health issues that concern us, and our experiences with services. Understanding these issues can help us promote change for trans communities. This survey is also important because trans people across Ontario told us these issues were meaningful.

What will come of the results of this survey?

The survey itself is not the final step of our project. Once we've collected the surveys from you and analysed the information, we will be talking to 60 to 80 trans people in more detail to help us understand our results. Input from trans people is so important to make sure results are interpreted from our perspective. We will ensure that the results of this study do not sit on a shelf somewhere, but rather are put into action to improve our health and well-being.

We realize that this survey is long, but we appreciate the time you are taking to fill it out. Please feel free to save it and come back to it at a later time. Also, if you have more to say on any of the topics we cover, there is space at the end of the survey for you to tell us your thoughts.

A note on the following term:
"trans, trans-identified or trans experience" - these phrases are used in different places in the survey and in the articles and information created by the Trans PULSE Project more generally. Identities and labels are important parts of our lives and how we think about ourselves. At the same time, it's difficult to use a single term to cover all people who are trans, transgendered, cross-dressers, transsexual, genderqueer, or those who have transitioned and identify simply as `women' or `men.' So, we've decided to use these phrases as a means of including all trans people, with an understanding that some people may not always identify as trans at all times and stages in their life.

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A. One question (or three) before you begin...

This study uses new ways to reach more trans people than traditional surveys that are given out at doctors' offices or at clubs or support groups. We want to know how well our method works. We would like to know whether or not you might have completed the survey in one of these other places, if we'd done this differently.

A1. If you were asked to complete this survey at your doctor's or therapist's office, would you have done it?

- ○ Yes
- ○ Likely yes
- ○ Likely not
- ○ No

A2. If you were asked to complete this survey at a trans or LGBT community event, would you have done it?

- ○ Yes
- ○ Likely yes
- ○ Likely not
- ○ No

A3. In the past 12 months, have you … (Please check all that apply)

- ☐ Been a client of a psychiatrist or psychologist who sees many trans clients
- ☐ Been a patient of a doctor or clinic where many trans patients go
- ☐ Attended a trans support group
- ☐ Gone to trans-specific nights at a bar or club
- ☐ Been a member of a LGBT student group
- ☐ Gone to an event at a LGBT community centre
- ☐ Been a member of a LGBT religious group
- ☐ Been a client at a gender-identity clinic
- ☐ None of the above

B. About You

These first questions are meant to give you a chance to tell us some basic information about yourself.

B1. How old are you?

Years old ☐

B2. What was your assigned sex at birth?

- ◯ Male
- ◯ Female

B3. Have you been diagnosed with a medically-recognized intersex condition?

- ◯ Yes
- ◯ No
- ◯ Unsure

B4. Which of the following describes your present gender identity? (Please check all that apply)

- ☐ Boy or Man
- ☐ Girl or Woman
- ☐ FTM
- ☐ MTF
- ☐ Trans Boy or Trans Man
- ☐ Trans Girl or Trans Woman
- ☐ Feel like a girl sometimes
- ☐ Feel like a boy sometimes
- ☐ T Girl
- ☐ She-male
- ☐ Two-spirit
- ☐ Intersex
- ☐ Crossdresser
- ☐ Genderqueer
- ☐ Bi-gender
- ☐ Other, please specify: ☐

B5. Which of the following reflect your ethno-racial background? (Please check all that apply)

- ☐ Aboriginal (First Nations, Métis or Inuit)
- ☐ Latin American (e.g. Argentina, Mexico, Nicaragua)
- ☐ East Asian (e.g. China, Japan, Korea, Taiwan)
- ☐ Indo-Caribbean (e.g. Guyanese with origins in India)
- ☐ South Asian (e.g. India, Sri Lanka, Pakistan)
- ☐ Middle Eastern (e.g. Egypt, Iran, Israel, Saudi Arabia)
- ☐ South East Asian (e.g. Vietnam, Malaysia, Philippines)
- ☐ White Canadian or White American
- ☐ White European (e.g. England, Greece, Sweden, Russia)
- ☐ Black Canadian or African-American
- ☐ Black African (e.g. Ghana, Kenya, Somalia)
- ☐ Other, please specify: _____

B6. How do you identify your own ethno-racial background?

Please specify: _____

B7. Are you perceived or treated as a person of colour?

- ○ Yes
- ○ No

B8. What is your first language?

Please specify: _____

B9. What languages are most often spoken in your home?

First language: _____

Second language: _____

Third language: _____

B10. What country were you born in?

- ○ Canada
- ○ Other, please specify: _____

B11. How long have you been living in Canada?

Years ☐ Months ☐

B12. Are you...?

- ◯ First Nations
- ◯ Métis
- ◯ Inuit
- ◯ None of the above

B13. What is your status in Canada?

- ◯ Canadian Citizen
- ◯ Permanent resident/landed
- ◯ Refugee
- ◯ Refugee Claimant / PRRA / Judicial Review
- ◯ Work permit / temporary work papers
- ◯ Visitor permit
- ◯ Student permit
- ◯ Undocumented / Non-status / Without papers
- ◯ I don't know
- ◯ Other, please specify: ☐

B14. Are you currently enrolled in elementary school, middle school, high school, college, trade school, or university?

- ◯ Yes, full-time
- ◯ Yes, part-time
- ◯ No

B15. At this point, what level of education have you completed (in Canada or any other country)?

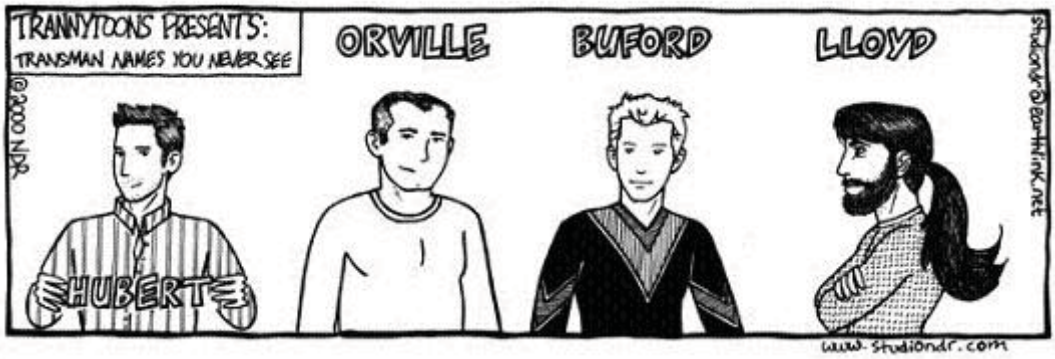
- ◯ Did not graduate from high school
- ◯ High school graduate
- ◯ Some college or trade school
- ◯ College or trade school graduate
- ◯ Some university
- ◯ University - bachelor's degree
- ◯ University - graduate or professional degree
- ◯ I don't know

B16. When you were a child, what was the religious or faith practice of your family? (Please check all that apply)

- ☐ Aboriginal Spirituality
- ☐ Agnostic
- ☐ Anglican
- ☐ Atheist
- ☐ Bahá'í
- ☐ Buddhist
- ☐ Catholic
- ☐ Hindu
- ☐ Jewish
- ☐ Mennonite
- ☐ Amish
- ☐ Islamic
- ☐ Protestant Christian
- ☐ Sikh
- ☐ Unitarian
- ☐ No religion
- ☐ Other, please specify: _____

B17. How religious or faith-based was your upbringing?

○ 1 not at all ○ 2 a bit ○ 3 somewhat ○ 4 fairly ○ 5 quite ○ 6 extremely



B18. What is your current religious or faith practice? (Please check all that apply)

- ☐ Aboriginal Spirituality
- ☐ Agnostic
- ☐ Anglican
- ☐ Atheist
- ☐ Bahá'í
- ☐ Buddhist
- ☐ Catholic
- ☐ Hindu
- ☐ Jewish
- ☐ Mennonite
- ☐ Amish
- ☐ Islamic
- ☐ Protestant Christian
- ☐ Sikh
- ☐ Unitarian
- ☐ No religion
- ☐ Other, please specify: _____

B19. Right now, how religious or spiritual are you?

1	2	3	4	5	6
○ not at all	○ a bit	○ somewhat	○ fairly	○ quite	○ extremely

B20. What are the first three digits of your postal code?

- ○ The first three digits of my postal code are: _____
- ○ I don't know my postal code
- ○ I don't have a postal code, as I don't have a home right now
- ○ I don't have a postal code, as I am in the military
- ○ I don't have a postal code, as I am in the prison system

B21. Do you live on a reserve?

- ○ Yes
- ○ No

B22. How do you currently identify? (Please check all that apply)

- ☐ Bisexual
- ☐ Gay
- ☐ Lesbian
- ☐ Asexual
- ☐ Pansexual
- ☐ Queer
- ☐ Straight or heterosexual
- ☐ Two-Spirit
- ☐ Not sure or questioning
- ☐ Other, please specify: _____

B23. Are you attracted to…? (Please check all that apply)

- ☐ Trans men
- ☐ Non-trans men
- ☐ Trans women
- ☐ Non-trans women
- ☐ Genderqueer or bigendered people
- ☐ None of the above
- ☐ Other, please specify: _____

Although a lot of health costs are covered by health insurance, there is still a relationship between our health and our incomes. Please know that, like all other information you have provided, these answers will be kept confidential.

B24. What is your best estimate of the total income, before taxes and deductions, of all **household** members from all sources in the past 12 months?

- ○ 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 don't know
- ○ I'd rather not say

B25. Including yourself, how many people were being supported on this household income? Please include everyone who is being supported, including those who may live outside of Canada.

Number of people ☐

We recognize that, as a community, we work in all types of fields. When we talk about work and income, we are talking about all types of income-generating activity, both formal and informal employment. This includes not only jobs, but income earned through activities ranging from public speaking to sex work to child care.

B26. From which of the following sources did your household receive any income in the past 12 months? (Please check all that apply)

- ☐ Wages and salaries
- ☐ Income from self-employment
- ☐ Dividends and interest (e.g. on bonds, savings)
- ☐ Employment Insurance (E.I.)
- ☐ Worker's compensation
- ☐ Benefits from Canada or Quebec Pension Plan
- ☐ Retirement pensions, superannuation and annuities
- ☐ Old Age Security and Guaranteed Income Supplement
- ☐ Child Tax Benefit
- ☐ Provincial or municipal social assistance or welfare (including Ontario Works or Ontario Disability Support Program-ODSP)
- ☐ Child support
- ☐ Alimony
- ☐ None
- ☐ Other (e.g. rental income, scholarships, parental support), please specify:

Will Rowe

Will Rowe is a member of the provincial Community Engagement Team which guides the Trans PULSE Project. Will is a former lesbian feminist turned tranny poststructuralist. He has been active for over 20 years within queer communities of Guelph, K-W, Toronto and Hamilton where he has resided for the past five years. He will be attending MAC in the fall of '08 to complete his MSW. Will currently co-facilitates Hamilton's trans peer support group and HIFY's Rainbow Youth Drop-in. He is a step-parent of two daughters and the grandparent of four grandsons. Will enjoys spending time at home with his partner (and their dog) gardening, completing home renovations and reading critical theory.

B27. What is your best estimate of your total personal income, before taxes and other deductions, from all sources in the past 12 months?

- ◯ 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 don't know
- ◯ I'd rather not say

B28. If you have socially or medically transitioned and are living in your felt gender, what is your best estimate of the highest annual personal income you earned, before taxes and other deductions, from all sources before you transitioned?

- ◯ 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 don't know
- ◯ I'd rather not say
- ◯ Not applicable, I have not transitioned

B29. Are you currently living with any of the following? (Please check all that apply)

- ☐ Labelled with an intellectual disability
- ☐ Learning disability
- ☐ Autism, Aspergers or neuro-diverse spectrum
- ☐ Mental health disability (including depression)
- ☐ As a survivor of the psychiatric system
- ☐ Blind, low vision or visual impairment
- ☐ Communication disability (use of augmentative or alternative communication)
- ☐ Physical or mobility disability
- ☐ Chronic pain
- ☐ Chronic illness
- ☐ None of the above

B30. Are you?

- ○ Deaf
- ○ Deafened
- ○ Hard of hearing
- ○ None of the above

B31. What is your current relationship status?

- ○ Single and not dating
- ○ Single and dating
- ○ In a monogamous relationship
- ○ In a non-monogamous (open) relationship
- ○ In a polyamorous (multiple people) relationship

B32. What is your legal marital status right now?

- ○ Never married
- ○ Separated
- ○ Divorced
- ○ Widowed
- ○ Living common-law
- ○ Married

B33. About how old were you when you first became aware that your own sense of your gender did not match your body or physical appearance?

Years old ☐

B34. Are you currently living in your felt gender?

- ○ Yes, full-time
- ○ Yes, part-time
- ○ No

B35. If yes, at what age did you begin living in your felt gender?

Years old ☐

☐ Not applicable

B36. In your day-to-day life, do you use a different name or pronoun from the one that you were given at birth, one that better reflects your gender identity?

- ○ Yes
- ○ No

B37. Have you asked <u>any</u> of the following people to call you by a different name or pronoun, one which reflects your gender identity?

	Have done	Plan to do	Do not plan on doing	Not applicable
My parent(s)	○	○	○	○
My sibling(s)	○	○	○	○
My spouse(s) or partner(s)	○	○	○	○
My child(ren)	○	○	○	○
My extended family	○	○	○	○
My roommates	○	○	○	○
My trans friends	○	○	○	○
My non-trans friends	○	○	○	○
My church/temple/mosque	○	○	○	○
My cultural community	○	○	○	○
My co-workers	○	○	○	○
My employer	○	○	○	○
My supervisor/boss	○	○	○	○
My teachers	○	○	○	○
My school	○	○	○	○
My classmates	○	○	○	○

B38. Have you legally changed your name to reflect your current gender identity?

- ○ Yes (skip to question B40)
- ○ No

B39. If No, do you want to?

- ○ Yes
- ○ No

B40. For the following forms of legal identification, are you listed as "male" or "female?"

	Male	Female	I don't have this/ not relevant
Driver's license	○	○	○
Ontario Birth certificate	○	○	○
OHIP card (health card)	○	○	○
Non-Ontario birth certificate	○	○	○
Canadian passport	○	○	○
Other (non-Canadian) passport	○	○	○
Certificate of Indian status card	○	○	○
Canadian citizenship card	○	○	○
Canadian permanent resident card	○	○	○
Canadian armed forces card	○	○	○
"Bring your ID" Card/age of majority card	○	○	○

B41. Do your academic transcripts accurately reflect your current name and gender identity?

- ○ Yes
- ○ No
- ○ Not applicable

B42. Can you get letters of reference (for jobs, school, etc.) that accurately reflect your current name and gender identity?

- ○ Yes
- ○ No
- ○ Not applicable

B43. Which of the following applies to your current situation regarding hormones and/or surgery?

- ○ I have medically transitioned (hormones and/or surgery)
- ○ I am in the process of medically transitioning
- ○ I am planning to transition, but have not begun
- ○ I am not planning to medically transition
- ○ The concept of "transitioning" does not apply to me
- ○ I am not sure whether I am going to medically transition

B44. If you started or completed a medical transition, how old were you when you began?

Years old ☐

☐ Not applicable

B45. Why is changing your body important to you? (Please check all that apply)

- ☐ For my self-esteem
- ☐ For my mental well-being
- ☐ For my safety
- ☐ For employment reasons
- ☐ To be comfortable in my own body
- ☐ My work depends directly on my body presentation
- ☐ It's not important to me
- ☐ Other, please specify: ☐

Nael Bhanji

Nael is a half East-Indian, half Arab, queer, transguy who has spent most of his life in Kenya and now resides in Toronto, Ontario. A graduate student at the Women and Gender Studies Institute at the University of Toronto, he is passionate about queer, transgender, post-colonial and diasporic theory. When not in nerd-mode, he is also partial to crosswords, safaris, film festivals, soccer, basketball and warm socks. Nael is a member of the provincial Community Engagement Team which guides the Trans PULSE Project.

C. Overall Health Care

In the next few sections, we would like to learn about your experiences with finding competent and respectful health care and social services.

This first care-related section deals with overall health care.

C1. Do you have Ontario Health Insurance Program (OHIP) coverage?

- ○ Yes
- ○ No

C2. The following four questions refer to health care broadly, not just trans-related care.

	Excellent	Good	Fair	Poor
Overall, how would you rate the availability of health care services in Ontario?	○	○	○	○
Overall, how would you rate the quality of the health care services available in Ontario?	○	○	○	○
Overall, how would you rate the availability of health care services in your community?	○	○	○	○
Overall, how would you rate the quality of the health care services available in your community?	○	○	○	○

C3. During the past 12 months, was there ever a time when you felt that you needed health care but didn't receive it?

- ○ Yes
- ○ No

We know this next section takes more time than others in the survey, but we appreciate your effort in answering these important questions.

C4. For each type of service listed in Column 1, please indicate if you have needed the service in the past 12 months. If you did not need it, please go on to the next line (i.e. next service).

If you check Yes for any service(s) in Column 2, please indicate whether you were able to obtain this service in Column 3. If you check No, please indicate the reason(s) you were unable to obtain this service in Column 4 by choosing from the options in the list.

Column 1: Service	**Column 2**	**Column 3**	**Column 4**
	In the past 12 months, have you needed this service?	If yes, were you able to obtain this service?	Use the list of options on page 20 to indicate the top reason(s) you were unable to obtain this service
Addictions services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Emergency services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
General health care services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Sexual health care	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Trans-related hormonal therapy	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Trans-related surgery of any kind	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3

Column 1: Service	**Column 2**	**Column 3**	**Column 4**
	In the past 12 months, have you needed this service?	If yes, were you able to obtain this service?	Use the list of options on page 20 to indicate the top reason(s) you were unable to obtain this service
Trans-related electrolysis	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
Trans-related speech therapy	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
HIV or sexually-transmitted infections testing	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
Sexual health information	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
Pap smears	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
Breast exams	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3
Mammograms	◯ Yes→ ◯ No	◯ Yes ◯ No →	#1 #2 #3

Column 1: Service	**Column 2**	**Column 3**	**Column 4**
	In the past 12 months, have you needed this service?	If yes, were you able to obtain this service?	Use the list of options on page 20 to indicate the top reason(s) you were unable to obtain this service
Prostate exams	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Fertility Services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
AIDS service organizations	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Shelter and hostel	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Sexual assault centres	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Mental health care services for reasons other than being trans	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3
Trans-related mental health services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3

Column 1: Service	Column 2	Column 3	Column 4
	In the past 12 months, have you needed this service?	If yes, were you able to obtain this service?	Use the list below to indicate the reason(s) you were unable to obtain this service
Adoption services	◯ Yes → ◯ No	◯ Yes ◯ No →	#1 #2 #3

1. I don't know if this service is available in my area
2. The service is not available in my area
3. I didn't meet the requirements
4. The service or program was full
5. The waiting time was too long
6. I don't have coverage for this service
7. I cannot afford to pay for it
8. I was denied approval for this service
9. The staff are insensitive or hostile to trans people
10. Other patients or clients might be insensitive or hostile to me
11. I have difficulties accepting my own trans status
12. There were not appropriate bathrooms
13. This service did not accommodate my disability
14. There were language problems
15. I was afraid my immigration status would be revealed
16. I found these services to be culturally insensitive
17. The service provider might be racist
18. I have pre-existing mental health conditions
19. I have pre-existing physical health concerns
20. I haven't gotten around to it
21. I didn't know where to go
22. I had problems with transportation
23. I was not able to find child care
24. I had personal or family responsibilities
25. I dislike doctors or am afraid of them
26. There was too much stigma around this service
27. There is too much stigma because I'm a sex worker
28. I didn't want my HIV+ status to be revealed
29. Other (please specify):

C5. Do you trust in doctor-patient confidentiality when it comes to receiving trans-related care?

- ○ Completely
- ○ Mostly
- ○ Not much
- ○ Not at all

C6. While living in Ontario, what is the furthest distance you have ever traveled for trans-related physical or mental health care?

- ○ Within my city, town or township
- ○ To another city or town in Ontario. How far away by car? Hours [ ] Minutes [ ]
- ○ To another province. Please specify: [ ]
- ○ To another country. Please specify: [ ]
- ○ I have never received trans-related health care.

C7. How far did you travel to get to your most recent appointment for trans-related physical or mental health care?

- ○ Within my city, town or township
- ○ To another city or town in Ontario. How far away by car? Hours [ ] Minutes [ ]
- ○ To another province. Please specify: [ ]
- ○ To another country. Please specify: [ ]
- ○ I have never received trans-related health care.

Liz James

Liz James is a 2-Spirited Transsexual Warrior Born in Toronto. A graduate from the school of Hard Knox. Having once been a Prostitute, Bank robber, Heroin/Cocaine addict, and thus ending up in Federal Prison for 5 years. Fast forwarding to the present day: Raven has discovered her First Nation 2-Spirit heritage. Obtained Sex re-assignment surgery, and turned over a new leaf. She has returned to school in order to better help her community. Liz is a member of the provincial Community Engagement Team which guides the Trans PULSE Project.

D. Emergency Care

D1. Have you ever avoided going to the emergency room when you needed care because you are trans?

- ○ Yes
- ○ No
- ○ I have never needed emergency care

D2. Have you ever used emergency room services presenting in your felt gender?

- ○ Yes
- ○ No (skip to Section E)

D3. For each of the following, has an emergency care provider ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ Refused to examine parts of your body because you're trans
- ☐ None of the above

D4. Have you ever had to educate an emergency care provider regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

E. Family Medicine

E1. Do you have a regular family doctor?

- ◯ Yes (skip to Question E2)
- ◯ No

E1a. If no, have you ever tried to get a family doctor and not been able to?

- ◯ Yes (skip to Question E5)
- ◯ No (skip to Question E5)

E2. Does your current family doctor know about your trans identity or experience?

- ◯ Yes
- ◯ No
- ◯ I'm not sure

E3. How comfortable are you discussing your trans status and trans-specific health care needs with your family doctor? (Please check only ONE response)

- ◯ Very uncomfortable
- ◯ Uncomfortable
- ◯ Comfortable
- ◯ Very comfortable

E4. How knowledgeable is your family doctor about trans-specific health care needs? (Please check only ONE response)

- ◯ Not at all knowledgeable
- ◯ Somewhat knowledgeable
- ◯ Knowledgeable
- ◯ Very knowledgeable

E5. How comfortable would you be discussing your trans status and/or trans-related health care needs with a doctor you did not know? (Please check only ONE response)

- ◯ Very uncomfortable
- ◯ Uncomfortable
- ◯ Comfortable
- ◯ Very comfortable

E6. Do you use walk-in clinics as your primary source of health care?

- ○ Yes
- ○ No

E7. If yes, how comfortable are you discussing your trans status and/or trans-related health care needs with a doctor at a walk in clinic? (Please check only ONE response)

- ○ Very uncomfortable
- ○ Uncomfortable
- ○ Comfortable
- ○ Very comfortable

E8. For each of the following, has a family doctor ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ Refused to examine parts of your body because you're trans
- ☐ None of the above
- ☐ Not applicable, I have never used this service

E9. Have you ever had to educate a family doctor regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

Tyson Purdy-Smith

Tyson Purdy-Smith is a member of the provincial Community Engagement Team which guides the Trans PULSE Project. Tyson is a 21-year-old transman from Halifax, Nova Scotia. He has been a singer all his life and an amateur actor since he was 13. He lives in an attic decorated with Les Miserables memorabilia and black-and-white abstract art. He likes poofy white shirts and multicoloured hand-knit socks. He really likes it when people who've read his bio-blurb offer to buy him bubble tea.

E10. For each of the following, has a walk in clinic doctor ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ Refused to examine parts of your body because you're trans
- ☐ None of the above
- ☐ Not applicable, I have never used this service

E11. Have you ever had to educate a walk-in clinic doctor regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

F. General Mental Health Care

People use mental health care services for a variety of reasons. This section asks only about experiences in seeking mental health care for reasons other than your gender identity. Section G will ask about mental health care related to gender identity or transition.

F1. Have you ever used mental health care services for reasons other than being trans, while presenting in your felt gender?

- ○ Yes
- ○ No (skip to Section G)

F2. I received mental health care for the following: (Please check all that apply)

- ☐ Depression
- ☐ Anxiety disorders (panic attacks, post traumatic stress disorder)
- ☐ Addictions
- ☐ Bipolar disorder
- ☐ Schizophrenia
- ☐ Borderline personality disorder
- ☐ Stress
- ☐ Anger management
- ☐ Grieving or bereavement
- ☐ Eating disorders
- ☐ Relationship issues
- ☐ Suicidal thoughts
- ☐ Couples/Relationship counselling
- ☐ Dissociative identity disorders (e.g. multiple personality disorder)
- ☐ Other, please specify: _____

F3. Who did you see or talk to? (Please check all that apply)

- ☐ Family doctor or general practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Nurse
- ☐ Social worker or counsellor
- ☐ Aboriginal Elder
- ☐ Religious or spiritual leader
- ☐ Support group
- ☐ Other, please specify: _____

F4. For each of the following, when seeing a mental health provider for reasons other than being trans, has a mental health provider ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ None of the above

F5. When seeing a mental health provider for reasons other than being trans, have you ever had to educate that mental health provider regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

F6. In the past 12 months, have you used mental health care services for reasons other than being trans?

- ○ Yes
- ○ No (skip to Section G)

F7. Whom did you see or talk to **in the past 12 months**? (Please check all that apply)

- ☐ Family doctor or general practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Nurse
- ☐ Social worker or counsellor
- ☐ Aboriginal Elder
- ☐ Religious or spiritual leader
- ☐ Support group
- ☐ Other, please specify: _____

F8. In the **last 12 months**, how satisfied were you with your experience(s) with mental health care providers?

- ◯ Very satisfied
- ◯ Satisfied
- ◯ Neither satisfied nor dissatisfied
- ◯ Dissatisfied
- ◯ Very dissatisfied

Caleb Nault

Caleb is a white, 24 year old, queer-identified trans guy who is currently completing his MA in Sociology at York University. He is a member of the provincial Community Engagement Team which guides the Trans PULSE Project. Caleb comes from a family of truck drivers and loves to travel (by bike during the summer, and grudgingly by transit in the winter). His current research interests include the negotiation of trans subjectivity and the autobiographical imperative, social determinants of health for trans people, theorizing the body, autoethnographic research methods, and anti-psychiatry, madness, and whiteness studies. He currently lives in Parkdale with his amazing partner, Megan, and their cat, Chandler.

G. Trans-related Mental Health Care

G1. Have you ever used mental health services related to your trans identity or experience?

- ○ Yes
- ○ No (Skip to Section H)

G2. Whom did you see or talk to? (Please check all that apply)

- ☐ Family doctor or general practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Nurse
- ☐ Social worker or counsellor
- ☐ Aboriginal Elder
- ☐ Religious or spiritual leader
- ☐ Support group
- ☐ Other, please specify: _____

G3. At what age did you first see a mental health care provider to discuss your trans identity or experience?

Years old ☐

G4. Thinking back to your overall experiences discussing your needs as a trans person with a mental health care provider, how satisfied were you with your experience?

- ○ Very satisfied
- ○ Satisfied
- ○ Equally satisfied and dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

G5. Thinking back to your most recent experience discussing your needs as a trans person with a mental health care provider, how satisfied were you with your experience?

- ○ Very satisfied
- ○ Satisfied
- ○ Equally satisfied and dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

G6. For each of the following, when you used mental health care services related to your trans identity, has a mental health care provider ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ None of the above

G7. When using mental health care services related to your trans identity, have you ever had to educate your mental health provider regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

G8. In the past 12 months, have you used mental health care services related to your trans identity or experience?

- ○ Yes
- ○ No (skip to Section H)

G9. Whom did you see or talk to in the past 12 months? (Please check all that apply)

- ☐ Family doctor or general practitioner
- ☐ Psychiatrist
- ☐ Psychologist
- ☐ Nurse
- ☐ Social worker or counsellor
- ☐ Aboriginal Elder
- ☐ Religious or spiritual leader
- ☐ Support group
- ☐ Other, please specify: _____

Matt Lundie

Matt is an Ottawa-area FTM who has been involved in the Ottawa queer communities for the past 10 years and is a member of the GBQ Trans Mens' Working Group. Currently a public servant working in an unrelated field, Matt's experience includes facilitating workshops for various community-driven initiatives, volunteering for the Ottawa Men's Survey, OASIS (a drop-in centre for street active and at-risk people), the Ottawa Police Liaison Committee, and the GLBT Cultural Competence Project.

H. HIV and Sexually Transmitted Infections

H1. In your lifetime, have you been diagnosed with any of the following? (Please check all that apply)

- ☐ Gonorrhoea (the clap)
- ☐ Chlamydia
- ☐ Genital herpes
- ☐ Syphilis
- ☐ HPV (Genital or anal warts)
- ☐ Abnormal Pap test (cervical HPV)
- ☐ Hepatitis B
- ☐ Hepatitis C
- ☐ I have not been diagnosed with any of these
- ☐ I'd rather not say

H2. In the past 12 months, have you been diagnosed with any of the following? (Please check all that apply)

- ☐ Gonorrhoea (the clap)
- ☐ Chlamydia
- ☐ Genital Herpes
- ☐ Syphilis
- ☐ HPV (Genital or anal warts)
- ☐ Abnormal Pap test (cervical HPV)
- ☐ Hepatitis B
- ☐ Hepatitis C
- ☐ I have not been diagnosed with any of these
- ☐ I'd rather not say

H3. Have you ever not gotten tested, or delayed getting tested for HIV for any of these reasons? (Please check all that apply)

- ☐ It was not important to me to get tested
- ☐ I hadn't had sex recently, so I didn't believe I needed to get tested
- ☐ I always had safer sex, so I didn't believe I needed to get tested
- ☐ I felt healthy, so I didn't believe I needed to get tested
- ☐ I didn't know where to get anonymous testing
- ☐ I didn't want my partner to know I got tested
- ☐ I didn't want other people to know I got tested
- ☐ I was afraid I might be HIV positive
- ☐ The HIV testing staff are/have been hostile or insensitive to me
- ☐ I don't believe I'm at risk
- ☐ I didn't want my insurance company to know my HIV status
- ☐ I always used clean needles so I didn't believe I needed to get tested
- ☐ I have delayed getting tested, or not gotten tested for other reasons (please specify):

H4. Have you ever had an HIV test?

- ○ Yes
- ○ No (skip to Question H6)

H5. When was your most recent HIV test?

- ○ Less than 6 months ago
- ○ 6 months to less than 1 year ago
- ○ 1 to less than 2 years ago
- ○ 2 or more years ago

Evana Ortigoza

My name is Evana Ortigoza. I was born in Maracaibo, Venezuela on January 28 1965. My family sent me away at the age of 12 to Spain and I studied a marketing degree and Ballet from the University of Barcelona. When I came to Canada in 1994 I danced with the National Ballet of Canada for 4 years. I am currently an Outreach Worker at The 519 Community Centre working with trans women who are working in the sex-trade in downtown Toronto. I also help to coordinate the weekly Meal Trans Drop-In for low-income trans people. I am forever grateful for the opportunity to work with other trans people and to improve my own life. Evana is a member of the provincial Community Engagement Team which guides the Trans PULSE Project.

H6. Why have you gone to get an HIV test? (Please check all that apply)

- ☐ Someone suggested I should be tested
- ☐ I felt I had unsafe sex
- ☐ I had sex with someone who I knew was HIV positive
- ☐ I had sex with someone who I suspected was HIV positive
- ☐ I shared needles or drug-using equipment
- ☐ I thought I might have been exposed at work
- ☐ I just wanted to find out if I was infected or not
- ☐ It was part of a routine medical check-up, or for hospitalization or surgical procedure
- ☐ I was feeling sick
- ☐ I had been sexually assaulted
- ☐ I had to for life insurance coverage
- ☐ I had to for immigration
- ☐ I was concerned I could give HIV to someone
- ☐ No particular reason
- ☐ Don't know
- ☐ Some other reason (please specify): _____

I. HIV-Related Care

I1. Are you….?

- ◯ HIV Positive
- ◯ HIV Negative (skip to Section J)
- ◯ I don't know (skip to Section J)
- ◯ I would rather not say (skip to Section J)

I2. When did you find out that you are HIV positive?

Year [ ] Month [ ]

I3. Of the following options, which best describes the way you most likely became HIV positive? (Please check only ONE response)

- ◯ I don't know
- ◯ Unprotected sex
- ◯ Broken condom or other failed barrier
- ◯ Sharing needles or other drug-using equipment
- ◯ Sharing needles while injecting hormones or silicone
- ◯ Received tainted blood product
- ◯ Sexually assaulted or raped
- ◯ Needle stick as a health care worker
- ◯ Tattoo or piercing
- ◯ Born with HIV
- ◯ Other, please specify: [ ]

I4. Do you currently have a doctor who regularly treats you for your HIV-related needs?

- ◯ Yes
- ◯ No

I5. For each of the following, has the doctor(s) who provides your HIV care ever…? (Please check all that apply)

- ☐ Refused to see you or ended care because you were trans
- ☐ Used hurtful or insulting language about trans identity or experience
- ☐ Refused to discuss or address trans-related health concerns
- ☐ Told you that you were not really trans
- ☐ Discouraged you from exploring your gender
- ☐ Told you they don't know enough about trans-related care to provide it
- ☐ Belittled or ridiculed you for being trans
- ☐ Thought the gender listed on your ID or forms was a mistake
- ☐ Refused to examine parts of your body because you're trans
- ☐ None of the above
- ☐ I have never seen a doctor for HIV-related needs

I6. Have you ever had to educate the doctor who provides your HIV care regarding your needs as a trans person?

- ○ Yes, provided a lot of education
- ○ Yes, provided some education
- ○ Yes, provided a little education
- ○ No

I7. Are you currently taking any medications to treat HIV/AIDS?

- ○ Yes
- ○ No (skip to Section J)

I8. Are you currently taking trans-related hormones with your HIV medications?

- ○ Yes
- ○ No (skip to Section J)

I9. Does the doctor who prescribed your HIV medications know you also take hormones?

- ○ Yes
- ○ No
- ○ I don't know

I10. Did the doctor discuss any possible interactions between the hormones and the HIV medications, or the effects of HIV on hormonal levels in your body?

- ◯ Yes
- ◯ No
- ◯ I don't recall

Catherine Purdie

Catherine refers to herself as a "grass roots, low key influencer" and takes advantage of every opportunity to participate in speaking events to educate the public that transgender people have a lot to offer society. Before retiring in October 2007 she worked in senior management at a financial institution where she developed a strong background in technology and senior management, and took pride in developing many other leaders and leading large projects. She now spends her time actively involved in several GLBT and non-GLBT organizations in the Ottawa area and pursuing her hobby of writing and photography. Catherine is a member of the Trans PULSE's provincial Community Engagement Team.

J. Gender-Related Hormones

J1. What is your primary source of information regarding hormones?

- ◯ Family
- ◯ Friends
- ◯ Internet / Websites
- ◯ Trans community people and organizations
- ◯ Doctor (GP, Specialist)
- ◯ Medical Journals
- ◯ Other(s), please specify: [ ]

J2. Do you feel you have enough information about hormones for gender transition or gender confirmation?

- ◯ Yes
- ◯ No
- ◯ Not Sure
- ◯ I do not need information on hormones

J3. Do you have prescription drug coverage of any kind?

- ◯ Yes, through the province (Ontario Drug Benefits or Trillium Drug Program)
- ◯ Yes, through employer- or school-provided insurance
- ◯ Yes, through parent's insurance
- ◯ Yes, through private insurance I have purchased
- ◯ Yes, through having Aboriginal status
- ◯ Yes, through the military
- ◯ Yes, through the federal prison system
- ◯ No

J4. Whether or not you are now taking them, do you have prescription drug coverage for hormones?

- ◯ Yes
- ◯ No
- ◯ Not sure

J5. Have you ever tried to get a prescription for hormones and not been able to?

- ◯ Yes
- ◯ No
- ◯ I have never tried to get a prescription for hormones

J6. Have you ever taken hormones for trans-related reasons?

- ◯ Yes (skip to Question J7)
- ◯ No

J6a. If you have never taken hormones, which best describes your situation?

- ◯ Not planning on taking hormones
- ◯ Still deciding if taking hormones is right for me
- ◯ Can't find a doctor to prescribe hormones
- ◯ Other, please specify: _____

If you have never taken any hormones, please skip to Section K

Devi McCallion

Devi is an enthused seventeen year old transwoman who's modest, yet lustrous personality doesn't particularly shine through the medium of a short bio written in third person. When she's not pretending to be the type of person to regularly use the world lustrous, Devi dedicates time to local peer outreach groups and fussily contributes to her ever-growing song writing catalogue. After years spent particularly muted as a home-schooled youth in a small town, she's doing her best to make up for lost time by propelling herself deeply into what she believes to be a more responsible level of social activism.

J7. In the following table, please specify whether you have ever taken any of the listed hormones, the year you started taking each type of hormone(s), and the total amount of time you have been on each hormone, excluding any breaks.

Column 1	Column 2	Column 3	Column 4
Hormones	Have you ever taken the hormone (s) listed in Column 1?	If you check `yes' for any hormone in Column 2, please state the year you **first** started taking the hormone(s)	If you check `yes' for any hormone in Column 2, please state the total amount of time you've been on the hormone(s), excluding any breaks
Progesterone	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Estrogen	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Testosterone blockers/ anti-androgens	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Testosterone	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Puberty blockers	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Other, please specify: ☐	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐
Other, please specify: ☐	◯ Yes→ ◯ No	Year ☐	Years ☐ Months ☐

J8. From which source(s) have you ever received your hormones? (Please check all that apply)

- ☐ Family doctor or GP
- ☐ Specialist (e.g. endocrinologist)
- ☐ Internet pharmacy
- ☐ Friend or relative
- ☐ Street/strangers
- ☐ Herbals or supplements
- ☐ Veterinary sources
- ☐ Other(s), please specify: ☐

J9. Do you currently take hormones?

- ○ Yes, under medical supervision
- ○ Yes, without medical supervision
- ○ No (skip to Section K)

J10. Which hormone(s) are you currently taking? (Please check all that apply)

- ☐ Progesterone
- ☐ Estrogen
- ☐ Anti-androgens / Testosterone blockers
- ☐ Testosterone
- ☐ Puberty blockers
- ☐ Other(s), please specify: _____

J11. From which source(s) do you currently get your hormones? (Please check all that apply)

- ☐ Family doctor or GP
- ☐ Specialist (e.g. endocrinologist)
- ☐ Internet pharmacy
- ☐ Friend or relative
- ☐ Street/strangers
- ☐ Herbals or supplements
- ☐ Veterinary sources
- ☐ Other(s), please specify: _____

J12. Have you ever received blood tests to monitor the effect of hormones on your body?

- ○ Yes, I receive regular blood tests
- ○ Yes, but not regularly
- ○ No
- ○ I'm not sure whether blood tests were done

J13. Do you take hormones by injection?

- ○ Yes
- ○ No (skip to Section K)

J14. Where do you get your syringes or needles? (Check all that apply)

- ☐ Pharmacy
- ☐ Doctor's office
- ☐ Friends
- ☐ Needle exchange
- ☐ Street
- ☐ Other(s), please specify: _____

J15. Have you ever been in a situation where you had to use a needle or syringe to inject your hormones that had been used before by someone else?

- ○ Yes
- ○ No
- ○ Don't know

J16. Do you think you have enough knowledge about how to safely inject hormones?

- ○ Yes
- ○ No
- ○ Don't know

K. Surgery and Body Modifications

K1. For each of the following procedures, please indicate which applies to you:

	Don't want/need	Considering	Want	Have had	Year had or started	Number of revisions (follow-up surgeries)
Orchiectomy (removal of testicles)	○	○	○	○	☐	☐
Vaginoplasty (SRS/GRS; making a vagina)	○	○	○	○	☐	☐
Hysterectomy (removal of uterus)	○	○	○	○	☐	☐
Oophorectomy (removal of ovaries)	○	○	○	○	☐	☐
Metaoidioplasty (releasing the clitoris)	○	○	○	○	☐	☐
Urethral lengthening	○	○	○	○	☐	☐
Testicular Implants (creating testicles)	○	○	○	○	☐	☐
Phalloplasty (making a penis)	○	○	○	○	☐	☐
Breast Augmentation (making breasts bigger)	○	○	○	○	☐	☐
Breast Reduction (making breasts smaller)	○	○	○	○	☐	☐
Mastectomy or Chest Reconstruction (`top surgery')	○	○	○	○	☐	☐
Facial Surgeries (feminization/ masculinization)	○	○	○	○	☐	☐
Vocal Chord Surgery (making voice higher)	○	○	○	○	☐	☐
Facial Hair Removal (laser or electrolysis)	○	○	○	○	☐	
Adams Apple Shave	○	○	○	○	☐	☐
Hair Transplants	○	○	○	○	☐	
Other, please specify: ☐	○	○	○	○	☐	☐

K2. How much money have you spent out-of-pocket on hormones, silicone and any of the above procedures?

- ○ None
- ○ $1 to less than $1,000
- ○ $1,000 to less than $2,500
- ○ $2,500 to less than $5,000
- ○ $5,000 to less than $10,000
- ○ $10,000 to less than $20,000
- ○ $20,000 to less than $50,000
- ○ $50,000 to less than $100,000
- ○ $100,000 or more

K3. Have you ever performed any of the above procedures on yourself?

- ○ Yes
- ○ No

K3a. If so, please tell us what you did:

K4. Have you ever injected silicone?

- ○ Yes
- ○ No (skip to Section L)

K5. In the past 12 months, how many times have you injected silicone?

- ○ None
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ More than 5 times

K6. Have you ever been in a situation where you had to use a needle or syringe to inject silicone that had been used before by someone else?

- ○ Yes
- ○ No
- ○ Don't know

L. Making Money

L1. Do you currently have any of the following assets? (Please check all that apply)

- ☐ Retirement savings (RRSPs, RIFs, or pension from employer)
- ☐ GICs, stocks, or mutual funds outside of RRSPs
- ☐ Home you own
- ☐ Rental property (residential or commercial)
- ☐ Car that is owned outright
- ☐ None of the above
- ☐ Other assets, please specify: _____

L2. Do you currently have any of the following debts? (Please check all that apply)

- ☐ Credit card debt
- ☐ Line of credit
- ☐ Mortgage
- ☐ Loan debt (e.g. car loan, medical loan, student loan)
- ☐ None of the above
- ☐ Other, please specify: _____

L3. Has being trans affected your credit history?

- ○ Yes, for the better
- ○ Yes, for the worse
- ○ No

Michelle Le-Claire

Michelle is a trans-activist who is actively involved in fighting for Trans Human Rights. She is the Executive elected as Commissioner of Advocacy and Equity on the Board of Directors Executive Committee for the Students' Association of George Brown College. It is there that she is earning her SSW diploma as a full time student, and has intentions to further her education through attaining her MSW degree. She also co-facilitates Trans Youth Toronto at The 519, is part of THRIVE!-TS/TG Housing and Employment Program at the Fred Victor Centre, a Programming Committee Member for Egale's Gender Variance Conference, and volunteers for many other not-for-profit organizations. Her key interests are fighting oppression and advocating for trans communities, in particularly, gender variant and/or trans youth. Michelle is a member of Trans PULSE's provincial Community Engagement Team, helping to guide the Project.

L4. Which of the following describes your employment situation? (Check all that apply)

- ☐ Employed in a permanent full-time position (35 hours or more per week)
- ☐ Employed in a permanent part-time position (less than 35 hours per week)
- ☐ Employed on contract full-time (35 hours or more per week as a temporary or casual worker)
- ☐ Employed on contract part-time (less than 35 hours per week as a temporary or casual worker)
- ☐ Self-employed full-time (35 hours or more per week)
- ☐ Self-employed part-time (less than 35 hours per week)
- ☐ On leave from work
- ☐ Not employed (not a student, retired, or disabled)
- ☐ Student
- ☐ Retired
- ☐ Receiving disability (ODSP)
- ☐ Receiving Employment Insurance (EI)
- ☐ Receiving General Social Assistance (welfare or workfare)

L5. About how many hours a week do you usually work at your job or business? If you usually work extra hours, paid or unpaid, please include these hours.

Hours ☐

L6. How many jobs do you currently have?

Number of jobs ☐

L7. How long have you been in your current job (if you work multiple jobs, respond based on the longest job you currently have)?

Months ☐ Years ☐

L8. What type of paid work do you do right now (Check all that apply)?

- ☐ No paid work
- ☐ Accounting/Finance/Insurance/Banking
- ☐ Administrative/Clerical
- ☐ Aesthetics/Hair/Make-up
- ☐ Agriculture, Forestry, & Fishing
- ☐ Arts, Entertainment, and Media
- ☐ Automotive/Motor Vehicle
- ☐ Building Construction/Skilled Trades
- ☐ Business
- ☐ Computer Services/Hardware/Software
- ☐ Consulting Services
- ☐ Counselling
- ☐ Creative/Design
- ☐ Customer Support/Client Care
- ☐ Drug Trade
- ☐ Editorial/Writing
- ☐ Education/Training
- ☐ Electronics
- ☐ Engineering
- ☐ Escort work
- ☐ Food Services/Hospitality/Travel/Tourism
- ☐ Government and Policy
- ☐ Healthcare/medicine
- ☐ Legal services/law
- ☐ Manufacturing
- ☐ Military
- ☐ Nonprofit
- ☐ Personal Care and Service
- ☐ Printing/Editing/Writing
- ☐ Research/academia
- ☐ Retail/Sales
- ☐ Science/biotechnology
- ☐ Sex Work
- ☐ Sports and Recreation/Fitness
- ☐ Other, please specify: _____

L9. How satisfied are you with your job or main activity?

- ○ Very satisfied
- ○ Satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied

L10. Right now, do you work in the field/job you would like to be working in?

- ○ Yes (skip to Question L11)
- ○ No

L10a. Why are you not working in the field/job you would like to be working in? (Please check all that apply)

- ☐ There are no jobs available in my field
- ☐ Do not have necessary education/training
- ☐ Education/training earned in another country is not recognized as equivalent in Canada
- ☐ Fear of discrimination for being trans
- ☐ Previous experiences of discrimination for being trans
- ☐ Employers do not accommodate my disability
- ☐ Disability
- ☐ Other, please specify: _____

L10b. What is the one main reason why you are not working in the field/job you would like to be working in?

- ○ There are no jobs available in my field
- ○ Do not have necessary education/training
- ○ Education/training earned in another country is not recognized as equivalent in Canada
- ○ Fear of discrimination for being trans
- ○ Previous experiences of discrimination for being trans
- ○ Other forms of discrimination
- ○ Employers do not accommodate my disability
- ○ Other, please specify: _____

L11. Have you ever done sex work or exchanged sex for money or other resources (e.g. shelter, drugs, food)?

- ○ Yes
- ○ No (skip to Question L12)

L11a. If yes, what were your reasons for doing so? (Please check all that apply)

- ☐ It paid well
- ☐ It was necessary to pay for living expenses
- ☐ It was necessary to pay for transition-related expenses (e.g. surgery, hormones)
- ☐ To be part of a community
- ☐ To affirm my gender identity
- ☐ It made me feel attractive
- ☐ None of the above

L11b. How would you describe your experience with sex work?

- ○ Entirely positive
- ○ Mostly positive
- ○ An equal mix of positive and negative
- ○ Mostly negative
- ○ Entirely negative

L12. When applying for a job, have you ever not provided references from a previous job because of your trans identity or experience?

- ○ Yes
- ○ No

L13. Have you ever declined a job offer due to a lack of a trans-positive work environment?

- ○ Yes
- ○ No

L14. Do you believe you've ever been turned down for a job because you are trans?

- ○ Yes
- ○ No
- ○ Unsure

L15. If you medically and/or socially transitioned in the workplace, how often were your employers and coworkers accepting during this period of time?

- ◯ Always
- ◯ Very frequently
- ◯ Occasionally
- ◯ About half the time
- ◯ Rarely
- ◯ Very rarely
- ◯ Never

L16. Have you ever been fired, constructively dismissed, or laid off because of your trans identity or gender expression?

- ◯ Yes
- ◯ No
- ◯ Not sure

L17. Please rank your monthly expenses from most important to least important, with 1 being the most important.

Designate all items that are not expenses for you because you don't have them or they are paid by someone else as not applicable ("NA"):

Rent or home payment	
Groceries	
Hormones	
Other prescription drugs	
Alcohol and/or recreational drugs	
Saving for surgery	
Transportation-related expenses	
Hair removal	
Saving money for education	
Paying off money borrowed for education (student loan)	
Paying off money borrowed for surgery or other gender-related medical care	
Paying off other debt	
Clothing	
Vacation	
Entertainment	
Providing for my children	
Sending money home to family	
Saving money for retirement	
Saving money for other purposes	
Legal expenses	
Counselling	

M. Living and Eating

M1. Which of the following statements best describes the food eaten in your household in the past 12 months? (Choose ONE)

- ◯ You and your household always had enough of the kinds of food you wanted to eat
- ◯ You and your household had enough to eat, but not always the kinds of food you wanted
- ◯ Sometimes you and your household did not have enough to eat
- ◯ Often you and your household didn't have enough to eat
- ◯ Don't know

M2. Was that often true, sometimes true, or never true in the past 12 months?

- ◯ Often true
- ◯ Sometimes true
- ◯ Never true
- ◯ Don't know

M3. Which best describes your current housing situation?

- ◯ I own a house
- ◯ I rent a house
- ◯ I own an apartment or condo
- ◯ I rent an apartment or condo
- ◯ I live in housing on a Reserve
- ◯ I live on a Metis Settlement
- ◯ I live in an Inuit Hamlet
- ◯ I live in subsidized or public housing
- ◯ I live in a group home
- ◯ I live in a long-term care facility
- ◯ I live with my parents or family
- ◯ I live in a seniors home or retirement home
- ◯ I live in a boarding school
- ◯ I live in a student residence
- ◯ I live in a self-contained room in a motel or boarding house
- ◯ I couch-surf or stay at a friend's house
- ◯ I am squatting
- ◯ I live on the street
- ◯ I live in a rehabilitation facility
- ◯ I live in military housing
- ◯ I live in a prison
- ◯ Other, please specify: [ ]

M4. In the past 5 years, how many different places have you lived?

Number of places ☐

M5. How long have you been in your current dwelling?

Years ☐ Months ☐

M6. Have you ever moved to a different city or town for your own safety because you were trans?

- ◯ Yes
- ◯ No

M7. Have you ever moved to a different city or town to be closer to trans-related services you needed?

- ◯ Yes
- ◯ No

M8. Have you ever been asked or told to leave your parent's or other guardian's house (where you were living) for being trans?

- ◯ Yes
- ◯ No
- ◯ I was not out as trans while living with parents/family

M9. Have you ever been asked or told to leave your home by your spouse or partner (who you were living with) for being trans?

- ◯ Yes
- ◯ No
- ◯ I have never been out as trans while living with a partner or spouse

M10. Has being trans affected your rental history?

- ◯ Yes, for the better
- ◯ Yes, for the worse
- ◯ No

M11. Considering your income, how difficult is it for you to meet your monthly housing-related costs? Housing costs include rent, mortgage, property taxes and utilities only.

- ◯ Very difficult
- ◯ Fairly difficult
- ◯ A little difficult
- ◯ Not difficult at all
- ◯ I don't know
- ◯ I'd rather not say

M12. Have you ever lost housing or a housing opportunity due to your trans status or gender expression?

- ◯ Yes
- ◯ No
- ◯ Unsure

M13. Are you worried that you will lose your housing because of your trans status or gender expression?

- ◯ Yes
- ◯ No

M14. Have you ever accessed a shelter as a trans person?

- ◯ Yes
- ◯ No (skip to Question M15)

M14a. As a trans person, did you feel safe at the shelter?

- ◯ Yes
- ◯ No

M14b. At the shelter, did you experience hostility or verbal harassment because of your trans status or gender expression?

- ◯ Yes
- ◯ No

M14c. At the shelter, did you experience physical harassment or violence because of your trans status or gender expression?

- ◯ Yes
- ◯ No

M15. Have you ever been refused access to a shelter because of your trans status or gender expression?

- ○ Yes
- ○ No
- ○ I have never attempted to access a shelter

M16. Have you avoided accessing a shelter due to transphobia?

- ○ Yes
- ○ No
- ○ I have never attempted to access a shelter

These next few questions are about your history of homelessness. By homeless we mean that you don't have a fixed, regular, and adequate night-time residence or you stay in a shelter, welfare hotel, transitional program or any place not usually used for sleeping, such as streets, cars, movie theatres, abandoned buildings, etc. People living in jail are not considered homeless.

M17. Based on the above definition, have you ever been homeless while presenting in your felt gender?

- ○ Yes
- ○ No (skip to Question M20)

M18. Are you currently homeless?

- ○ Yes
- ○ No

M19. Thinking about your most recent or current episode of homelessness, where did you sleep or where are you sleeping?

- ○ In a shelter
- ○ Outside on the street
- ○ In a motel or hotel
- ○ Outside in parks
- ○ With a friend or friends
- ○ In a car
- ○ With a family member
- ○ Other, please specify: _____

M20. Have you ever spent any time in a jail, presenting as your felt gender?

- ◯ Yes, both federal and provincial
- ◯ Yes, federal
- ◯ Yes, provincial
- ◯ No (skip to Section N)

M20a. Were you in a jail appropriate to your felt gender?

- ◯ Yes
- ◯ No
- ◯ Some of the time

M20b. As a trans person, did you usually feel safe in jail?

- ◯ Yes
- ◯ No

M20c. In jail, did you experience hostility or verbal harassment in jail because of your trans status or gender expression?

- ◯ Yes
- ◯ No

M20d. In jail, did you experience physical harassment or violence because of your trans status or gender expression?

- ◯ Yes
- ◯ No

M21. In the past twelve months, have you spent any time in a jail?

- ◯ Yes, both federal and provincial
- ◯ Yes, federal
- ◯ Yes, provincial
- ◯ No

N. Your Life Experiences

Next are some questions about the support that is available to you.

N1. About how many close friends and close relatives do you have, that is, people you feel at ease with and can talk to about what is on your mind?

Number of close friends ☐

N2. How often is each of the following kinds of support available to you if you need it:

	None of the time	A little of the time	Some of the time	Most of the time	All of the time
Someone to help you if you were confined to bed?	○	○	○	○	○
Someone you can count on to listen to you when you need to talk?	○	○	○	○	○
Someone to give you advice about a crisis?	○	○	○	○	○
Someone to take you to the doctor if you needed it?	○	○	○	○	○
Someone who shows you love and affection?	○	○	○	○	○
Someone to have a good time with?	○	○	○	○	○
Someone to give you information in order to help you understand a situation?	○	○	○	○	○
Someone to confide in or talk to about yourself or your problems?	○	○	○	○	○
Someone who hugs you?	○	○	○	○	○
Someone to get together with for relaxation?	○	○	○	○	○
Someone to prepare your meals if you were unable to do it yourself?	○	○	○	○	○
Someone whose advice you really want?	○	○	○	○	○
Someone to do things with to help you get your mind off things?	○	○	○	○	○
Someone to help with daily chores if you were sick?	○	○	○	○	○
Someone to share your most private worries and fears with?	○	○	○	○	○
Someone to turn to for suggestions about how to deal with a personal problem?	○	○	○	○	○
Someone to do something enjoyable with?	○	○	○	○	○
Someone who understands your problems?	○	○	○	○	○
Someone to love you and make you feel wanted?	○	○	○	○	○

N3. How often do people you encounter perceive you as a person of colour?

- ◯ Always
- ◯ Very frequently
- ◯ Occasionally
- ◯ About half the time
- ◯ Rarely
- ◯ Very rarely
- ◯ Never

N4. For each of the following, please indicate how often you've had this experience.

	Never	Once or twice	Sometimes	Many times
1. As you were growing up, how often were made fun of or called names because of your race or ethnicity?	◯	◯	◯	◯
2. As you were growing up, how often were you hit or beaten up because of your race or ethnicity?	◯	◯	◯	◯
3. As an adult, how often were you made fun of or called names because of your race or ethnicity?	◯	◯	◯	◯
4. How often were you treated rudely or unfairly because of your race or ethnicity?	◯	◯	◯	◯
5. How often have you experienced some form of police harassment because of your race or ethnicity?	◯	◯	◯	◯
6. How often have you been turned down for a job because of your race or ethnicity?	◯	◯	◯	◯
7. How often have been uncomfortable in trans spaces because of your race or ethnicity?	◯	◯	◯	◯
8. How often have had difficulty finding lovers because of your race or ethnicity?	◯	◯	◯	◯
9. How often have you been objectified sexually because of your race or ethnicity?	◯	◯	◯	◯
10. In sexual relationships, how often do you find that partners pay more attention to your race or ethnicity than to who you are as a person?	◯	◯	◯	◯

N5. How accepting of ethno-racial diversity is the trans community?

- ◯ Completely accepting
- ◯ Mostly accepting
- ◯ Somewhat accepting
- ◯ Slightly accepting
- ◯ Not at all accepting

N6. How accepting of gender diversity is your ethno-racial community?

- ◯ Completely accepting
- ◯ Mostly accepting
- ◯ Somewhat accepting
- ◯ Slightly accepting
- ◯ Not at all accepting

N7. How often do people you encounter know you are trans without being told so?

- ◯ Always
- ◯ Very frequently
- ◯ Occasionally
- ◯ About half the time
- ◯ Rarely
- ◯ Very rarely
- ◯ Never

N8. In general, do you **want** people to know you're trans without being told?

- ◯ Yes
- ◯ No
- ◯ Don't care

N9.	Never	Once or Twice	Sometimes	Many times
How often have you been made fun of or called names for being trans?	◯	◯	◯	◯
How often have you been hit or beaten up for being trans?	◯	◯	◯	◯
How often have you heard that trans people are not normal?	◯	◯	◯	◯
How often have you been objectified or fetishized sexually because you're trans?	◯	◯	◯	◯
How often have you felt that being trans hurt and embarrassed your family?	◯	◯	◯	◯
How often have you had to try to pass as non-trans to be accepted?	◯	◯	◯	◯
How often do you suspect you have been turned down for a job because of your trans identity?	◯	◯	◯	◯
How often have you had to move away from your family or friends because you're trans?	◯	◯	◯	◯
How often have you experienced some form of police harassment for being trans?	◯	◯	◯	◯
How often do you worry about growing old alone?	◯	◯	◯	◯
How often do you fear you will die young?	◯	◯	◯	◯

Questions N10 to N15 are intended for those who have begun social transition or re living in their felt gender. If this does not apply to you, please skip to Question N16.

N10. In general, how supportive of your gender identity or expression are the following people? (Please check one for each)

	Not at all supportive	Not very supportive	Somewhat supportive	Very supportive	Not applicable
My parent(s)	○	○	○	○	○
My sibling(s)	○	○	○	○	○
My spouse(s) or partner(s)	○	○	○	○	○
My child(ren)	○	○	○	○	○
My extended family	○	○	○	○	○
My roommates	○	○	○	○	○
My trans friends	○	○	○	○	○
My non-trans friends	○	○	○	○	○
My church/temple/mosque	○	○	○	○	○
My cultural community	○	○	○	○	○
My co-workers	○	○	○	○	○
My employer	○	○	○	○	○
My supervisor/boss	○	○	○	○	○
My teachers	○	○	○	○	○
My school	○	○	○	○	○
My classmates	○	○	○	○	○

N11. Since starting your transition and/or coming out as trans, has the number of people you would call "close friends"…?

- ○ Increased a lot
- ○ Increased somewhat
- ○ Stayed about the same
- ○ Decreased somewhat
- ○ Decreased a lot

N12. Since transitioning or identifying as trans, has your quality of life...? (please check only one)

- ○ Gotten a lot better
- ○ Gotten somewhat better
- ○ Stayed the same
- ○ Gotten somewhat worse
- ○ Gotten a lot worse

N13. Have you ever experienced the following because you're trans or because of your gender expression? (Please check all that apply)

- ☐ Silent harassment (e.g. being stared at, being whispered about)
- ☐ Verbal harassment
- ☐ Physical intimidation and threats
- ☐ Physical violence (e.g. being hit, kicked or punched)
- ☐ Sexual harassment (e.g. cat calling, being propositioned)
- ☐ Sexual assault (e.g. unwanted sexual touching or sexual activity)

N14. If you experienced physical violence and/or sexual assaults, did you report the incident to the police?

- ◯ Yes
- ◯ No
- ◯ I have never experienced physical violence and/or sexual assaults

N15. Have you ever avoided any of the following situations because of a fear of being harassed, being read as trans, or being outed? (please check all that apply)

- ☐ Public transit
- ☐ Grocery store or pharmacy
- ☐ Malls or clothing stores
- ☐ Schools
- ☐ Travelling abroad
- ☐ Clubs or social groups
- ☐ Gyms
- ☐ Church/synagogue/temple or other religious institution
- ☐ Public washrooms
- ☐ Public spaces (e.g. parks)
- ☐ Restaurants or bars
- ☐ Cultural or community centres
- ☐ None of the above

Treanor Mahood-Greer

Treanor has many life experiences: per was a pig farmer, a prospector and now a social worker with a master's degree. Per is also an artist and an activist who maintains hir self-efficacy and balance by having JOHN WAYNE and Johnny Cash in hir life. Per attempts to help people understand gender theory through a trans-spiritual lens, by bringing together per's experiences from working in the bush, per's love of art and nature, and spirituality, and hir transgendered status. Per wants to create praxis, which becomes informed action not just dialogue in order to make a difference in this gendered world. Treanor is a member of the Community Engagement Team which guides the Trans PULSE Project.

If you have begun or completed a transition or come out as your felt gender, skip to N21.

N16. If you have not transitioned or come out, how supportive of your gender identity or expression do you expect the following people will be? (Please check one for each)

	Not at all supportive	Not very supportive	Somewhat supportive	Very supportive	Not applicable
My parent(s)	○	○	○	○	○
My sibling(s)	○	○	○	○	○
My spouse(s) or partner(s)	○	○	○	○	○
My child(ren)	○	○	○	○	○
My extended family	○	○	○	○	○
My roommates	○	○	○	○	○
My trans friends	○	○	○	○	○
My non-trans friends	○	○	○	○	○
My church/temple/mosque	○	○	○	○	○
My cultural community	○	○	○	○	○
My co-workers	○	○	○	○	○
My employer	○	○	○	○	○
My supervisor/boss	○	○	○	○	○
My teachers	○	○	○	○	○
My school	○	○	○	○	○
My classmates	○	○	○	○	○

N17. After you begin your transition or come out as trans, do you expect the number of people you would call "close friends" to…?

- ○ Increase a lot
- ○ Increase somewhat
- ○ Stay about the same
- ○ Decrease somewhat
- ○ Decrease a lot

N18. After you begin your transition or come out as trans, do you expect your quality of life will…?

- ○ Get a lot better
- ○ Get somewhat better
- ○ Stay the same
- ○ Get somewhat worse
- ○ Get a lot worse

N19. Do you expect that you will experience the following because you're trans or because of your gender expression? (Check all that apply)

- ☐ Silent harassment (e.g. being stared at, being whispered about)
- ☐ Verbal harassment
- ☐ Physical intimidation and threats
- ☐ Physical violence (e.g. being hit, kicked or punched)
- ☐ Sexual harassment (e.g. cat calling, being propositioned)
- ☐ Sexual assault (e.g. unwanted sexual touching or sexual activity)

N20. Do you expect that you will avoid any of the following situations because of a fear of being harassed, being read as trans, or being outed? (please check all that apply)

- ☐ Public transit
- ☐ Grocery store or pharmacy
- ☐ Malls or clothing stores
- ☐ Schools
- ☐ Travelling abroad
- ☐ Clubs or social groups
- ☐ Gyms
- ☐ Church/synagogue/temple or other religious institution
- ☐ Public washrooms
- ☐ Public spaces (e.g. parks)
- ☐ Restaurants or bars
- ☐ Cultural or community centres
- ☐ None of the above

N21. Do you personally know of other trans people who have experienced the following because they're trans or because of their gender expression? (please check all that apply)

- ☐ Silent harassment (e.g. being stared at, being whispered about)
- ☐ Verbal harassment
- ☐ Physical intimidation and threats
- ☐ Physical violence (e.g. being hit, kicked or punched)
- ☐ Sexual harassment (e.g. cat calling, being propositioned)
- ☐ Sexual assault (e.g. unwanted sexual touching or sexual activity)
- ☐ Committed suicide
- ☐ Been killed

N22. How would you describe your sense of belonging to your local community?

- ◯ Very strong
- ◯ Somewhat strong
- ◯ Somewhat weak
- ◯ Very weak

N23. How important is having a strong `trans community' to you?

- ◯ Very important
- ◯ Somewhat important
- ◯ Neutral
- ◯ Not too important
- ◯ Not important at all

N24. Are you a member of any voluntary organizations or associations?

	Trans or LGBT Organization	Other organization	No
School groups	☐	☐	☐
Religious social groups	☐	☐	☐
Community centers	☐	☐	☐
Support groups	☐	☐	☐
Ethnic or cultural associations	☐	☐	☐
Social, civic or fraternal clubs	☐	☐	☐
Other groups	☐	☐	☐

N25. How often did you participate in meetings or activities of these groups in the past 12 months? (If you belong to many, just think of the ones in which you are most active)

- ◯ At least once a week
- ◯ At least once a month
- ◯ At least 3 or 4 times a year
- ◯ At least once a year
- ◯ Not at all

The following questions relate to the sensitive issues of childhood sexual, physical and emotional abuse. If you need to speak to someone immediately regarding your childhood experiences, please contact the Abuse Victim Hotline at 1-877-448-8678.

These next questions are about experiences before age 16. If you've had any such experiences, they may be difficult to discuss and we appreciate your willingness to answer these questions.

N26. Before age 16, did you ever experience something sexual that you did not want, that felt inappropriate, or was at any time perceived as hurtful? Unwanted sexual experiences could include such things as watching someone having sex, touching someone or having them touch you sexually, or some other type of sexual activity including oral, anal, or vaginal intercourse or mutual masturbation.

- ○ Yes
- ○ No (skip to Question N27)
- ○ Don't know (skip to Question N27)
- ○ I'd rather not answer (skip to Question N27)

N26a. In the above experience(s), what was the relationship of the person(s) to you?

N26b. How old were you the **first** time this happened?

Years old ☐

N27. Before age 16, were you ever pushed, grabbed, shoved, kicked, punched or physically attacked in some other way?

- ○ Yes
- ○ No (skip to Question N28)
- ○ Don't know (skip to Question N28)
- ○ I'd rather not answer (skip to Question N28)

N27a. In the above experience(s), what was the relationship of the person(s) to you?

N27b. How old were you the **first** time this happened to you?

Years old ☐

N28. Before age 16, were you shamed, belittled, humiliated, or emotionally manipulated?

- ◯ Yes
- ◯ No (skip to Section O)
- ◯ Don't know (skip to Section O)
- ◯ I'd rather not say (skip to Section O)

N28a. In the above experience(s), what was the relationship of the person(s) to you?

N28b. How old were you the **first** time this happened to you?

Years old

Adrian Edgar

Adrian is a transguy in med school with a background in cross-cultural health, ethics, and Native studies. He does a lot of health activism but enjoys 'Peace through Health' and queer/trans health advocacy the most. Adrian worked on the Transgender Health Program's trans health survey in Vancouver last summer, and volunteered with Camp Ten Oaks for queer kids and kids with queer families the two summers before that. He is strongly committed to increasing community-based health services for Aboriginal people and Nations, and people in conflict with the law. Adrian is going to be a palliative care doctor and will work to increase understanding and respect for the needs and dignity of trans people at the end of their lives.

O. Parenting

O1. Would you like to have or adopt a child in the future?

- ◯ Yes
- ◯ No
- ◯ Undecided/Unsure

O2. Before medically transitioning, did your health care provider discuss the possibility of retaining sperm, eggs, or fertilized embryos for future fertility treatments?

- ◯ Yes
- ◯ No
- ◯ This does not apply to me

O3. Are you a parent, whatever this means to you?

- ◯ Yes
- ◯ No (skip to Section P)

O4. Which of the following describe your relationship to your children? (Check all that apply)

- ☐ I am a step parent
- ☐ I am a biological parent
- ☐ I am an adoptive parent
- ☐ I am a foster parent
- ☐ I am an intentional non-biological parent
- ☐ I am partnered with a biological parent of the child(ren)
- ☐ I am partnered with a step parent of the child(ren)
- ☐ I am partnered with an adoptive parent of the child(ren)
- ☐ I am partnered with a foster parent of the child(ren)
- ☐ I am partnered with an intentional non-biological parent of the child(ren)
- ☐ Other, please specify: _____

O5. Which of the following describes the legal custody status of your children?

- ◯ I have sole custody
- ◯ I have shared custody
- ◯ I am an access parent
- ◯ I am a supervised access parent
- ◯ I have no legal access to my children
- ◯ My children are adults
- ◯ Other, please specify: _____

O6. Have you ever lost or had custody reduced due to being trans?

- ◯ Yes, lost custody
- ◯ Yes, had custody reduced
- ◯ No

O7. How satisfied are you with your current custody arrangement?

- ◯ Completely satisfied
- ◯ Mostly satisfied
- ◯ Mostly dissatisfied
- ◯ Completely dissatisfied

O8. Do you see your children less due to being trans?

- ◯ Yes
- ◯ No
- ◯ Unsure

P. Sexual Activity and Sexual Health

In this section, we'd like to ask you questions about sex, specifically, who you're having sex with, what types of sex you're having, if any, and how you feel about your sex life and sexuality. We understand that these can be sensitive topics but we wanted to include these questions because sex and relationships can be important parts of our lives and can have a big impact on how we feel about ourselves.

We're asking you to please recall your sexual experiences over the last year and your lifetime. By "sex partners," please include everyone you've had sexual contact with, even once, including anal, oral, or genital sex.

P1. Over your lifetime, how many sex partners have you had?

Number of people ☐

☐ I have not yet had sex (skip to Section Q)

P2. In your lifetime, who have your sex partners been? (Please check all that apply)

☐ Trans men
☐ Non-trans men
☐ Trans women
☐ Non-trans women
☐ Genderqueer persons
☐ Unknown
☐ Other, please specify: ☐

P3. In the past 12 months, how many sex partners have you had?

Number of people ☐

☐ I have not had sex in the past 12 months

P4. In the past 12 months, who have your partners been? (Please check all that apply)

☐ Trans men
☐ Non-trans men
☐ Trans women
☐ Non-trans women
☐ Genderqueer persons
☐ Unknown
☐ Other, please specify: ☐

We all have different ways we talk about our bodies, and different words to refer to our tender parts. The following questions ask about your sexual experiences in the past 12 months. We will use this information responsibly. Whatever you're doing, we hope you're having a good time!

Since we cannot make assumptions about body parts, we won't. As a result, questions ask specifically about body parts, fluids and behaviours. If you are unwilling to share this information, please skip to Question P11.

P5. In the past 12 months, have you received oral sex from anyone?

- ○ Yes
- ○ No (skip to Question P6)

P5a. In the past 12 months, while receiving oral sex, how often did your partner(s) get your sex fluids or menstrual blood in their mouth(s)?

- ○ Every time
- ○ Most times
- ○ About half the time
- ○ Less than half the time
- ○ Never

P5b. Who was your partner(s) in this activity? (Please check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P6. In the past 12 months, have you given anyone oral sex?

- ○ Yes
- ○ No (skip to Question P7)

P6a. In the past 12 months, while performing oral sex, how often did you get sex fluids or menstrual blood in your mouth?

- ◯ Every time
- ◯ Most times
- ◯ About half the time
- ◯ Less than half the time
- ◯ Never

P6b. Who was your partner(s) in this activity? (check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P7. In the past 12 months, have you been the receptive partner in anal sex?

- ◯ Yes
- ◯ No (skip to Question P8)

P7a. Which of the following did your partner(s) use for penetration? (Check all that apply)

- ☐ Flesh genitals
- ☐ Silicone or latex
- ☐ Fingers or hands

P7b. In the past 12 months, while receiving anal sex, how often did your partner(s) ejaculate inside you (without a condom)?

- ◯ Every time
- ◯ Most times
- ◯ About half the time
- ◯ Less than half the time
- ◯ Never

P7c. Who was your partner(s) in this activity? (Check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P8. In the past 12 months, have you been the insertive partner in anal sex?

- ○ Yes
- ○ No (skip to Question P9)

P8a. Which of the following did you use for penetration? (check all that apply)

- ☐ Flesh genitals
- ☐ Silicone or latex
- ☐ Fingers or hands

P8b. In the past 12 months, as the insertive partner in anal sex, how often did you ejaculate inside your partner's ass (without a condom)?

- ○ Every time
- ○ Most times
- ○ About half the time
- ○ Less than half the time
- ○ Never

P8c. Who was your partner(s) in this activity? (please check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P9. In the past 12 months, have you been the receptive partner in genital sex (i.e. vaginal or front hole sex)?

- ○ Yes
- ○ No (skip to Question P10)

P9a. Which of the following did your partner(s) use for penetration? (check all that apply)

- ☐ Flesh genitals
- ☐ Silicone or latex
- ☐ Fingers or hands

P9b. In the past 12 months, while being the receptive partner in genital sex, how often did your partner ejaculate inside you (without a condom)?

- ○ Every time
- ○ Most times
- ○ About half the time
- ○ Less than half the time
- ○ Never

P9c. Who was your partner(s) in this activity? (please check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P10. In the past 12 months, have you been the insertive partner in genital sex (i.e. vaginal or front hole sex)?

- ○ Yes
- ○ No (skip to Question P11)

P10a. Which of the following did you use for penetration? (please check all that apply)

- ☐ Flesh genitals
- ☐ Silicone or latex
- ☐ Fingers or hands

P10b. In the past 12 months, while being the insertive partner in genital sex, how often did you ejaculate inside your partner (without a condom)?

- ◯ Every time
- ◯ Most times
- ◯ About half the time
- ◯ Less than half the time
- ◯ Never

P10c. Who was your partner(s) in this activity? (please check all that apply)

- ☐ Spouse/long-term lover
- ☐ Regular sex partner
- ☐ One time or occasional sex partner
- ☐ Regular partner who I pay (cash, drugs, shelter) for sex
- ☐ Regular partner who pays me (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who I pay (cash, drugs, shelter) for sex
- ☐ One time or occasional partner who pays me (cash, drugs, shelter) for sex

P11. In the past 12 months, have you ever had sex while drunk or high?

- ◯ Yes
- ◯ No

P12. Do you have a spouse or long term sexual partner?

- ◯ Yes
- ◯ No (skip to Question P13)

P12a. How often do you and your spouse or long-term sexual partner use condoms or other protective barriers (dental dam, latex glove, plastic wrap) during sex that involves sex fluids? Check ONE only:

- ◯ Always
- ◯ Most of the time
- ◯ Sometimes
- ◯ Rarely
- ◯ Never

P12b. Has your spouse or long-term sex partner been tested for HIV since their last risk activity?

- ◯ Yes
- ◯ No
- ◯ I'm not sure
- ◯ Not applicable

P12c. If your spouse or long-term sex partner has been tested for HIV, they are:

- ◯ The same HIV status than I am
- ◯ A different HIV status than I am
- ◯ I don't know as I don't know what the results of their test were
- ◯ I don't know as I haven't been tested
- ◯ I don't want to say
- ◯ Not applicable

P12d. Has your spouse or long-term sex partner been tested for other sexually transmitted infections (such as gonorrhea and chlamydia) since their last risk activity?

- ◯ Yes
- ◯ No
- ◯ I'm not sure
- ◯ Not applicable

P13. When you think about using protection with a partner (for example, a condom, dental dam, glove, or plastic wrap), how certain are you that you could use protection in the following scenarios? A `7' means that you're absolutely certain you could do what the question asks; a `1' means you're absolutely certain that you couldn't do what the question asks.

	Not at all Certain 1	**2**	**3**	**4**	**5**	**6**	**Absolutely Certain 7**
I can ask a new partner to use a protective barrier	◯	◯	◯	◯	◯	◯	◯
I can ask a partner I haven't been using protective barriers with to start using them	◯	◯	◯	◯	◯	◯	◯
I can refuse sex when I don't have a protective barrier available	◯	◯	◯	◯	◯	◯	◯
I can get a partner to use a protective barrier, even if I'm drunk or high	◯	◯	◯	◯	◯	◯	◯
I can get a partner to use a protective barrier, even if they don't want to.	◯	◯	◯	◯	◯	◯	◯
I can ask a partner who truly sees me as the gender I know myself to be to use a protective barrier	◯	◯	◯	◯	◯	◯	◯
I can ask a non-trans partner to use a protective barrier	◯	◯	◯	◯	◯	◯	◯
I can ask a trans partner to use a protective barrier	◯	◯	◯	◯	◯	◯	◯

P14. Please read each item and decide to what extent it is characteristic of you. Give each item a rating of how much it applies to you by using the following scale:

	Not at all	Slightly	Somewhat	Moderately	Very
I feel anxious when I think about the sexual aspects of my life.	○	○	○	○	○
I worry about the sexual aspects of my life.	○	○	○	○	○
Thinking about the sexual aspects of my life often leaves me with an uneasy feeling.	○	○	○	○	○
I am satisfied with the status of my own sexual fulfillment.	○	○	○	○	○
The sexual aspects of my life are personally gratifying to me.	○	○	○	○	○
The sexual aspects of my life are satisfactory, compared to most people's.	○	○	○	○	○
I am satisfied with the sexual aspects of my life.	○	○	○	○	○
I am satisfied with the way my sexual needs are currently being met.	○	○	○	○	○
I am afraid of becoming sexually involved with another person.	○	○	○	○	○
I have a fear of sexual relationships.	○	○	○	○	○
I am fearful of engaging in sexual activity.	○	○	○	○	○
I don't have much fear about engaging in sex.	○	○	○	○	○

P15. When I think about having sex, I worry…

	Not at all	Slightly	Somewhat	Moderately	Very
That other people think my body is unattractive	○	○	○	○	○
That there are very few people who would want to have sex with me	○	○	○	○	○
About my physical safety	○	○	○	○	○
About feeling ashamed about my body	○	○	○	○	○
That once I'm naked, people will not see me as the gender I am	○	○	○	○	○
That people only want to have sex with me because I'm trans	○	○	○	○	○
That I can't have the sex I want until I have a(nother) surgery	○	○	○	○	○

P16. If you have transitioned or come out as trans, has the quality of your sex life changed?

- ○ Yes, for the better
- ○ Yes, for the worse
- ○ No, it has not changed
- ○ Not applicable

Q. Emotional Well-being

Q1. In general, would you say your mental health is…?

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor
- ○ I don't know

Q2. How satisfied are you with your life in general?

- ○ Very satisfied
- ○ Satisfied
- ○ Neither satisfied nor dissatisfied
- ○ Dissatisfied
- ○ Very dissatisfied
- ○ I don't know

Q3. Thinking about the amount of stress in your life, would you say that most days are…?

- ○ Not at all stressful
- ○ Not very stressful
- ○ A bit stressful
- ○ Quite a bit stressful
- ○ Extremely stressful
- ○ I don't know

Q4. Have you ever been diagnosed with any of the following:

- ☐ Anxiety disorders (e.g. panic attacks, post-traumatic stress disorder)
- ☐ Schizophrenia
- ☐ Bipolar disorder
- ☐ Major depression
- ☐ Dissociative identity disorders (multiple personality disorder)
- ☐ Borderline personality disorder
- ☐ Other major mental health disorder, please specify: _____
- ☐ None of the above

Q5. Have you ever been diagnosed with any of the following:

- ☐ Anorexia nervosa
- ☐ Bulimia nervosa
- ☐ Exercise bulimia
- ☐ Binge eating disorder
- ☐ None of the above

Q6. Below is a list of the ways you might have felt or behaved. Please tell us how often you have felt this way during the past week.

	During the past week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	○	○	○	○
2. I did not feel like eating; my appetite was poor.	○	○	○	○
3. I felt that I could not shake off the blues even with help from my family or friends.	○	○	○	○
4. I felt I was just as good as other people.	○	○	○	○
5. I had trouble keeping my mind on what I was doing.	○	○	○	○
6. I felt depressed.	○	○	○	○
7. I felt that everything I did was an effort.	○	○	○	○
8. I felt hopeful about the future.	○	○	○	○
9. I thought my life had been a failure.	○	○	○	○
10. I felt fearful.	○	○	○	○
11. My sleep was restless.	○	○	○	○
12. I was happy.	○	○	○	○
13. I talked less than usual.	○	○	○	○
14. I felt lonely.	○	○	○	○
15. People were unfriendly.	○	○	○	○
16. I enjoyed life.	○	○	○	○
17. I had crying spells.	○	○	○	○
18. I felt sad.	○	○	○	○
19. I felt that people dislike me.	○	○	○	○
20. I could not get "going."	○	○	○	○

Q7. How much do you agree with the following statements?

	Strongly Agree	Agree	Disagree	Strongly Disagree
On the whole, I am satisfied with myself.	○	○	○	○
At times, I think I am no good at all.	○	○	○	○
I feel that I have a number of good qualities.	○	○	○	○
I am able to do things as well as most other people.	○	○	○	○
I feel I do not have much to be proud of.	○	○	○	○
I certainly feel useless at times.	○	○	○	○
I'm a person of worth, at least on an equal plane with others.	○	○	○	○
I wish I could have more respect for myself.	○	○	○	○
All in all, I am inclined to feel that I am a failure.	○	○	○	○
I take a positive attitude toward myself.	○	○	○	○

The following questions relate to the sensitive issue of suicide. If you need to speak to someone immediately regarding suicide, please contact the National Suicide Prevention Lifeline at 1-800-273-8255.

Q8. Have you ever seriously considered committing suicide or taking your own life?

○ Yes
○ No (skip to Section R)

Q8a. If yes, was this related to your being trans?

○ Yes
○ No

Q8b. If yes, has this happened in the past 12 months?

○ Yes
○ No

Q9. Have you ever attempted to commit suicide or tried taking your own life?

○ Yes
○ No (skip to Section R)

Q9a. If yes, did this happen in the past 12 months?

- ◯ Yes
- ◯ No

Q9b. Did you see or talk to a health professional following your attempt to commit suicide?

- ◯ Yes
- ◯ No

Q9c. How old were you when you first attempted suicide or tried taking your own life?

Years Old ☐

Mason McColl

Mason is a 22-year old fluid transmasculine queer radical living in Peterborough, who is actively involved in gender politics, anti-poverty work and sex-positive activism. Mason works as a community organizer, group builder and policy changer. He is passionate about everything, specifically kids, education, solidarity, and most of all, his dog Lily.

R. Cigarettes, Drugs and Alcohol

R1. In your lifetime, have you smoked a total of 100 or more cigarettes (about 4 packs)?

- ◯ Yes
- ◯ No (skip to Question R4)

R2. At the present time, do you smoke cigarettes daily, occasionally or not at all?

- ◯ Daily
- ◯ Occasionally
- ◯ Not at all

R3. Over your life, how long have you smoked in total?

Years ☐ Months ☐

The next few questions ask about your alcohol consumption.
When we use the word `drink' it means:

- one (1) bottle or can of beer or a glass of draft
- one (1) glass of wine or a wine cooler
- one (1) drink or cocktail with 1 ½ ounces of liquor.

R4. During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?

- ◯ Yes
- ◯ No (skip to Question R12)

R5. During the past 12 months, how often did you drink alcoholic beverages?

- ◯ Never
- ◯ Less than once a month
- ◯ Once a month
- ◯ 2 to 3 times a month
- ◯ Once a week
- ◯ 2 to 3 times a week
- ◯ 4 to 6 times a week
- ◯ Every day

R6. How often in the past 12 months have you had 5 or more drinks on one occasion?

- ◯ Never
- ◯ Less than once a month
- ◯ Once a month
- ◯ 2 to 3 times a month
- ◯ Once a week
- ◯ More than once a week

R7. Have you ever felt you should cut down on your drinking?

- ◯ Yes
- ◯ No

R8. Have people annoyed you by criticising your drinking?

- ◯ Yes
- ◯ No

R9. Have you ever felt bad or guilty about your drinking?

- ◯ Yes
- ◯ No

R10. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?

- ◯ Yes
- ◯ No

R11. Is your current drinking a problem for you?

- ◯ Yes
- ◯ Sometimes
- ◯ No

R12. In the past 12 months, which of the following have you used? (Please check all that apply)

- ☐ Marijuana or hashish
- ☐ Poppers or nitrites, including ampules
- ☐ Crack
- ☐ Cocaine
- ☐ Crystal meth
- ☐ Other amphetamine
- ☐ PCP (angel dust)
- ☐ Special K
- ☐ GHB (G)
- ☐ LSD (acid)
- ☐ Opium
- ☐ Heroin
- ☐ Ecstasy
- ☐ Prescription narcotics, other than for medical use (Percocet, Oxycontin)
- ☐ Other, please specify: _____
- ☐ None of the above (skip to Section S)

R13. Is your current drug use a problem for you?

- ○ Yes
- ○ Sometimes
- ○ No

R14. Overall, has this experience of using drugs been:

- ○ Completely positive
- ○ Mostly positive
- ○ Equally positive and negative
- ○ Mostly negative
- ○ Completely negative
- ○ None of the above, it's neither positive nor negative

R15. In the past 12 months, have you ever injected drugs for reasons other than medical use?

- ○ Yes
- ○ No (skip to Section S)

R16. If yes, in the past 12 months, have you ever been in a situation where you had to use needles or drug-using equipment that someone had used before?

- ○ Yes
- ○ No

S. General Health Concerns

Research on trans people has rarely been concerned with our general health. We'd like to ask you some questions about your health overall, to help us better understand our communities' health issues.

S1. To start, in general, would you say your health is…?

- ◯ Excellent
- ◯ Very good
- ◯ Good
- ◯ Fair
- ◯ Poor
- ◯ I don't know

S2. Compared to one year ago, how would you say your health is now?

- ◯ Much better now
- ◯ Somewhat better now
- ◯ About the same
- ◯ Somewhat worse now
- ◯ Much worse now
- ◯ I don't know

S3. Are you usually pain-free or physically comfortable?

- ◯ Yes (skip to Question S6)
- ◯ No
- ◯ I don't know

S4. How would you describe the usual intensity of your pain or discomfort?

- ◯ Mild
- ◯ Moderate
- ◯ Severe
- ◯ I don't know

S5. How many activities does your pain or discomfort prevent?

- ◯ None
- ◯ A few
- ◯ Some
- ◯ Most
- ◯ I don't know

S6. Have you been diagnosed with the following health conditions? If yes, please include the year of diagnosis.

	Yes	Year of diagnosis:
Allergies	☐	
Asthma	☐	
Breast cancer	☐	
Cervical cancer	☐	
Chronic fatigue syndrome	☐	
Diabetes	☐	
Elevated liver enzymes	☐	
Elevated prolactin levels	☐	
Endometrial cancer	☐	
Endometrial hyperplasia	☐	
Fibromyalgia	☐	
Gall stones	☐	
Heart attack	☐	
High blood pressure	☐	
High cholesterol	☐	
Pulmonary embolism (blood clot in the lung)	☐	
Osteoporosis	☐	
Ovarian cancer	☐	
Penile cancer	☐	
Polycystic ovary syndrome	☐	
Prostate cancer	☐	
Sleep apnea (stopped breathing during sleep)	☐	
Stroke	☐	

	Yes	Year of diagnosis:
Testicular cancer	☐	
Thyroid condition	☐	
Uterine cancer	☐	
Vaginal cancer	☐	
Venous thrombosis (blood clot in the leg)	☐	

T. Strategies for Information and Action

What is the best way to make the results of this study available to trans communities (for example, posters or pamphlets)?

What types of actions do you think we should undertake using the results of this study?

What sort of education or policy changes would you like to see as a result of this study?

Now that you've finished the survey, is there anything else you'd like to let us know?

Appendix B: The Intersectional Discrimination Index (InDI)

These questions are about experiences related to **who you are**. This includes both how you describe yourself and how others might describe you. For example, your skin colour, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

	Strongly disagree	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
1. Because of who I am, a doctor or nurse, or other health care provider might treat me poorly.					
2. Because of who I am, I might have trouble finding or keeping a job.					
3. Because of who I am, I might have trouble getting an apartment or house					
4. I am confident that I will be treated with as much respect as my peers.*					
5. I worry about being treated unfairly by a teacher, supervisor, or employer.					
6. I may be denied a bank account, loan, or mortgage because of who I am.					
7. I feel safe in my neighbourhood.*					
8. I worry about being harassed or stopped by police or security.					
9. Because of who I am, people might try to attack me physically.					
10. I expect to be pointed at, called names, or harassed when in public.					
11. I fear that I will have a hard time finding friendship or romance because of who I am.					

***** Deleted from final version of InDI based on results of factor analyses.

Because of who you are, have you…

	Never	Yes, but not in the past year	Yes, once or twice in the past year	Yes, many times in the past year
1. Been treated poorly or unfairly by a				
a. ….Health care provider				
b. …Teacher or professor				
c. …Supervisor or employer				
d. …Coworker or classmate				
e. …Sales clerk, receptionist, or other customer service representative				
f. …Police officer, border guard, security officer				
g. Transportation provider (e.g., bus or taxi driver)				
h. …Landlord				
i. …Relative or friend				
2. Heard, saw, or read others joking or laughing about you (or people like you)				
3. Been treated as if you are unfriendly, unhelpful, or rude				
4. Been called names or heard/saw your identity used as an insult				
5. Been treated as if others are afraid of you				
6. Been stared or pointed at in public				
7. Been told that you should think, act, or look more like others				
8. Heard that you or people like you don't belong				
9. Asked inappropriate, offensive, or overly personal questions				
10. Been treated as if you are less smart or capable than others				

As a reminder, we are interested in experiences related to **who you are**. This includes both how you describe yourself and how others might describe you. For example, your skin colour, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

11. Because of who you are, has a health care provider ever refused you care?

☐ Never
☐ Once
☐ More than once

11b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

12. Because of who you are, have you ever been fired or dismissed from a job, or been turned down for a job that you interviewed for?

☐ Never
☐ Once
☐ More than once

12b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

13. Because of who you are, have you ever been evicted or denied housing?

☐ Never
☐ Once
☐ More than once

13b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

14. Because of who you are, have you ever been unreasonably stopped and questioned, searched, or arrested by police or security?

☐ Never
☐ Once
☐ More than once

14b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

15. Because of who you are, have you ever been unreasonably expelled or suspended from school?

☐ Never
☐ Once
☐ More than once

15b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

16. Because of who you are, have you ever been unable to open a bank account, cash a cheque, or get a loan?

☐ Never
☐ Once
☐ More than once

16b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

17. Because of who you are, have you ever had to move to another neighbourhood, town, city, state, province, or country?

☐ Never
☐ Once
☐ More than once

17b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

18. Because of who you are, have you ever lost a close relationship (e.g., with a family member, friend, or partner)?

☐ Never

☐ Once
☐ More than once

18b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

19. Because of who you are, have you ever been repeatedly harassed at work or school, where you live, or when accessing services?

☐ No
☐ Yes—in one place
☐ Yes—in more than one place

19b. [If yes] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

20. Because of who you are, have you ever been threatened with a physical or sexual attack?

☐ Never
☐ Once
☐ More than once

20b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

21. Because of who you are, have you ever been physically attacked (e.g., spit on, had objects thrown at you, hit, punched, pushed or grabbed, beaten)?

☐ Never
☐ Once
☐ More than once

21b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

22. Because of who you are, have you ever been made to engage in sexual activity, or been touched in a sexual way, that you didn't want?

☐ Never
☐ Once
☐ More than once

22b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

23. Because of who you are, have you ever had someone take, damage, or vandalize your property?

☐ Never
☐ Once
☐ More than once

23b. [If once or more] *Has this happened to you in the past 12 months?* ☐ Yes ☐ No

Appendix C: Understanding Social Experiences and Health Baseline Survey

IFOLLOW - IFOLLOW - SHOW ALL

The following questions will determine whether or not you are eligible to participate in the survey. If you choose to skip any of these questions, you will not be able to participate.

AGENUM - AGENUM

How old are you?

jQuery(function() { jQuery(' years old').insertAfter(jQuery('#AGENUM')); }); .questionarea { margin-bottom: -5px; } .questiontitle{ display : none; }

Q2 - Q2 - ASK ALL

What country do you live in?

- ❍ Canada (1)
- ❍ United States (2)
- ❍ Other (96)

Q5CAN - Q5CAN - ASK IF Q2=1(Canada)

Which one or more of the following best describes your racial, ethnic, and cultural background?

- ❑ White (1)
- ❑ Aboriginal or Indigenous (First Nations, Métis, or Inuit) (2)
- ❑ East Asian (Chinese, Japanese, Korean) (3)
- ❑ South Asian (for example, East Indian, Pakistani, Sri Lankan) (4)
- ❑ Southeast Asian (for example, Filipino, Thai, Indonesian, Vietnamese) (5)
- ❑ Black or African Canadian (6)
- ❑ Latin American (7)
- ❑ Middle Eastern (for example, Egyptian, Iranian, Lebanese) (8)

Q5US - Q5US - ASK IF Q2=2(USA)

Which one or more of the following best describes your racial, ethnic, and cultural background?

- ❑ White (1)
- ❑ Hispanic or Latino/a (2)
- ❑ Black or African American (3)
- ❑ American Indian or Alaska Native (4)
- ❑ East Asian (Chinese, Japanese, Korean) (5)
- ❑ South Asian (for example, Asian Indian, Pakistani, Sri Lankan) (6)

- ❑ Southeast Asian (for example, Filipino, Thai, Indonesian, Vietnamese) (7)
- ❑ Native Hawaiian or Pacific Islander (8)
- ❑ Middle Eastern (for example, Egyptian, Iranian, Lebanese) (9)

Q74 - Q74 - ASK ALL

Do you consider yourself lesbian, gay, bisexual, or transgender, or a similar identity?

- ❍ Yes (1)
- ❍ No (2)

Q9Q19 - Q9Q19 - ASK ALL

These questions are about experiences related to who you are. This includes both how you describe yourself and how others might describe you. For example, your skin ^f('Q2').any('1')?"colour":"color"^, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
Because of who I am, a doctor or nurse, or other health care provider might treat me poorly. (1)	❍	❍	❍	❍	❍
Because of who I am, I might have trouble finding or keeping a job. (2)	❍	❍	❍	❍	❍
Because of who I am, I might have trouble getting an apartment or house (3)	❍	❍	❍	❍	❍
I am confident that I will be treated with as much respect as my peers. (4)	❍	❍	❍	❍	❍
I worry about being treated unfairly by a teacher, supervisor, or employer. (5)	❍	❍	❍	❍	❍
I may be denied a bank account, loan, or mortgage because of who I am. (6)	❍	❍	❍	❍	❍
I feel safe in my neighbourhood. (7)	❍	❍	❍	❍	❍
I worry about being harassed or stopped by police or security. (8)	❍	❍	❍	❍	❍
Because of who I am, people might try to attack me physically. (9)	❍	❍	❍	❍	❍
I expect to be pointed at, called names, or harassed when in public. (10)	❍	❍	❍	❍	❍
I fear that I will have a hard time finding friendship or romance because of who I am. (11)	❍	❍	❍	❍	❍

Q20 - Q20 - ASK ALL

Because of who you are, have you...

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
Been treated poorly or unfairly by a health care provider (20a)	❍	❍	❍	❍

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
Been treated poorly or unfairly by a teacher or professor (20b)	❍	❍	❍	❍
Been treated poorly or unfairly by a supervisor or employer (20c)	❍	❍	❍	❍
Been treated poorly or unfairly by a coworker or classmate (20d)	❍	❍	❍	❍
Been treated poorly or unfairly by a sales clerk, receptionist, or other customer service representative (20e)	❍	❍	❍	❍
Been treated poorly or unfairly by a police officer, border guard, security officer (20f)	❍	❍	❍	❍
Been treated poorly or unfairly by a transportation provider (e.g., bus or taxi driver) (20g)	❍	❍	❍	❍
Been treated poorly or unfairly by a landlord (20h)	❍	❍	❍	❍
Been treated poorly or unfairly by a relative or friend (20i)	❍	❍	❍	❍

Q21Q29 - Q21Q29 - ASK ALL

Because of who you are, have you...

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
(b)				
Heard, saw, or read others joking or laughing about you (or people like you) (21)	❍	❍	❍	❍
Been treated as if you are unfriendly, unhelpful, or rude (22)	❍	❍	❍	❍
Been called names or heard/saw your identity used as an insult (23)	❍	❍	❍	❍
Been treated as if others are afraid of you (24)	❍	❍	❍	❍
Been stared or pointed at in public (25)	❍	❍	❍	❍
Been told that you should think, act, or look more like others (26)	❍	❍	❍	❍
Heard that you or people like you don’t belong (27)	❍	❍	❍	❍
Asked inappropriate, offensive, or overly personal questions (28)	❍	❍	❍	❍
Been treated as if you are less smart or capable than others (29)	❍	❍	❍	❍
	❍	❍	❍	❍

IQ30 - IQ30 - ASK ALL

As a reminder, we are interested in experiences related to who you are. This includes both how you describe yourself and how others might describe you. For example, your skin ^f('Q2').any('1')?"colour":"color"^, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

Q30 - Q30 - ASK ALL

Because of who you are, has a health care provider ever refused you care?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q30B - Q30B - ASK IF Q30=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q30B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q31 - Q31 - ASK ALL

Because of who you are, have you ever been fired or dismissed from a job, or been turned down for a job that you interviewed for?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q31B - Q31B - ASK IF Q31=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q31B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q32 - Q32 - ASK ALL

Because of who you are, have you ever been evicted or denied housing?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q32B - Q32B - ASK IF Q32=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q32B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q33 - Q33 - ASK ALL

Because of who you are, have you ever been unreasonably stopped and questioned, searched, or arrested by police or security?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q33B - Q33B - ASK IF Q33=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q33B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q34 - Q34 - ASK ALL

Because of who you are, have you ever been unreasonably expelled or suspended from school?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q34B - Q34B - ASK IF Q34=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q34B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q35 - Q35 - ASK ALL

Because of who you are, have you ever been unable to open a bank account, cash a ^f('Q2').any('1')?"cheque":"check"^, or get a loan?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q35B - Q35B - ASK IF Q35=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q35B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q36 - Q36 - ASK ALL

Because of who you are, have you ever had to move to another neighbourhood, town, city, state, province, or country?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q36B - Q36B - ASK IF Q36=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q36B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q37 - Q37 - ASK ALL

Because of who you are, have you ever lost a close relationship (e.g., with a family member, friend, or partner)?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q37B - Q37B - ASK IF Q37=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q37B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q38 - Q38 - ASK ALL

Because of who you are, have you ever been repeatedly harassed at work or school, where you live, or when accessing services?

❍ No (1)
❍ Yes — in one place (2)
❍ Yes — in more than one place (3)

Q38B - Q38B - ASK IF Q38=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q38B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q39 - Q39 - ASK ALL

Because of who you are, have you ever been threatened with a physical or sexual attack?

❍ Never (1)
❍ Once (2)

❍ More than once (3)

Q39B - Q39B - ASK IF Q39=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q39B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q40 - Q40 - ASK ALL

Because of who you are, have you ever been physically attacked (e.g., spit on, had objects thrown at you, hit, punched, pushed or grabbed, beaten)?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q40B - Q40B - ASK IF Q40=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q40B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q41 - Q41 - ASK ALL

Because of who you are, have you ever been made to engage in sexual activity, or been touched in a sexual way, that you didn't want?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q41B - Q41B - ASK IF Q41=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q41B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q42 - Q42 - ASK ALL

Because of who you are, have you ever had someone take, damage, or vandalize your property?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q42B - Q42B - ASK IF Q42=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q42B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q43 - Q43 - If >NEVER to any of 20-42

Thinking of all of the times that you have been treated unfairly or poorly because of who you are, how often do you think each of the following was a reason why others treated you this way?

	Never a reason (1)	Sometimes a reason (2)	Always a reason (3)	Not sure if this was a reason (4)
Your age (1)	❍	❍	❍	❍
Your gender (2)	❍	❍	❍	❍
Your transgender or gender non-conforming status (3)	❍	❍	❍	❍
Your sexual orientation (being gay, lesbian, bisexual, or straight) (4)	❍	❍	❍	❍
Your citizenship status or country of origin (5)	❍	❍	❍	❍
Your income (6)	❍	❍	❍	❍
Your level of education (7)	❍	❍	❍	❍
Your mental health issue or substance use disorder (8)	❍	❍	❍	❍
Your physical disability (9)	❍	❍	❍	❍
Your race (skin ^f('Q2').any('1')?"colour":"color"^) (10)	❍	❍	❍	❍
Your ethnicity (cultural background or ancestry) (11)	❍	❍	❍	❍
Your religion (12)	❍	❍	❍	❍
Your language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)	❍	❍	❍	❍
Your weight (14)	❍	❍	❍	❍
Another reason, please specify (96)_____	❍	❍	❍	❍

PROV - PROV - ASK IF Q2=1(CANADA)

What PROVINCE/TERRITORY do you live in?

❍ British Columbia (BC)
❍ Alberta (AB)
❍ Saskatchewan (SK)
❍ Manitoba (MB)
❍ Ontario (ON)
❍ Quebec (QC)
❍ New Brunswick (NB)
❍ Nova Scotia (NS)
❍ Prince Edward Island (PE)
❍ Newfoundland (NF)
❍ Northwest Territories (NT)
❍ Yukon (YK)

❍ Nunavut (NU)

USSTATE - USSTATE - ASK IF Q2=2(USA)

What STATE do you live in?

❍ Alabama (1)
❍ Alaska (2)
❍ Arizona (3)
❍ Arkansas (4)
❍ California (5)
❍ Colorado (6)
❍ Connecticut (7)
❍ Delaware (8)
❍ District of Columbia (9)
❍ Florida (10)
❍ Georgia (11)
❍ Hawaii (12)
❍ Idaho (13)
❍ Illinois (14)
❍ Indiana (15)
❍ Iowa (16)
❍ Kansas (17)
❍ Kentucky (18)
❍ Louisiana (19)
❍ Maine (20)
❍ Maryland (21)
❍ Massachusetts (22)
❍ Michigan (23)
❍ Minnesota (24)
❍ Mississippi (25)
❍ Missouri (26)
❍ Montana (27)
❍ Nebraska (28)
❍ Nevada (29)
❍ New Hampshire (30)
❍ New Jersey (31)
❍ New Mexico (32)
❍ New York (33)
❍ North Carolina (34)
❍ North Dakota (35)
❍ Ohio (36)
❍ Oklahoma (37)
❍ Oregon (38)
❍ Pennsylvania (39)
❍ Rhode Island (40)
❍ South Carolina (41)
❍ South Dakota (42)
❍ Tennessee (43)
❍ Texas (44)

- ❍ Utah (45)
- ❍ Vermont (46)
- ❍ Virginia (47)
- ❍ Washington (48)
- ❍ West Virginia (49)
- ❍ Wisconsin (50)
- ❍ Wyoming (51)
- ❍ I prefer not to answer (99)

Q4 - Q4 - ASK ALL

What is the language you most often speak at home?

- ❍ English (1)
- ❍ French (2)
- ❍ Other (96)

Q6CAN - Q6CAN - ASK IF Q2=1(Canada)

How do other people usually classify you in this country?

(Please choose one or two responses)

- ❑ White (1)
- ❑ Aboriginal or Indigenous to Canada (First Nations, Métis, or Inuit) (2)
- ❑ East Asian (Chinese, Japanese, Korean) (3)
- ❑ South Asian (for example, East Indian, Pakistani, Sri Lankan) (4)
- ❑ Southeast Asian (for example, Filipino, Thai, Indonesian, Vietnamese) (5)
- ❑ Black or African Canadian (6)
- ❑ Latin American (7)
- ❑ Middle Eastern (for example, Egyptian, Iranian, Lebanese) (8)
- ❍ Not sure (98)

Q44CAN - Q44CAN - ASK IF Q2=1(Canada)

Which of the following best describes you?

- ❍ Born a citizen of CANADA (1)
- ❍ Immigrated to CANADA when I was 16 or younger (2)
- ❍ Immigrated to CANADA when I was 17 or older (3)
- ❍ Living temporarily in CANADA (4)

Q6US - Q6US - ASK IF Q2=2(USA)

How do other people usually classify you in this country?

(Please choose one or two responses)

- ❑ White (1)
- ❑ Hispanic or Latino/a (2)
- ❑ Black or African American (3)
- ❑ American Indian or Alaska Native (4)
- ❑ East Asian (Chinese, Japanese, Korean) (5)

- ❑ South Asian (for example, Asian Indian, Pakistani, Sri Lankan) (6)
- ❑ Southeast Asian (for example, Filipino, Thai, Indonesian, Vietnamese) (7)
- ❑ Native Hawaiian or Pacific Islander (8)
- ❑ Middle Eastern (for example, Egyptian, Iranian, Lebanese) (9)
- ❍ Not sure (98)

Q44US - Q44US - ASK IF Q2=2(USA)

Which of the following best describes you?

- ❍ Born a citizen of THE UNITED STATES (1)
- ❍ Immigrated to THE UNITED STATES when I was 16 or younger (2)
- ❍ Immigrated to THE UNITED STATES when I was 17 or older (3)
- ❍ Living temporarily in THE UNITED STATES (4)

Q44BCAN - Q44BCAN - ASK IF Q44CAN = NOT born a citizen(2,3,4)

In total, how many years have you lived in CANADA?

jQuery(function() { jQuery(' year(s)').insertAfter(jQuery('#Q44BCAN')); });

Q44BUS - Q44BUS - ASK IF Q44US = NOT born a citizen(2,3,4)

In total, how many years have you lived in THE UNITED STATES?

jQuery(function() { jQuery(' year(s)').insertAfter(jQuery('#Q44BUS')); });

Q45 - Q45 - ASK ALL

How do you define yourself in terms of religion or spirituality?

(Please choose one)

- ❍ Anglican (1)
- ❍ Protestant Christian (2)
- ❍ Catholic (3)
- ❍ Other Christian (not Protestant, Anglican, or Catholic) (4)
- ❍ Buddhist (5)
- ❍ Hindu (6)
- ❍ Jewish (7)
- ❍ Muslim (8)
- ❍ Sikh (9)
- ❍ Agnostic (10)
- ❍ Atheist (11)
- ❍ None of the above (97)

Q46 - Q46 - ASK ALL

Do you wear clothing or accessories associated with your faith? (e.g., head covering, head scarf, face veil, turban, jewellery with religious symbols)

(Please choose one)

❍ Yes — most of the time (1)
❍ Yes — only for prayers, holidays, or special events (2)
❍ No (3)

Q47 - Q47 - ASK ALL

Which of the following best describes where you currently live?

❍ Urban or suburban (1)
❍ Rural (2)

Q48 - Q48 - ASK ALL

What was your sex assigned at birth (e.g., on your birth certificate)?

❍ Male (1)
❍ Female (2)

Q49 - Q49 - ASK ALL

In what gender do you live your day-to-day life?

❍ Male (1)
❍ Female (2)
❍ Sometimes male, sometimes female (3)
❍ Non-binary, or something other than male or female (4)

Q7 - Q7 - ASK ALL

Which of the following best describes you?

(Please choose one)

❍ Straight or heterosexual (1)
❍ Bisexual (2)
❍ Gay or lesbian (3)
❍ Not sure (4)
❍ Asexual (not sexually attracted to others) (5)

Q8 - Q8 - ASK ALL

How often have other people thought you were lesbian, gay, bisexual, or transgender? (Regardless of how you identify)

❍ Never (1)
❍ Once or twice (2)
❍ Sometimes (3)
❍ Most of the time (4)

Q50 - Q50 - ASK ALL

Do you have any of the following: Blindness or severe visual impairment
Deafness or hard of hearing
A long-lasting condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, or lifting
A long-lasting physical, mental, or emotional condition that increases the difficulty of learning, remembering, concentrating, or interacting with others

- ❍ Yes (1)
- ❍ No (2)

Q51 - Q51 - ASK IF Q50=1(yes)

When you meet people for the first time, do they classify you as having a disability, mental health condition, or chronic illness- without being told?

- ❍ No, never (1)
- ❍ Yes, some of the time (2)
- ❍ Yes, most or all of the time (3)

Q52 - Q52 - ASK ALL

Has a doctor or other health care provider ever told you that you have a mental health disorder (e.g., bipolar disorder, borderline personality disorder, schizophrenia), not including dysthymia, depression, or anxiety?

- ❍ Yes (1)
- ❍ No (2)

Q53 - Q53 - ASK ALL

What is the highest level of education you have completed?

- ❍ Did not graduate from high school (1)
- ❍ High school diploma (2)
- ❍ Some ^f('Q2').any('1')?"":"community "^college or trade school (3)
- ❍ ^f('Q2').any('1')?"College ":"Community college "^or trade school diploma (4)
- ❍ Some university (5)
- ❍ University bachelor's degree (6)
- ❍ University graduate degree (7)

Q54 - Q54 - ASK ALL

In the past year, what was the main source of income for your household?

- ❍ Employment (wages and salaries) (1)
- ❍ Self-employment or small business (2)
- ❍ Investments or savings (3)
- ❍ Unemployment insurance or worker's compensation (4)
- ❍ Government retirement pension or Social Security for retirement (5)

- ❍ Retirement pension from employer (6)
- ❍ Social assistance or disability benefits (7)
- ❍ Student loans or scholarships (8)
- ❍ I'd rather not say (99)

Q55 - Q55 - ASK ALL

What is your best estimate of the total income, before taxes and deductions, of all household members from all sources in the past 12 months?

- ❍ Less than $10,000 (1)
- ❍ $10,000 to less than $15,000 (2)
- ❍ $15,000 to less than $30,000 (3)
- ❍ $30,000 to less than $40,000 (4)
- ❍ $40,000 to less than $50,000 (5)
- ❍ $50,000 to less than $60,000 (6)
- ❍ $60,000 to less than $80,000 (7)
- ❍ $80,000 to less than $100,000 (8)
- ❍ $100,000 to less than $150,000 (9)
- ❍ More than $150,000 (10)
- ❍ I don't know (98)
- ❍ I'd rather not say (99)

Q55B - Q55B - ASK ALL

Including yourself, how many adults and children living in the household were being supported on this income?

☐

Q56 - Q56 - ASK ALL

Before age 16, did you ever experience something sexual that you did not want, that felt inappropriate, or was at any time perceived as hurtful?

- ❍ Yes (1)
- ❍ No (2)
- ❍ I don’t know (8)
- ❍ I'd rather not say (9)

Q57 - Q57 - ASK ALL

Before age 16, were you ever pushed, grabbed, shoved, kicked, punched or physically attacked by an adult?

- ❍ Yes (1)
- ❍ No (2)
- ❍ I don’t know (8)
- ❍ I'd rather not say (9)

Q58A - Q58A - ASK ALL

In your lifetime, have you smoked more than 100 cigarettes (about ^f('Q2').any('1')?"4":"5"^ packs)?

❍ Yes (1)
❍ No (2)

Q58B - Q58B - ASK IF Q58A=1(yes)

At the present time, how often do you smoke cigarettes?

❍ Daily (1)
❍ Occasionally (2)
❍ Not at all (3)

Q59 - Q59 - ASK ALL

The following questions ask about how you have been feeling during the past 30 days. For each question, please check the box that best describes how often you had this feeling.

During the past 30 days, about how often did you feel...

	All of the time (1)	Most of the time (2)	Some of the time (3)	A little of the time (4)	None of the time (97)
...nervous (1)	❍	❍	❍	❍	❍
...hopeless (2)	❍	❍	❍	❍	❍
...restless or fidgety (3)	❍	❍	❍	❍	❍
...so depressed that nothing could cheer you up (4)	❍	❍	❍	❍	❍
...that everything was an effort (5)	❍	❍	❍	❍	❍
...worthless (6)	❍	❍	❍	❍	❍

Q60A - Q60A - ASK ALL

How often do you have a drink containing alcohol?

❍ Never (1)
❍ Monthly or less (2)
❍ 2 to 4 times a month (3)
❍ 2 to 3 times a week (4)
❍ 4 or more times a week (5)

Q60B - Q60B - ASK IF Q60A = NOT NEVER

How many drinks containing alcohol do you have on a typical day when you are drinking?

❍ 1 or 2 (1)
❍ 3 or 4 (2)
❍ 5 or 6 (3)

❍ 7, 8, or 9 (4)
❍ 10 or more (5)

Q60C - Q60C - ASK IF Q60A = NOT NEVER

How often do you have six or or more drinks on one occasion?

❍ Never (1)
❍ Less than monthly (2)
❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60D - Q60D - ASK IF (Q60A = NOT NEVER) AND (Q60B=2,3,4,5 OR Q60D=2,3,4,5)

How often during the last year have you found that you were not able to stop drinking once you had started?

❍ Never (1)
❍ Less than monthly (2)
❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60E - Q60E - ASK IF (Q60A = NOT NEVER) AND (Q60B=2,3,4,5 OR Q60D=2,3,4,5)

How often during the last year have you failed to do what was normally expected from you because of drinking?

❍ Never (1)
❍ Less than monthly (2)
❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60F - Q60F - ASK IF (Q60A = NOT NEVER) AND (Q60B=2,3,4,5 OR Q60D=2,3,4,5)

How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

❍ Never (1)
❍ Less than monthly (2)
❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60G - Q60G - ASK IF (Q60A = NOT NEVER) AND (Q60B=2,3,4,5 OR Q60D=2,3,4,5)

How often during the last year have you had a feeling of guilt or remorse after drinking?

❍ Never (1)
❍ Less than monthly (2)

❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60H - Q60H - ASK IF (Q60A = NOT NEVER) AND (Q60B=2,3,4,5 OR Q60D=2,3,4,5)

How often during the last year have you been unable to remember what happened the night before because you had been drinking?

❍ Never (1)
❍ Less than monthly (2)
❍ Monthly (3)
❍ Weekly (4)
❍ Daily or almost daily (5)

Q60I - Q60I - ASK ALL

Have you or someone else been injured as a result of your drinking?

❍ No (1)
❍ Yes, but not in the last year (2)
❍ Yes, during the last year (3)

Q60J - Q60J - ASK ALL

Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

❍ No (1)
❍ Yes, but not in the last year (2)
❍ Yes, during the last year (3)

Q61A - Q61A - ASK ALL

The following items ask about anxiety and fear. For each item, please select the answer that best describes your experience over the past week.

.questionarea { margin-bottom: -10px; }

	Never (1)	Rarely (2)	Occasionally (3)	Frequently (4)	Constantly (5)
How often do you feel anxious? (1)	❍	❍	❍	❍	❍

Q61B - Q61B - ASK ALL

	I never feel anxious (1)	Mild (2)	Moderate (3)	Severe (4)	Extreme (5)
When you feel anxious, how intense or severe is your anxiety? (1)	❍	❍	❍	❍	❍

Q61C - Q61C - ASK ALL

	Never (1)	Rarely (2)	Occasionally (3)	Frequently (4)	All the time (5)
How often do you avoid situations, places, objects, or activities because of anxiety or fear? (1)	❍	❍	❍	❍	❍

Q61D - Q61D - ASK ALL

	Not at all (1)	Mild (2)	Moderate (3)	Severe (4)	Extreme (5)
How much does anxiety or fear interfere with your ability to do the things you need to do at work, at school, or at home? (1)	❍	❍	❍	❍	❍

Q61E - Q61E - ASK ALL

	Not at all (1)	Mild (2)	Moderate (3)	Severe (4)	Extreme (5)
How much does anxiety or fear interfere with your social life and relationships? (1)	❍	❍	❍	❍	❍

Q62 - Q62 - ASK ALL

Appendix D: Understanding Social Experiences and Health (InDI) Follow-up Survey

Q9Q19 - Q9Q19 - ASK ALL

These questions are about experiences related to who you are. This includes both how you describe yourself and how others might describe you. For example, your skin ^f('Q2').any('1')?"colour":"color"^, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
Because of who I am, a doctor or nurse, or other health care provider might treat me poorly. (1)	❍	❍	❍	❍	❍
Because of who I am, I might have trouble finding or keeping a job. (2)	❍	❍	❍	❍	❍
Because of who I am, I might have trouble getting an apartment or house (3)	❍	❍	❍	❍	❍
I am confident that I will be treated with as much respect as my peers. (4)	❍	❍	❍	❍	❍
I worry about being treated unfairly by a teacher, supervisor, or employer. (5)	❍	❍	❍	❍	❍
I may be denied a bank account, loan, or mortgage because of who I am. (6)	❍	❍	❍	❍	❍
I feel safe in my neighbourhood. (7)	❍	❍	❍	❍	❍
I worry about being harassed or stopped by police or security. (8)	❍	❍	❍	❍	❍
Because of who I am, people might try to attack me physically. (9)	❍	❍	❍	❍	❍
I expect to be pointed at, called names, or harassed when in public. (10)	❍	❍	❍	❍	❍
I fear that I will have a hard time finding friendship or romance because of who I am. (11)	❍	❍	❍	❍	❍

Q20 - Q20 - ASK ALL

Because of who you are, have you...

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
Been treated poorly or unfairly by a health care provider (20a)	❍	❍	❍	❍
Been treated poorly or unfairly by a teacher or professor (20b)	❍	❍	❍	❍
Been treated poorly or unfairly by a supervisor or employer (20c)	❍	❍	❍	❍
Been treated poorly or unfairly by a coworker or classmate (20d)	❍	❍	❍	❍
Been treated poorly or unfairly by a sales clerk, receptionist, or other customer service representative (20e)	❍	❍	❍	❍

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
Been treated poorly or unfairly by a police officer, border guard, security officer (20f)	❍	❍	❍	❍
Been treated poorly or unfairly by a transportation provider (e.g., bus or taxi driver) (20g)	❍	❍	❍	❍
Been treated poorly or unfairly by a landlord (20h)	❍	❍	❍	❍
Been treated poorly or unfairly by a relative or friend (20i)	❍	❍	❍	❍

Q21Q29 - Q21Q29 - ASK ALL

Because of who you are, have you...

	Never (1)	Yes, but not in the past year (2)	Yes, once or twice in the past year (3)	Yes, many times in the past year (4)
(b)				
Heard, saw, or read others joking or laughing about you (or people like you) (21)	❍	❍	❍	❍
Been treated as if you are unfriendly, unhelpful, or rude (22)	❍	❍	❍	❍
Been called names or heard/saw your identity used as an insult (23)	❍	❍	❍	❍
Been treated as if others are afraid of you (24)	❍	❍	❍	❍
Been stared or pointed at in public (25)	❍	❍	❍	❍
Been told that you should think, act, or look more like others (26)	❍	❍	❍	❍
Heard that you or people like you don’t belong (27)	❍	❍	❍	❍
Asked inappropriate, offensive, or overly personal questions (28)	❍	❍	❍	❍
Been treated as if you are less smart or capable than others (29)	❍	❍	❍	❍
	❍	❍	❍	❍

IQ30 - IQ30 - ASK ALL

As a reminder, we are interested in experiences related to who you are. This includes both how you describe yourself and how others might describe you. For example, your skin ^f('Q2').any('1')?"colour":"color"^, ancestry, nationality, religion, gender, sexuality, age, weight, disability or mental health issue, and income.

Q30 - Q30 - ASK ALL

Because of who you are, has a health care provider ever refused you care?

❍ Never (1)
❍ Once (2)

❍ More than once (3)

Q30B - Q30B - ASK IF Q30=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q30B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q31 - Q31 - ASK ALL

Because of who you are, have you ever been fired or dismissed from a job, or been turned down for a job that you interviewed for?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q31B - Q31B - ASK IF Q31=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q31B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q32 - Q32 - ASK ALL

Because of who you are, have you ever been evicted or denied housing?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q32B - Q32B - ASK IF Q32=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q32B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q33 - Q33 - ASK ALL

Because of who you are, have you ever been unreasonably stopped and questioned, searched, or arrested by police or security?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q33B - Q33B - ASK IF Q33=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q33B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q34 - Q34 - ASK ALL

Because of who you are, have you ever been unreasonably expelled or suspended from school?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q34B - Q34B - ASK IF Q34=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q34B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q35 - Q35 - ASK ALL

Because of who you are, have you ever been unable to open a bank account, cash a ^f('Q2').any('1')?"cheque":"check"^, or get a loan?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q35B - Q35B - ASK IF Q35=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q35B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q36 - Q36 - ASK ALL

Because of who you are, have you ever had to move to another neighbourhood, town, city, state, province, or country?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q36B - Q36B - ASK IF Q36=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q36B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q37 - Q37 - ASK ALL

Because of who you are, have you ever lost a close relationship (e.g., with a family member, friend, or partner)?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q37B - Q37B - ASK IF Q37=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q37B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q38 - Q38 - ASK ALL

Because of who you are, have you ever been repeatedly harassed at work or school, where you live, or when accessing services?

❍ No (1)
❍ Yes — in one place (2)
❍ Yes — in more than one place (3)

Q38B - Q38B - ASK IF Q38=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q38B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q39 - Q39 - ASK ALL

Because of who you are, have you ever been threatened with a physical or sexual attack?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q39B - Q39B - ASK IF Q39=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q39B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q40 - Q40 - ASK ALL

Because of who you are, have you ever been physically attacked (e.g., spit on, had objects thrown at you, hit, punched, pushed or grabbed, beaten)?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q40B - Q40B - ASK IF Q40=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q40B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q41 - Q41 - ASK ALL

Because of who you are, have you ever been made to engage in sexual activity, or been touched in a sexual way, that you didn't want?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q41B - Q41B - ASK IF Q41=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q41B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q42 - Q42 - ASK ALL

Because of who you are, have you ever had someone take, damage, or vandalize your property?

❍ Never (1)
❍ Once (2)
❍ More than once (3)

Q42B - Q42B - ASK IF Q42=2,3(once or more)

Has this happened to you in the past 12 months?

#placeholder_Q42B .questiontitle { display:none; }

❍ Yes (1)
❍ No (2)

Q43 - Q43 - If >NEVER to any of 20-42

Thinking of all of the times that you have been treated unfairly or poorly because of who you are, how often do you think each of the following was a reason why others treated you this way?

jQuery(function() { jQuery('Your').appendTo(jQuery('#Q43_header0')); });

	Never a reason (1)	Sometimes a reason (2)	Always a reason (3)	Not sure if this was a reason (4)
Age (1)	❍	❍	❍	❍
Gender (2)	❍	❍	❍	❍
Transgender or gender non-conforming status (3)	❍	❍	❍	❍
Sexual orientation (being gay, lesbian, bisexual, or straight) (4)	❍	❍	❍	❍
Citizenship status or country of origin (5)	❍	❍	❍	❍
Income (6)	❍	❍	❍	❍
Level of education (7)	❍	❍	❍	❍
Mental health issue or substance use disorder (8)	❍	❍	❍	❍
Physical disability (9)	❍	❍	❍	❍
Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)	❍	❍	❍	❍
Ethnicity (cultural background or ancestry) (11)	❍	❍	❍	❍
Religion (12)	❍	❍	❍	❍
Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)	❍	❍	❍	❍
Weight (14)	❍	❍	❍	❍
Another reason, please specify (96)_____	❍	❍	❍	❍

Q63 - Q63 - ASK ALL

We know that these questions may seem repetitive, but we appreciate your patience in filling them out.

In your day-to-day life, how often do any of the following things happen to you?

	Never (1)	Less than once a year (2)	A few times a year (3)	A few times a month (4)	At least once a week (5)	Almost everyday (6)
You are treated with less courtesy than other people are. (1)	❍	❍	❍	❍	❍	❍
You are treated with less respect than other people are. (2)	❍	❍	❍	❍	❍	❍
You receive poorer service than other people at restaurants or stores. (3)	❍	❍	❍	❍	❍	❍
People act as if they think you are not smart. (4)	❍	❍	❍	❍	❍	❍
People act as if they are afraid of you. (5)	❍	❍	❍	❍	❍	❍
People act as if they think you are dishonest. (6)	❍	❍	❍	❍	❍	❍

	Never (1)	Less than once a year (2)	A few times a year (3)	A few times a month (4)	At least once a week (5)	Almost everyday (6)
People act as if they're better than you are. (7)	❍	❍	❍	❍	❍	❍
You are called names or insulted. (8)	❍	❍	❍	❍	❍	❍
You are threatened or harassed. (9)	❍	❍	❍	❍	❍	❍

Q64 - Q64 - ASK ALL

What do you think was the reason (or reasons) for these experiences? Your...

(check all that apply)

- ❑ Age (1)
- ❑ Gender (2)
- ❑ Transgender or gender non-conforming status (3)
- ❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
- ❑ Citizenship status or country of origin (5)
- ❑ Income (6)
- ❑ Level of education (7)
- ❑ Mental health issue or substance use (8)
- ❑ Physical disability (9)
- ❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
- ❑ Ethnicity (cultural background or ancestry) (11)
- ❑ Religion (12)
- ❑ Language (e.g., accent, how you speak English or French, other language spoken) (13)
- ❑ Weight (14)
- ❑ Another reason, please specify (96)_____

IEND - IEND

In the following questions, we are interested in the way other people have treated you or your beliefs about how other people have treated you. Have any of the following ever happened to you:

Q65A - Q65A - ASK ALL

At any time in your life, have you ever been unfairly fired?

- ❍ Yes (1)
- ❍ No (2)

Q65B - Q65B - ASK IF Q65A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q65B .questiontitle { display:none; }

- ❑ Age (1)
- ❑ Gender (2)
- ❑ Transgender or gender non-conforming status (3)
- ❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)

❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q66A - Q66A - ASK ALL

For unfair reasons, have you ever not been hired for a job?

❍ Yes (1)
❍ No (2)

Q66B - Q66B - ASK IF Q66A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q66B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q67A - Q67A - ASK ALL

Have you ever been unfairly denied a promotion?

❍ Yes (1)
❍ No (2)

Q67B - Q67B - ASK IF Q67A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q67B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q68A - Q68A - ASK ALL

Have you ever been unfairly stopped, searched, questioned, physically threatened or abused by the police?

❍ Yes (1)
❍ No (2)

Q68B - Q68B - ASK IF Q68A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q68B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q69A - Q69A - ASK ALL

Have you ever been unfairly discouraged by a teacher or advisor from continuing your education?

❍ Yes (1)

❍ No (2)

Q69B - Q69B - ASK IF Q69A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q69B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q70A - Q70A - ASK ALL

Have you ever been unfairly prevented from moving into a neighborhood because the landlord or a realtor refused to sell or rent you a house or apartment?

❍ Yes (1)
❍ No (2)

Q70B - Q70B - ASK IF Q70A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q70B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q71A - Q71A - ASK ALL

Have you ever moved into a neighborhood where neighbors made life difficult for you or your family?

❍ Yes (1)
❍ No (2)

Q71B - Q71B - ASK IF Q71A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q71B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q72A - Q72A - ASK ALL

Have you ever been unfairly denied a bank loan?

❍ Yes (1)
❍ No (2)

Q72B - Q72B - ASK IF Q72A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q72B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)

❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

Q73A - Q73A - ASK ALL

Have you ever received service from someone such as a plumber or car mechanic that was worse than what other people get?

❍ Yes (1)
❍ No (2)

Q73B - Q73B - ASK IF Q73A=1(yes)

What do you think was the reason (or reasons) for this experience? Your...

(check all that apply) #placeholder_Q73B .questiontitle { display:none; }

❑ Age (1)
❑ Gender (2)
❑ Transgender or gender non-conforming status (3)
❑ Sexual orientation (being gay, lesbian, bisexual, or straight) (4)
❑ Citizenship status or country of origin (5)
❑ Income (6)
❑ Level of education (7)
❑ Mental health issue or substance use (8)
❑ Physical disability (9)
❑ Race (skin ^f('Q2').any('1')?"colour":"color"^) (10)
❑ Ethnicity (cultural background or ancestry) (11)
❑ Religion (12)
❑ Language (e.g., accent, how you speak English^f('Q2').any('1') ? " or French" : ""^, other language spoken) (13)
❑ Weight (14)
❑ Another reason, please specify (96)_____

MessComplete - MessComplete

Thank you, you have completed the survey.

^f('REDIRTXT')^

MessScreened - MessScreened

^f('REDIRTXT')^

^f('SMODE').any('3') ? "THIS LINE APPEARS ONLY IN TEST MODE: : " + f('INTCODE').value() : ""^
^f('SMODE').any('3') ? " - " + f('INTCODE').valueLabel() : ""^

Appendix E: Understanding Social Experiences and Health Research Ethics Approval

Western Research

Research Ethics

Western University Non-Medical Research Ethics Board
NMREB Full Board Initial Approval Notice

Principal Investigator: Dr. Greta Bauer
Department & Institution: Schulich School of Medicine and Dentistry\Epidemiology & Biostatistics,Western University

NMREB File Number: 108221
Study Title: Understanding Social Experiences and Health

NMREB Initial Approval Date: August 16, 2016
NMREB Expiry Date: August 16, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol	Received August 5, 2016	
Instruments	Appendix A - Survey	2016/08/05
Instruments	Appendix B - Follow-up Survey - Received June 29, 2016	
Recruitment Items	Appendix C - Email Invitation	2016/08/05
Recruitment Items	Appendix D - Invitation Email - Follow up	2016/08/05
Letter of Information & Consent	Appendix E	2016/08/05
Letter of Information & Consent	Appendix F - Follow up	2016/08/05

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

[redacted]

Ethics Officer, on behalf of Dr. Riley Hinson, NMREB Chair

Ethics Officer: Erika Basile ___ Nicole Kaniki ___ Grace Kelly ___ Katelyn Harris ✓ Vikki Tran ___ Karen Gopaul ___

Western University, Research, Support Services Bldg., Rm. 5150
London, ON, Canada N6G 1G9 [redacted] www.uwo.ca/research/ethics

Appendix F: Letters of Invitation, Understanding Social Experiences and Health

Survey Code: **AC14727_093_5FR.8524.77893**
Survey Length: **40 minutes**
Reward: **$4** or **8 Air Miles**

Dear $+FIRSTNAME+$ $+LASTNAME+$,

A new online survey is now available, Understanding Social Experiences and Health. It will only take 40 minutes of your time and give you $6.50 or 13 Air Miles if you meet the criteria to answer the survey. You have until CHOOSE CLOSING DATE to participate in this survey. Please see the link for more information about this survey.

~ PARTICIPATE! ~

+ Get chances for our monthly draw

Remember that for every survey conducted, you get chances for our monthly draw in addition to earning your rewards. The monthly draw includes: 2 prizes of $ 1,000 in cash, a prize of $ 100 in cash, a prize of 1,000 miles of Airmiles rewards and a prize of an iPad.

Can I answer this survey from a mobile device? Yes or No

Thank you for your participation!

Questions or trouble with the survey? Call us at [redacted] or [redacted]

If you are not able to open the link to complete the survey , please copy and paste the following link into your web browser :
https://legerweb.com/sid.asp?CODESURVEY=AC14727_093_5FR.8524.77893&L=FR&LMID=POR20126414614172162l3

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Legerweb

Survey Code: **AC14727_093_5FR.8524.77893**
Survey Length: **15 minutes**
Reward: **$2** or **4 Air Miles**

Dear $+FIRSTNAME+$ $+LASTNAME+$,

A new online survey is now available, Understanding Social Experiences and Health. It will only take 15 minutes of your time and give you $2 or 4 Air Miles if you meet the criteria to answer the survey. You have until CHOOSE CLOSING DATE to participate in this survey. Please see the link for more information about this survey.

~ PARTICIPATE! ~

+ Get chances for our monthly draw

Remember that for every survey conducted, you get chances for our monthly draw in addition to earning your rewards. The monthly draw includes: 2 prizes of $ 1,000 in cash, a prize of $ 100 in cash, a prize of 1,000 miles of Airmiles rewards and a prize of an iPad.

Can I answer this survey from a mobile device? Yes or No

Thank you for your participation!

Questions or trouble with the survey? Call us at [redacted] or [redacted]

If you are not able to open the link to complete the survey , please copy and paste the following link into your web browser :
https://legerweb.com/sid.asp?CODESURVEY=AC14727_093_5FR.8524.77893&L=FR&LMID=POR20126414614172162l3

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Appendix G: Letters of Information and Consent, Understanding Social Experiences and Health

Study Title: Understanding Social Experiences and Health

Principal Investigator
Greta Bauer, Associate Professor
Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University
London, Ontario, Canada
[redacted]

Invitation to Participate

You are being invited to participate in this research study about social discrimination (i.e., being treated differently because of who you are) and health because you are a Legerweb member. You do not need to have experienced social discrimination to participate.

Why is this study being done?

The purpose of this study is to develop better ways of asking people about how they are treated in society, and to increase our understanding of how this treatment affects health.

How long will you be in this study?

The survey you are being asked to participate in today takes 30-40 minutes to complete. If you complete today's survey, you may be contacted in one to two weeks and invited to complete a 15-minute follow-up survey.

What are the study procedures?

If you are eligible and agree to participate, you will be asked to answer some survey questions about who you are (demographics), experiences of unfair treatment related to who you are, and some aspects of your current health.

What are the risks and harms of participating in this study?

There are no known or anticipated risks associated with participating in this study. It is possible that you may be uncomfortable with some of the questions, or that they may cause distress by recalling difficult memories or experiences. You are welcome to skip any questions you do not wish to answer. If you need to speak with someone about your feelings after completing the survey, please visit http://www.yourlifecounts.org/need-help/crisis-lines to find a distress line in your area.

What are the benefits of participating in this study?

You may not directly benefit from participating in this study but information gathered may provide benefits to society as a whole which include more knowledge about how unfair treatment impacts health.

Can participants choose to leave the study?

If you decide to withdraw from the study (by exiting the webpage), the information that was collected prior to you leaving the study may still be used. No new information will be collected without your permission.

How will participant information be kept confidential?

All survey data collected will remain confidential. If the results are published, your name will not be used. Contact or personal information that you have provided Legerweb will not be stored together with other information you provide about yourself.

Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research. Data will be retained for five years following the end of the study.

Are participants compensated to be in this study?

Yes. Legerweb will compensate you with $6.50 or 13 Air Miles for participating.

What are the rights of participants?

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate you have the right to not answer individual questions or to withdraw from the study at any time. Your relationship with Legerweb will not be affected should you decide to withdraw from this study. You do not waive any legal rights by consenting to this study.

Who do participants contact for questions?

If you have technical questions or questions about compensation, please contact Legerweb. For other questions about this specific research study, please contact Ayden Scheim at [redacted] or [redacted]

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics [redacted], email: [redacted]

Consent

Completion of the survey is indication of your consent to participate.

Study Title: Understanding Social Experiences and Health

Principal Investigator
Greta Bauer, Associate Professor
Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University
London, Ontario, Canada
[redacted]

Invitation to Participate

You are being invited to participate in this follow-up survey about social discrimination (i.e., being treated differently because of who you are) and health because in the past two weeks, you participated in the initial survey for this research project. You do not need to have experienced social discrimination to participate.

Why is this study being done?

The purpose of this study is to develop better ways of asking people about how they are treated in society, and to increase our understanding of how this treatment affects health.

How long will you be in this study?

The survey you are being asked to participate in today takes about 15 minutes to complete.

What are the study procedures?

If you agree to participate, you will be asked to answer some survey questions about experiences of unfair treatment related to who you are.

What are the risks and harms of participating in this study?

There are no known or anticipated risks associated with participating in this study. It is possible that you may be uncomfortable with some of the questions, or that they may cause distress by recalling difficult memories or experiences. You are welcome to skip any questions you do not wish to answer. If you need to speak with someone about your feelings after completing the survey, please visit http://www.yourlifecounts.org/need-help/crisis-lines to find a distress line in your area.

What are the benefits of participating in this study?

You may not directly benefit from participating in this study but information gathered may provide benefits to society as a whole which include more knowledge about how unfair treatment impacts health.

Can participants choose to leave the study?

If you decide to withdraw from the study (by exiting the webpage), the information that was collected prior to you leaving the study may still be used. No new information will be collected without your permission.

How will participant information be kept confidential?

All survey data collected will remain confidential. If the results are published, your name will not be used. Contact or personal information that you have provided Legerweb will not be stored together with other information you provide about yourself.

Representatives of The University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research. Data will be retained for five years following the end of the study.

Are participants compensated to be in this study?

Yes. Legerweb will compensate you with $2 or 4 Air Miles for participating.

What are the rights of participants?

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate you have the right to not answer individual questions or to withdraw from the study at any time. Your relationship with Legerweb will not be affected should you decide to withdraw from this study. You do not waive any legal rights by consenting to this study.

Who do participants contact for questions?

If you have technical questions or questions about compensation, please contact Legerweb. For other questions about this specific research study, please contact Ayden Scheim at [redacted] or [redacted]

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics [redacted] email: [redacted]

Consent

Completion of the survey is indication of your consent to participate.

Curriculum Vitae

Name	Ayden Scheim
Post-secondary Education and Degrees	University of Toronto Toronto, Ontario, Canada 2007-2011 Hon. B.A. The University of Western Ontario London, Ontario, Canada 2011-2017 Ph.D.
Graduate Honours and Awards	Pierre Elliott Trudeau Foundation Scholarship, 2014-2017 Canadian Institutes of Health Research (CIHR) Vanier Scholarship, 2014-2017 Western University Vice President of Research Support Grant, 2014-2017 Schulich School of Medicine and Dentistry Dean's MSc-PhD Transfer Award (partially declined), 2014-2017 CIHR Institute of Gender and Health Travel Award, 2014 CIHR HIV/AIDS Community-Based Research Master's Award, 2011-2013 Dr. Carol Buck Graduate Scholarship in Epidemiology, 2012 Universities Without Walls, CIHR Strategic Training Fellowship in HIV/AIDS, 2011-2012 Ontario Graduate Scholarship (declined), 2011-2012 & 2014-2015
Related Work Experience	Teaching Assistant The University of Western Ontario 2013-2016

Consultant, IRGT: A Global Network of Trans Women and HIV, Global Forum on MSM and HIV
2015-2018

Consultant/Trainer, Transgender Health
Rainbow Health Ontario
2015-2017

Grants

1. A community-based cohort study of HIV pre-exposure prophylaxis in Ontario (2017-2020). PIs: Tan D, Lisk R. Role: Co-Investigator (1 of 22) Canadian Institutes of Health Research HIV/AIDS Community-Based Research: $450,000.

2. Ontario Integrated Supervised Injection Site Feasibility Study (2015-2016). PIs: Kerr T, Scheim AI, Marshall Z, Rourke S. CIHR Centre for REACH in HIV/AIDS: $89,150.

3. Trans Priorities Project: Cross-Country Trans Women and HIV Research Priority Setting (2015-2017). PIs: Marshall Z, Scheim AI, Marshall Z, Butler Burke N, Leblanc G, Ortigoza E, Persad Y. CIHR Centre for REACH in HIV/AIDS: $69,821.

4. Planning Trans PULSE Canada: A National Survey of Transgender Health (2015-2016). PIs: Bauer GR, Scheim AI, Hammon R, Travers R. CIHR Planning and Dissemination Grant: $9,972.

5. HIV Prevention for Gay and Bisexual Men: A Multisite Study and Development of New HIV Prevention Interventions (2014-2019). PIs: Hart TA, Jollimore J, Cox J, Moore D, Grace D. Role: Co-Investigator (1 of 26). CIHR Team Grant: Advancing Research to Improve Boys' and Men's Health: $1,500,000.

6. Improving Quantitative Research Methods in Gender, Sex and Population Health: Theory, Evidence and Applications for Multi-dimensionality and Intersectionality (2013-2017). PI: Bauer GR. Role: Co-Investigator (1 of 3). Canadian Institutes of Health Research Operating Grant: $296,749.

7. Community-Based Research and Research Ethics: Creating Community Products to Promote Ethical Research Practices with People who Use Drugs (2013-2015). PI: Margaret (Peggy) Milson. Role: Co-Investigator (1 of 5). CIHR Social Research Centre in HIV Prevention: $24,000.

8. Trans Men who have Sex with Men Sexual Health Study (2012-2014). PIs: Adam B, Scheim AI, Marshall Z, Travers R, Ware S. Canadian Institutes of Health Research Operating Grant, HIV/AIDS Community-Based Research: $99,552.

Journal Publications

1. Scheim AI, Zong X, Giblon R, Bauer GR. Disparities in access to family physicians among transgender people in Ontario, Canada. *International Journal of Transgenderism.* Accepted, 16 April 2017.

2. Scheim AI, Bauer GR, Shokoohi M. (2017). Drug use among transgender people in Ontario, Canada: Disparities and associations with social exclusion. *Addictive Behaviors,* 72: 151-158.

3. Scheim AI, Rachlis B, Bardwell G, Mitra S, Kerr T. (2017). Public injecting among people who inject drugs in a mid-sized Canadian city: A cross-sectional survey. CMAJ Open*,* 5: e290-e294.

4. Scheim AI, Bauer GR, Travers R. (2017). HIV-related sexual risk among transgender men who are gay, bisexual, or have sex with men. Journal of Acquired Immune Deficiency Syndromes, 74: e89-e96.

5. Scheim AI, Travers R. (2016). Barriers and facilitators to HIV and sexually transmitted infections testing for gay, bisexual, and other transgender men who have sex with men. AIDS Care. Online ahead of print December 27.

6. Scheim AI, Bauer GR, Shokoohi M. (2016). Heavy episodic drinking among transgender persons: Disparities and predictors. Drug and Alcohol Dependence, 167:156-162.

7. Poteat T, Scheim AI, Xavier J, Reisner SL, Baral S. (2016). Epidemiology of HIV and related syndemics among transgender people in the US and globally. Journal of Acquired Immune Deficiency Syndromes, 73 (Suppl 3):S210-219.

8. Scheim AI, Santos G-M, Arreola S, Makofane K, Do TD, Hebert P, Thomann M, Ayala G. (2016). Inequities in access to HIV prevention services for transgender men: Results of a global survey of men who have sex with men. Journal of the International AIDS Society, 19 (Suppl 2): 20779.

9. Souleymanov R, Kuzmanović D, Marshall Z, Scheim AI, Mikiki M, Worthington C, Millson MP. (2016). The ethics of community-based research with people who use drugs: Results of a scoping review. BMC Medical Ethics, 17:25.

10. Scheim AI, Bauer GR, Coleman T. (2016). Socio-demographic differences by survey mode in a respondent-driven sampling study of transgender people in Ontario, Canada. LGBT Health, 3(5): 391-395.

11. Gilbert M, Swenson L, Unger D, Scheim A, Grace D. (2016). Need for robust and inclusive public health ethics review of the monitoring of HIV phylogenetic clusters for HIV prevention. The Lancet HIV. 3(10): e641.

12. Bauer GR, Zong X, Scheim AI, Hammond R, Thind A. (2015). Factors impacting transgender patients' discomfort with their family physicians: A respondent-driven sampling survey. PLoS ONE, 10(12): e0145046-16.

13. Bauer GR, Scheim AI, Pyne J, Travers R, Hammond R. (2015). Intervenable factors associated with suicide risk in transgender persons: A respondent-driven sampling study in Ontario, Canada. BMC Public Health, 15:525.

14. Scheim AI, Bauer GR. (2015). Sex and gender diversity among transgender people in Ontario, Canada: Results from a respondent-driven sampling survey. Journal of Sex Research, 52(1):1-14.

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