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Health Implications of a Delayed Transition into Adulthood

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Graduate Program in Sociology

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts

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HEALTH IMPLICATIONS OF A DELAYED TRANSITION INTO ADULTHOOD

(Spine Title: Health Implications of a Delayed Transition into Adulthood)

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by

Lisa K. Zaporzan

Graduate Program in Sociology

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
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THE UNIVERSITY OF WESTERN ONTARIO
School of Graduate and Postdoctoral Studies

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Abstract

This thesis considers mental and physical health outcomes experienced by young adults who live in their parents' home during young adulthood. The life course perspective suggests that this “off-time” transition may lead to stigmatization and stress, and subsequently, health problems. This research uses the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative longitudinal sample of adolescents living in the United States. Wave four was primarily used, during which respondents are between 25-34 years of age (N=2776).

Although living with parents did not significantly increase CES-D or BMI, findings suggest CES-D was affected for those who have physical limitations and live with their parents, and BMI was impacted for some racial/ethnic groups and for those who were previously overweight or obese and lived with their parents. Overall, this thesis lends support to recent research suggesting that living with parents in young adulthood is no longer an off-time transition.

Keywords: delayed transition, young adults, mental health, physical health, Add Health, CES-D, BMI, parental home, OLS, Logistic Regression, psychological distress, obesity

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¹ “May Allah bring you all kinds of goodness.”

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CHAPTER 1

INTRODUCTION

In recent decades, the transition to adulthood has changed. Rather than becoming economically independent and starting families in their 20s as their parents did, many young people are not completing these transitions until their late 20s and into their 30s.

For example, it has become commonplace for young adults to live with their parents later in life, or to move out of the parental home, only to return at a later time; the aptly titled “boomerang age” (Mitchell 2006). These delayed transitions out of the parental home are occurring across the globe, in places such as Asia, Europe, and North America (Newman and Aptekarm 2007; Matsudaira 2006; Yi et al. 1994; Glick and Lin 1986).

In the United States, this shift in living arrangements occurred between the 1960s and 2000. For single young adults, there was a 9 percent increase in the proportion who live with their parents; an increase from 26 to 35 percent of young adults (Matsudaira 2006). For those who were aged 25 through 29 in that time period, the increases were 3 percent for men and 3.5 percent for women (or 18 and 14 percent, respectively) (*ibid.*).

Previous research has considered factors that contribute to young adults’ decisions regarding leaving, staying, and returning to the parental home. Changes in the length of time spent living with parents have been attributed to less stable economic climates (Settersten and Ray 2010), changing social norms (Danziger and Rouse 2007), and rising costs of education (Settersten and Ray 2010). What research has failed to consider

however, are the impacts this living arrangement and delayed transition might have upon the young adults.

During this life stage, individuals begin to make choices which have ramifications for both their current and future health. However, research finds that individuals are not making the best health decisions during this life stage (Harris 2010; Harris et al. 2006a). The link between health and living with parents later into adulthood has yet to be explored, as research has not yet considered the health factors which could be associated with a delayed transition to adulthood.

Traditionally, literature from the life course perspective suggests that delayed or off-time transitions, such as living with one's parents in young adulthood, will negatively affect health. However, recent research suggests that delaying the transition to adulthood may be positive. This thesis will consider the impact of the delayed transition into adulthood upon health, both mental and physical, in the United States.

Chapter two of the thesis considers theory and past research on life course transitions and the timing of transitions into adulthood, as well as mental and physical health in young adulthood. I then present the two research questions and four hypotheses which motivate the analysis. Chapter three describes the data and statistical methods utilized for this research. Chapter four presents the results for the analysis of mental health outcomes and chapter five presents the findings related to physical health. Finally, chapter six provides a discussion of the results, limitations of the research, and suggests future avenues of research on this topic.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter I review the literature on life course transitions, age graded norms, and possible associations between delaying the transition into adulthood and health outcomes. I conclude the chapter with the research questions and hypotheses which guide this thesis.

2.2 LIVING WITH PARENTS AND DELAYING ADULTHOOD

In North America, young adults are choosing to live with their parents in larger numbers, either by never leaving the parental home, or by moving away and returning. Conflicting explanations have been put forth to explain the lengthening time young adults spend under their parents' roof; some argue that it is because current cohorts of young adults are spoiled, entitled and lazy (see Settersten and Ray 2010 for a review of common negative conceptions), or suffer from the "Peter Pan Syndrome" wherein they refuse to grow up (Gross 1991), while others suggest that they are attempting to get ahead financially by saving money, taking advantage of familial supports, furthering their education and trying to take a more financially stable route into adulthood by living at home longer (Settersten and Ray 2010). Regardless of the explanation, living with one's parents is a reality to a large number of young adults. The 2001 American Current Population Survey (CPS) found that 50.2 percent of American young adults between the ages of 18 through 24, and 10.6 percent of young adults aged 25 to 34 lived with their

parents (Mitchell 2006). Similarly, Settersten and Ray (2010) report that in the year 2007, there were larger numbers of men and women between the ages of 20 through 24 who were living with their parents, at 43 and 38 percent respectively, compared to the 1950's. They also found that 26 percent of men still lived with their parents at age 25, and 12 percent at age 30; for women, the percentages were 21 and 10. It is evident that for a large amount of American young adults, the life course transition of leaving the parental home has yet to be undertaken.

There has been much research considering factors impacting the transition out of the parental home (Goldscheider and Goldscheider 1999), leaving and returning to the parental home (DaVanzo and Goldscheider 1990), permanently leaving the parental home (Cobb-Clark 2008), and differences in leaving home at different historical time periods (Goldscheider and Goldscheider 1999). The current economic conditions affecting what has been termed the "boomerang age" (Mitchell 2006) include increasing education costs, increasing time spent in higher education (Fussell and Furstenburg 2005), steeper housing and living costs, and lower incomes (Katz and Autor 1999). The high cost of living, coupled with youth debt, has led to an increase in the number of young people living in the parental home. However, the health effects stemming from living with one's parents in adulthood have yet to be studied. Many consider moving from the parental home to be a crucial event in the transition to adulthood (Mitchell 2006) and independent living is arguably the strongest indicator of being considered an adult (Goldscheider and Goldscheider 1999). Because leaving the parental home is such an important transition into adulthood, it is possible that there may be negative outcomes for those not making this transition. Through social stigmatization, the delayed transition

of remaining at home could lead to detrimental effects on both the physical and mental health of young adults (Neugarten, Moore, and Lowe [1965] 1996).

2.3 LIFE COURSE TIMING AND TRANSITIONS

Lives are composed of interrelated and additive experiences wherein past events shape future outcomes (O’Rand 2009). Subsequently, it is possible that choosing to remain in the parental home longer can impact future health. The Life Course Perspective is a useful theoretical framework for understanding life transitions and decisions, and their outcomes. In the 1960s, the Life Course Perspective was suggested as a new theoretical framework to research humans across their life spans (Elder 1994; see Pavalko and Willson 2011 for a review). The Life Course Perspective considers how humans change over time, how they are shaped by their social surroundings and by others’ in their lives, how events occurring at different times in cohorts’ lives have differential impacts, and how the choices that individuals make impact both their current and future situations. These factors comprise the five principles of the Life Course Perspective: “life-span development”, “agency”, “time and place”, “timing”, and “linked lives” (Elder, Kirkpatrick Johnson, and Crosnoe 2004:11-13).

The first principle, life-span development, suggests that people develop and change both emotionally and physically across the entirety of their lives (Elder et al. 2004). As people age, their orientations to the social world also change. By considering these changes long term, rather than merely as a cross section of time, a better understanding of how people develop and change is acquired.

Agency refers to the choices individuals make with respect to the opportunities and constraints in their lives and is used by individuals in creating their life paths (Gecas 2004). Larger social changes impact choices people can make, however, individuals are not solely shaped through social and structural controls; they make choices from available options (Elder et al. 2004). Agency is employed differently by each individual; while some individuals with similar backgrounds and options may make one choice, others will make different decisions. Thus, the agentic choices that individuals make will lead to differing life trajectories, choices, and opportunities.

The principle of time and place draws attention to fact that lives happen within, and are shaped by, historical events and geographical place (Elder et al. 2004). By considering historical context and location, research is better able to understand life outcomes and choices. It is only by considering historical context that research can better understand how particular circumstances will help to shape people and the outcomes of their lives (McLeod and Pavalko 2008). For instance, Goldscheider and Goldscheider (1999) found that the average number of eighteen year olds leaving home in the US from 1920-1929 was much greater than in 1966-1972. Historical differences must be considered to better understand why this trend was observed.

The principle of timing refers to the differential impact that life transitions, behaviors, and events can have on people depending on when they occur in their lives (Elder et al. 2004). Similar events can have different outcomes based when in the life course they occur (George 1993). For instance, research by Elder (1978) found veterans had differing post-war experiences depending on when in their lives they were enlisted into the war.

The final principle, “linked lives”, draws awareness to the fact that lives are not lived within a vacuum: humans are social beings and lives are lived with others, which can affect the life course in both positive and negative ways (Elder 1994). Larger historical and social changes also impact individuals through their relationships with others (*ibid.*), and help to shape their lives.

These five principles affect transitions and trajectories over the individual’s life course. Transitions are changes of a small or large nature within one’s life, such as moving out of the parental home for the first time, and trajectories are composed of a series of transitions. Transitions and trajectories are further impacted by timing, sequencing and duration of life events. Timing is at what point a transition or event occurs, sequencing is the order in which transitions occur, and duration is the length of time people remain within a certain state (Hagestad 2003). Timing, sequencing, and duration also affect trajectories and shape life course outcomes. The timing of transitions within the life course is embedded within the context of age norms (Settersten 2004), which are social norms about when in ones’ life certain events should occur. Transitions are either “on time”, and are in agreement with age graded norms, or “off-time” and occur outside of norms (Elder et al. 2004). In her influential work on age as one of the main statuses that regulates social life, Neugarten argues that age norms can either motivate or discourage life transitions relative to relevant social clocks (Neugarten [1981] 1996). Off-time transitions can be socially stigmatizing and there are many different sanctions following the violation of age norms, which can affect the individual and others close to them (Neugarten et al. [1965] 1996). For example, making choices that violate age norms can lead directly to health problems, (take, for instance, the example of an

older man over exercising) and can also be tied to the stigmatization of others close to the individual (such as the social stigmatization that parents may face if their 40 year old son still lives with them) (*ibid.*). Delayed transitions such as living with one's parents into adulthood are technically "off-time", and therefore have potentially negative implications for those individuals who have not conformed to socially proscribed age graded norms regarding the transition to adulthood.

Until young adulthood, the life course is very structured, as school transitions are highly age graded (such as state rules governing the age at which children enter school). However, age-graded norms following childhood have loosened in recent decades. Both women and men are marrying at later ages, having children at later ages, and staying in school longer (Settersten and Ray 2010). Currently, there is no culturally specified age at which young adults are expected to move out of the parental home and, as discussed above, we know that young adults today are living with their parents later in life than ever before.

2.3.1 Defining Life Stages

Childhood is typically considered to include the ages of 3 through 11 and the life stage of adolescence occurs the ages of 12 through 17 (CDC 2011). Adulthood occurs at the legal age of majority, which in most states it is the age of 18. However, age sanctioned definitions are implicitly problematic, because to label one as an adult implies that they have fully taken on adult social roles and responsibilities. An instrumental definition, therefore, may be more useful to understand the transition into adulthood.

Early research termed “adolescence” a period of life distinct from childhood and adulthood (Hogan 1985). Adolescence is a time of reliance upon parents and preparation for independence (Crosnoe and Kirkpatrick Johnson 2011).

In any transition between life stages, such as from adolescence to adulthood, characteristics of the new life stage are adopted while characteristics of the previous life stage are rejected (Hogan 1985). Historically, academics regarded the transition to adulthood completed when five life transitions had occurred: finishing one’s education, starting a career, marrying, moving from home, and having children (Shanahan et al. 2005). However, the transition between adolescence and adulthood has now become blurred. Neugarten and Neugarten ([1987] 1996) argue that the distinction between adolescence and adulthood has become less definite as previous indicators of “social age” have transformed and traditional transitional markers of entry into adulthood are no longer satisfactory to determine social age. Neugarten and Neugarten term this change the “fluid life cycle” (*ibid.*). There has been a shift in the timing of life transitions, and as such, the proportion of adults in their twenties to thirties who have experienced these five transitions has declined (Fussel and Furstenberg 2005) and becoming an “adult” based on traditional definitions takes longer now than ever before (Settersten and Ray 2010). Therefore, researchers suggest that a new life stage has emerged: one in which the individual is neither an adolescent, nor an adult (Settersten and Ray 2010).

There is a lack of agreement on what to label this potentially new life stage. Arnett (2000) contends that this distinct period between adolescence and adulthood is a stage of “emerging adulthood”. He argues that for those aged 18-25, “young adulthood” as a definition is problematic: Arnett instead deems those in their early 30’s to be “young

adults” as they have typically accomplished some of the social transitions required to define an adult. Arnett (2000) has referred to those aged 18 through 25 as “emerging adults”. This is problematic, however, because as Shanahan et al. (2005:226) note, “with increasing variability in the timing of transition makers, the criteria that define adulthood have become individualized, now resting primarily on subjective self-evaluations.” For example, Shanahan et al. (2005) found that in some contexts, youth report feeling like an adult, such as when they are with their partners, children, or at work or home; however, they were less likely to feel like an adult in other contexts, such as when they were with friends or parents. This lack of continuity in self-definitions of adulthood suggests a destandardization of the transition into adulthood. This problematizes Arnett’s definition, as “emerging adulthood” still largely rests on a standardized set of transitions which do not hold the same meaning for all individuals. Consistent with much of the literature, and for the purpose of this thesis, I use the term “young adults” to refer to the population of interest, which is those individuals aged 25-34 (Settersten and Ray 2010; Yelowitz 2007; Goldscheider and Goldscheider 1999).

Although previous research has not considered health outcomes due to living with parents in adulthood, it has examined other aspects of transitions to adulthood. For example, Osgood et al. (2005) compared the effects of different paths into adulthood and found that family values tended to be perpetuated by young adults. Young adults who valued education at age 18 were focused on education at 24 while the young adults who valued family roles at 18 settled into those roles with more frequency by age 24.

With respect to other research on socioeconomic status and the transition to adulthood, highly educated women are more likely to postpone marriage and children and

women with less education are postponing marriage but not children; this is more prevalent among black women (Ellwood and Jencks 2004). Black and foreign born men experience a wider diversity in the pathways to adulthood and have less standardized lives between 20 through 25 than white men (Fussell and Furstenberg 2005).

There are other racial and gendered differences in the transition into adulthood as well. In a comparative-historical analysis of cohorts undertaking transitions to adulthood from 1900 through 2000, Fussell and Furstenberg (2005) found that the pathways to adulthood have changed over time, but that by the age of 30, most young adults have undergone the same transitions (leaving the parental home, marriage, completing education and begun full time employment) required to complete the transition into adulthood. It was also found that there are differences in trajectories due to race/ethnicity and gender such that black women more frequently are single parents, but rates of single motherhood have increased for white women as well.

The focus of research thus far has been on factors contributing to the delayed transition to adulthood, but currently there is little known about health effects of this delayed transition. Based on Neugarten's theory of the negative effects of off-time transitions we would expect living with one's parents in young adulthood to have negative implications for physical and mental health. Neugarten et al. ([1965] 1996) also suggest that women are more aware of social clocks and transitional timing since they face more social pressures regarding their age at first marriage; although it is not clear that this is as likely today as it was in the 1960s. However, social scientists have found that many young adults continue living with their parents to obtain more education or to save money, or because they have faced a hardship in life (such as marital dissolution)

and have returned to their parent's home to recuperate from it (Settersten and Ray 2010). Therefore, Settersten and Ray (2010) argue that delaying the transition to adulthood may be agentic and beneficial because young adults are setting themselves up better financially and will be better adapted to cope with later transitions, such as having children and buying a home. They also note that young adults receive other assistance when living with parents, such as having meals prepared, laundry done, help with childcare, support in a less stable economy, and being able to save money. Settersten and Ray state that "when living at home is done strategically, it can ensure more positive outcomes...living at home can help young adults emerge with stronger skills and richer resources to get them launched" (2010:129), particularly for those in poorer socioeconomic positions, as living with their parents later in life gives them more support to transition into a more socioeconomically stable adulthood. This contradiction of views regarding the effects of off-time transitions is the motivation for this thesis. I turn next to a discussion of health during this life stage.

2.4 HEALTH

While impacting many areas of life, delayed transitions into adulthood may also have an impact on health. Indeed, research has shown that as adolescents make the transition through young adulthood to adulthood, poor health and risk behaviors generally intensify or plateau, rather than desist, which holds implications for future health (Harris 2010; Harris et al. 2006a).

The Stress Process Model is a useful framework for understanding health outcomes related to the transition to adulthood. The stress process model focuses on the

impacts of stress on individual health and how individuals are able to cope with the stress by utilizing the various resources which they possess, such as social support or individual coping strategies (Turner and Schieman 2008). The stress process model emphasizes three spheres which include, the initiating sources of stress, mediators of the sources of stress and the subsequent manifestations, or outcomes, of that stress (Pearlin et al. 1981). Sources of stress may include adverse life events or strains, which are then moderated by coping strategies, self-concepts, and social supports which will either suppress or aggravate the sources (Turner and Schieman 2008). These all impact the manifestations of stress, which are the physical, mental, or behavioral outcomes.

As previously discussed, off-time transitions may be socially stigmatizing and can have negative ramifications. Living in the parental home in young adulthood has the potential to be an initiating source of stress that can manifest into negative health outcomes. However, these outcomes can be moderated by such personal and social resources such as education, previous and current health, parental support, and the social stratification which is tied into various demographic characteristics.

Current research suggests using both the Life Course Perspective and the Stress Process Model in conjunction, as they strengthen and advance one another theoretically (Turner and Schieman 2008; Umberson, Liu, and Reczek 2008; Pearlin and McKean Skaff 1996). While the life course perspective analyzes the ways in which populations age and the diverse outcomes individuals experience, the stress process model takes a more focused approach in examining the effects of specific stressors. Thus, within this thesis, the life course perspective and the stress process model will form the framework

for considering the impact that the living arrangement has on mental and physical health outcomes.

2.4.1 Mental Health

The World Health Organization has defined mental health as living in such a state that someone can be productive and exist with mental wellness, and not merely lack mental disabilities or disorders (WHO 2010). Mental illnesses, which impact mental health, can have many different causes: physical, such as hormone imbalance, or social (Jary and Jary 2000). As will be discussed, mental health generally improves in young adulthood after being lower in adolescence. The time period of young adulthood is critical for future psychological health in later life (Lee and Gramotnev 2007).

In the sociological literature, psychological distress refers to symptoms of a wide variety of mental health issues (such as excessive worrying) which are not necessarily defined as mental illnesses, but still impact one's life (Schnittker and McLeod 2005). The Center for Epidemiologic Studies-Depression scale (CES-D) is frequently utilized as a measure of psychological distress. The CES-D is a 20 item self-report scale which captures experiences of psychological distress within study populations (Radloff 1977).

Psychological distress varies by many individual characteristics. Adolescents experience high levels of psychological distress (Avison and McAlpine 1992), but rates of depressive symptoms tend to decline as adolescents age through the young adult years into adulthood (Adkins, Wang, and Elder 2008; Harris et al. 2006a). Women experience higher rates of psychological distress than men (Nolen-Hoeksema 2001), which begins in adolescence (Avison and McAlpine 1992) and continues into adulthood (Hankin,

Mermelstein, and Roesch 2007). Racial/ethnic differences have also been found in levels of psychological distress, with whites having the best mental health outcomes. Blacks and other racial/ethnic minorities have been found to experience significantly higher occurrences of depression than whites (Boardman and Alexander 2011; Adkins et al. 2008). Physical limitations also impact mental health, as they may impact opportunities and constraints (Bierman and Statland 2010), including the ability to transition from the family home. Research has found that adults with physical disabilities do experience increased psychological distress (Turner and McLean 1989).

Socioeconomic status, manifested in various ways, has been demonstrated to be a crucial predictor of psychological distress (Pearlin 1999). Mirowsky and Ross (1998) found that parental education level benefits the health of adult offspring, as parents transfer learned health behaviors to children that benefit their future health trajectories. Furthermore, adolescent health behaviors are influenced by health behaviors learned in childhood from family, community and school (Windle et al. 2004), and are closely tied to the socioeconomic status and resources of parents. By extension, these advantages experienced in childhood and adolescence could be carried into the young adult years.

There have been numerous studies of the effects of various transitions and mental health, including mental health outcomes associated with cohabitation versus marriage or singlehood (Horwitz and White 1998), age at the transition into parenthood (Mirowsky and Ross 2002), employment and unemployment following graduation (in this case from Dutch technical colleges) (Schaufeli and VanYperen 1992), and studies combining work, marriage and children to understand the mental health impacts of differential role

sequences (Jackson 2004). As of yet, there has not been a study which examines living in the parental home and its' relation to mental health.

2.4.2 Physical Health

Although the physical health of young adults is generally very good, health behaviors among this age group are poor and there is evidence that precursors to disease are increasing (Harris 2010). Obesity is a growing health concern among young people in North America and is strongly predictive of many poor health outcomes in mid to late life. Obesity is correlated with significantly higher morbidity and mortality rates (Friedman 2000) and has become a significant health problem, particularly in Western developed societies such as the United States where 35.7 percent of adults were obese between 2009 to 2010 (Ogden et al. 2012). In fact, some suggest that obesity has the potential to become more fatal than heart disease or cancer (Olshansky et al. 2005), which are currently the top two causes of death for Americans. Obesity increases the risk of type 2 diabetes, cancer, coronary heart disease (Olshansky et al. 2005), hypertension (Friedman 2000), strokes, high blood pressure and cholesterol (Kaplan 2007). In their extensive review on how obesity affects health-related quality of life (HRQOL), Fontaine and Barofsky (2001) found that obesity increased physical pain problems and physical limitations. Because of the important implications of obesity for both long-term and current health, and the increasing prevalence of obesity, in this study I have chosen it as an indicator of young adults' health.

Obesity is defined as “an excess of body fat that frequently results in a significant impairment of health” (NCBI 2010) and can be measured through body fat in many

different ways (such as skinfold thickness, or waist to hip ratio). The most reliable standardized measure is the Body Mass Index (BMI) (Dietz and Belizzi 1999). In its simplest form, BMI is calculated as weight divided by the square root of a person's height (Friedman 2000). The World Health Organization (WHO) uses BMI to define the weight categories underweight, normal weight, overweight, obese or morbidly obese (Stewart, Cutler, and Rosen 2009). BMI is increasing rapidly among the obese, a trend documented across all racial/ethnic groups and socioeconomic statuses (SES) in all parts of the US (Olshansky et al. 2005).

Weight problems do exist during the young adult years, although at a lower rate than in later adulthood. However, recent research indicates that the incidence of obesity increases with the transition to adulthood (Gordon-Larsen, The, and Adair 2010). A nationally representative longitudinal study of American youth found that obesity increased 24.1% as people aged from adolescence to adulthood. When gender and race/ethnicity were controlled, Asian men were least likely to be obese. Among women, black women were most likely to become obese or stay obese, and Asian women were least likely to be obese or become obese. Other research also finds important racial and sex differences in the experience of obesity in adulthood, such that "28% of men, 34 % of women, and nearly 50% of non-Hispanic black women are currently obese" (Olshansky et al. 2005:1139). Wang et al. (2008) also found that women are becoming overweight and obese more rapidly than men. These findings suggest that sex and race/ethnicity should be included in studies on body weight, and also that the risk of obesity increases as a birth cohort ages. Obesity in adolescence predicts obesity in young adulthood

(Magarey et al. 2003) and as adolescents' transition into their young adulthood years, obesity increases for all racial/ethnic groups (Harris et al. 2006a).

Research has documented that socioeconomic status and obesity are related in highly developed countries, where higher socioeconomic status generally predicts lower rates of obesity among women (McLaren 2007; Sobal and Stunkard 1989). However, findings among men and children are disputed (Sobal and Stunkard 1989) and the strength of association between SES and obesity has been found to change over time. For example, Zhang and Wang (2004) found that in the 1970's there was a stronger relationship between low SES and obesity, but in 2000 obesity rates increased in the high SES group. These results were stronger for women, both white and black (Zhang and Wang 2004). Although the relationship of SES and obesity is inconsistent across the literature, there is abundant evidence that SES is an important for health, with those of higher SES experiencing fewer health problems across the life course (Willson, Shuey, and Elder 2007; Lynch 2003; Ross and Wu 1996).

In addition to young adults' SES, parental socioeconomic status has long-term health advantages for their offspring. Lareau (2004) found that socioeconomic advantages were cultivated in children by their middle class parents, where offspring were taught traits enabling them to succeed within the social institution of school. These advantages then extended into adulthood (Lareau 2004).

In sum, previous research has shown that earlier health, family socioeconomic status, and demographic characteristics are all important in determining health outcomes.

The final section of this chapter presents the research questions and hypotheses that guide this thesis.

2.5 THE CURRENT STUDY

It has been demonstrated that there are important variations in both physical and mental health among young adults, which will impact future health trajectories (Pavalko and Willson 2011; Harris 2010). The purpose of this thesis is to examine the impact of living with one's parents in young adulthood on physical and mental health. Specifically, the hypotheses of this thesis tests Neugarten's theory regarding the negative implications of off-time transitions. The two major research questions posited by this thesis are:

- 1) What impact does a delayed transition to adulthood, as measured by a delayed transition out of the parental home, have on individuals' mental and physical health?
- 2) Is the delayed transition out of the parental home more detrimental to some subgroups of the young adult population than others?

These research questions are investigated with four research hypotheses:

- 1) Living in the parental home is detrimental to young adults' physical and mental health. This will be evidenced by an increase in BMI and psychological distress as measured by CES-D.
- 2) Age increases the negative health effects of living in the parental home so that psychological distress and BMI will be highest among the older respondents who live with their parents.

- 3) Living in the parental home will increase BMI and psychological distress more for women and non-whites.
- 4) Living with parents will increase both BMI and psychological distress to a greater extent for low-SES young adults compared to their higher SES counterparts and for those with low-SES parents.

To test these research questions and related hypotheses, two separate analyses were conducted: one on psychological distress as measured by the CES-D, and one on physical health, measured by the BMI. Findings related to psychological distress are presented in Chapter 4, and BMI results are presented in Chapter 5.

CHAPTER THREE

DATA AND METHODOLOGY

3.1 INTRODUCTION

This chapter is divided into three components. First, I will describe the dataset. Next, I will explain variable coding. Finally, I will discuss the methods used to conduct the research.

3.2 DATA

3.2.1 Data Set

To analyze the research questions posited by this thesis, the National Longitudinal Study of Adolescent Health (Add Health) (Harris 2009) was utilized. Add Health is a nationally representative, longitudinal study of more than 90 000 American youth. Participants were followed from their high school aged years through to their current life stage in young adulthood. The Add Health dataset was created by researchers in response to a directive from the United States Congress to fund a study considering solely adolescent health (Harris et al. 2006b). Add Health is produced out of the University of North Carolina-Chapel Hill and currently has four waves available for study. Commencing in 1994-1995, the study began with an in-school survey of adolescents in grades 7 through 12, ages 11-18. Students were selected with a non-equal selection probability from 80 high schools and 52 middle schools in the United States. Schools were picked using a stratified random sample of all eligible American high schools. Schools were eligible if they had at least 30 students enrolled and had an 11th grade.

Eligible schools were grouped into 80 different clusters. There were eight different considerations given to the schools: the region (including northeast, Midwest, south, or west); if the schools were located in urban areas, suburban areas, or rural areas; the size of the school (less than 126 students, 126 through 350 students, 351 to 775 students, or 776 or greater students enrolled); school type (public, private, parochial); the percentages of white and black students; the schools could range in grades from Kindergarten through grade 12, grades 7 to 12, grades 9 to 12, or from grades 10-12; and finally, the curriculums could be special education, general, alternative, or a vocational/technical.

The study sample is representative of American school populations by region, the size and type of the school, ethnicity, and urbanicity, as systematic sampling methods and implicit stratification were utilized (Harris et al. 2009a). Add Health follows the same youth sampled through three in-home surveys in April 1995 to August 1996 (wave 2), August 2001 to April 2002 (wave 3), and January 2008 to February 2009 (wave 4) (Harris et al. 2009a). In wave 4, respondents are between the ages of 25-34. Since Add Health originated as an in-school based study, young adults who were not attending public school at the time were not included in the analysis. Due to the fact that there is greater homogeneity within regions than across them, Add Health included a clustering variable to correct for this spatial homogeneity (Harris et al. 2006b).

Add Health is available as a fully longitudinal study including all of the respondents through restricted use files and as a public use database. The public use file includes about half of the core sample of respondents who were randomly selected for inclusion and has potential to be longitudinally linked for each respondent through the

respondent ID variable. This thesis uses the public use version of this dataset, as it has a quite substantial sample size and has all the variables required to produce the analysis.

3.2.2 Analytic Sample and Restrictions

In the public use file there were 5,336 respondents who completed in-home interviews in waves 1, 3, or 4, which are the survey waves used in this analysis. The population of interest for this study are young adults aged 25-34 at the time of the last interview. Several restrictions to the sample were necessary. First, those who did not live with their parents or in their own residence, such as those in army barracks or a group home, were excluded. In addition, the sample was limited to respondents who were born in the United States. Immigrants were excluded from the analysis, as they have different cultural backgrounds and various ways of reconciling their culture of origin with American culture (Foner 1997) which could potentially confound the results. Women who were pregnant in wave 4 also were excluded, as pregnancy affects both of the dependent variables. The sample was thus reduced to 4674 respondents.

To allow for unbiased estimates of both the standard errors and the population parameters, a cluster variable and appropriate sample weight were used (Chantala 2006). The clustering variable corrects for regional similarities and non-independence of respondents within schools and is used in the multivariate analyses. A longitudinal weight, which corrects for attrition and non-response at any wave as well as for an oversampling of black youths with high socioeconomic status, Chinese youth, a genetic oversample, twins, and half-siblings or household members who did not share the same parents, is included in all analyses (Harris et al. 2006b). Missing cases ranged from 0

through about 5 percent for each variable, and this gave a total missing case percentage of 25.61. Data appear to be missing at random, which should not jeopardize the results.

After list wise deletion of missing data, the final sample size is 2776 cases for the mental health analysis and 2694 subjects for the physical health analysis.

3.3 MEASUREMENT OF VARIABLES

3.3.1 Dependent Variables

Both physical and mental health are included as measures of health in young adulthood. First, mental health is measured using a variation of the Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a self-report scale widely used in various disciplines to measure psychological distress within populations. It is not designed to diagnose depression as a mental illness within respondents but rather to capture incidences of psychological distress within study populations (Radloff 1977). The original CES-D scale has 20 items with four worded positively to prevent response biases. The scale responses vary from 0 through 3 and the range of CES-D scores are from 0 through 60, where lower numbers indicated fewer symptoms of depression, and therefore lower levels of psychological distress. The CES-D has been validated for use in the general population and in populations receiving treatment for depression (*ibid.*).

Add Health includes a nine item “short version” CES-D scale which can be used to measure depression over the previous seven days (Boardman and Alexander 2011). Depression is measured within Add Health by asking respondents: “Now, think about the past seven days. How often was each of the following things true during the past seven days? You were bothered by things that usually don’t bother you; You could not shake

off the blues, even with help from your family and your friends; You felt that you were just as good as other people; You had trouble keeping your mind on what you were doing; You were depressed; You were too tired to do things; You enjoyed life; You were sad; You felt that people disliked you.” Responses range from 0=never or rarely, to 3=most of time or all of the time. “You felt you were just as good as other people” and “you enjoyed life” were reverse coded so that higher scores corresponded to higher incidences of rates of depression. There is a maximum score of 27 in this scale and previous research has used a score of 10 or higher for defining psychological distress (Boardman and Alexander 2011). In this analysis, mental health will be measured both as a continuous variable and as a dichotomized outcome variable. The CES-D can be dichotomized so as to categorize people having reported larger numbers of symptoms of psychological distress (Ueno 2010; Radloff 1977). In other mental health literature, the CES-D typically has been measured as a continuous outcome variable (e.g. Lee and Turney 2012; Ganong and Larson 2011). Therefore, as a starting point for the mental health analysis, an Ordinary Least Squares regression will be run to determine whether each of the predictor variables increases or decreases psychological distress. As a continuous variable, mental health can range from 0 to 27. As a dichotomized variable, respondents with a score of 0-9 are coded as 0, indicating no psychological distress, and those with a score of 10-27 are coded as 1, where the respondent is experiencing psychological distress. Psychological distress is measured in wave four.

Due to the subjects’ age range of 24-32 years, the vast majority are very healthy and a very small percentage (1.1%) reported having poor physical health. Therefore,

body weight was chosen as the measure of physical health as research has linked obesity to poorer later life health.

Body weight is measured by the body mass index (BMI). BMI is calculated as weight (in kilograms) divided by the square root of a person's height (measured in meters) (Friedman 2000). Add Health recommends a formula for converting their measurements into BMI: height in inches multiplied by 0.0254, and weight in pounds multiplied by 0.454, which can then be converted into BMI (Harris et al. 2009a).

$$\text{Body Mass Index} = \text{kilograms} / \sqrt{\text{meters}}$$

The World Health Organization guidelines suggest four groupings for measuring BMI: underweight (BMI less than 18.5), normal weight (18.5-24.99), overweight (25.0 and higher), and obese (BMI of 30 and above) (Larsson, Karlsson, and Sullivan 2002). For the purposes of this analysis, three categories were created: normal weight, which includes those from the lowest BMI through to 24.99, overweight, including people with a BMI of 25.0 to 29.9, and those who have a BMI of 30 or greater are considered obese. The coding for these groupings are such that those who have a "normal" BMI are the reference category (0), the overweight group is labeled 1, and the group that is obese is 2.

3.3.2 Independent and Control Variables

Living Arrangement

The indicator of the transition to adulthood used in the analysis is the respondent's living arrangement. Respondents are dichotomized as living in the parental home or living outside of the parental home. Living outside the parental home includes

living in another person's house or living in the subjects' own home, either alone or with others. Those who are homeless or live in group quarters, such as dormitories, hospitals, prisons, barracks, group homes and so forth, were excluded from the analysis.

Age

Age is a key demographic and control variable, as age impacts both mental health (Adkins et al. 2008), and body mass (Gordon-Larsen et al. 2010). Furthermore, delaying the transition into adulthood through delaying the transition out of the parental home is age-graded-- that is, older young adults would be more likely to be living outside of the parental home than their younger peers. Following Hallquist et al. (2011), this analysis includes respondents in wave 4, aged 25-34, as the 25 year olds have reached an age where it is possible that they could have completed their education and moved out of their parents' home.

Sex

Sex differences have been found in both mental health (Hankin et al. 2007) and in BMI groupings (Wang et al. 2008) for young adults in this age range. Also, there are hypothesized sex differences in the health effects of living with parents. In the analysis, females are the reference category.

Race/Ethnicity

Racial/ethnic differences are evident in past research on both BMI (Olshansky et al. 2005) and mental health (Boardman and Alexander 2011; Adkins et al. 2008). Most of

these differences are theorized to be linked with social and economic inequality based on race/ethnicity, which therefore is an important demographic characteristic.

For this analysis, race/ethnicity is divided into 4 mutually exclusive categories: non-Hispanic white, non-Hispanic black, Hispanic or Spanish, and “other”. The “other” racial/ethnic category includes Asian and Pacific Islanders, American Indian or Native American, and Add Health’s “other” category, as there are too few respondents within these categories to analyze separately. Also, those who listed more than one race as their racial category are included in the other category, as the N size in this category was very small. For the analysis, non-Hispanic white is the reference category. Race/ethnicity is determined by the individual’s response in wave 1.

Parental Education

As Scharoun-Lee et al. (2009) note, the transition into adulthood is so destandardized that it is problematic to define SES utilizing traditional measures, such as only income or years of education. Thus, three measures of socioeconomic status will be used: the income and educational level of the young adults, and the education level of the parents. Parental socioeconomic status is considered in this analysis, as parents with greater resources are more likely to support their children later on in their lives, and parental SES tends to be a fairly good indicator of the SES of their offspring (Solon 1992).

Because of the large amount of missing data for parental income, parental education is used as an indicator of parental SES. In wave 1, respondents were asked about their parents’ highest educational level. I grouped these into five categories: 0 = did

not graduate from high school, 1= graduated from high school or had a GED, 2= had a Junior college or a vocational training degree, 3= four-year college or university graduate, and 4= had an advanced or professional degree (Merten, Wickrama, and Williams 2008; Crosnoe 2007), with those who did not graduate high school as the reference category. Because mother's education has far fewer missing cases than fathers' (8% versus 30% for fathers), it was used to measure parents' education; where mothers' education is missing, fathers' education is used. Mothers tended to have higher rates of education than did the fathers.

Young Adults' Socioeconomic Status

Socioeconomic status for young adults is also considered in this analysis, measured by their highest educational level achieved and their yearly income. Income and education are likely to predict whether one can afford to live outside of the parental home, and also their health, as health is strongly correlated with socioeconomic status (Willson et al. 2007).

Young adults reported their total income for the past year. The variable was logged to correct for skew. Two variables pertaining to education are included in the analysis. The first measures the highest level of education respondents had achieved to date. This was coded in the same way as parental education (0 = did not graduate from high school, 1= graduated from high school or had a GED, 2= had a Junior college or a vocational training degree, 3= four-year college or university graduate, and 4= had an advanced or professional degree (Merten et al. 2008; Crosnoe 2007), with those who did not graduate high school as the reference category. Respondents were also asked if they

were currently enrolled in school. This variable was dummy coded so that those who were in school = 0, and those who were not enrolled in school = 1.

Physical Limitations

Although only a small percentage of Add Health respondents report a physical limitation (8.2%, or n=391), this is included because it could increase the likelihood of living with parents, as well as impact both of the outcome categories. The variable is coded so that 0=no physical limitations and 1=physical limitations. Physical limitations included in the question were termed as difficulties with moderate activities, where moving a table, vacuuming, golfing, or bowling were given as examples (Harris 2009).

Lagged Variables

Both mental health and BMI scores in wave 3 are included in the analyses as lagged variables because previous mental health and BMI highly predict later time periods. BMI and CES-D at wave 3 are included as controls in the multiple regression models.

3.4 METHODS OF ANALYSIS

The statistical analyses utilized in this thesis include an ordinary least squares regression (OLS) and logistic regression. OLS is used to estimate models of psychological distress measured as a continuous variable. A binary logistic regression is used to estimate models using the dichotomized version of psychological distress. Finally a multinomial logistic regression determines the impact of living arrangements on BMI

group membership through the risk of being overweight or obese as compared to normal weight. These regressions are briefly discussed below.

3.4.1 Ordinary Least Squares Regression

OLS regression diminishes the sum of the squared errors by delivering sample estimates of both the slope and the intercept of the regression equation (Gordon 2010). OLS estimates the effect of the independent variables upon the dependent variable, and requires continuous dependent variables. Thereby, it predicts the effect of an increase of one-unit by the independent variable on the outcome variable, whilst holding the other variables in the model constant (Miller 2005).

3.4.2 Logistic Regression

Logistic Regression is utilized to estimate the effect of independent variables on a categorical outcome variable (Miller 2005). Logistic regressions are either binary, where the outcome variable is dichotomized, or multichotomous/multinomial, which have three or greater possible outcomes (*ibid.*). This categorization of the outcome variable is what differentiates logit models from linear regressions (Hosmer and Lemeshow 2000).

Logistic regressions are generally interpreted using the odds ratio for ease of interpretation. The odds ratio is the exponentiation of the regression coefficient, and it tells the reader how likely it is for a particular outcome to occur amongst those with that specific condition compared to those without (*ibid.*).

CHAPTER FOUR

DELAYED TRANSITIONS AND MENTAL HEALTH

4.1 INTRODUCTION

This chapter presents results of statistical models predicting psychological distress. The first section presents the sample characteristics, followed by a bivariate analysis of the predictor variables and the dichotomized dependent variable. Next, a binary logistic regression is presented, followed by an ordinary least squares regression predicting psychological distress as a continuous variable. The hypothesis guiding the analysis is that living in the parental home during the period of young adulthood will increase young adults' psychological distress, with observable differences due to sex, race/ethnicity, and socioeconomic status.

4.2 SAMPLE CHARACTERISTICS

When psychological distress is dichotomized, 13% of young adults can be categorized as experiencing psychological distress (Table 4.1). Approximately 15% of young adults reported living with their parents. The majority of respondents are non-Hispanic whites (64.39%), followed by non-Hispanic blacks (20.97%), and the "other" racial/ethnic category (10.44%). Hispanics were the least populated racial category (4.2%). The mean age of the respondents is 28. Only 7.56% of the sample reported having a physical limitation, such that they could not accomplish everyday tasks like vacuuming. The median annual income was \$30,000. With respect to their own educational level, approximately 36% of young adults had some college education, and

about 43% were college graduates or post-graduates. Approximately 6% had less than a high school degree, and 15% had graduated from high school. Furthermore, most the respondents were not currently enrolled in school during wave 4 (83.58%). Finally, most of the respondents reported that their parents' education level was high school graduate. Overall, respondents are more highly educated than their parents.

**Table 4.1: Descriptive Statistics of Young Adults
in Add Health
(N=2776)**

	%
Psychological Distress (W4)	
No (Ref)	87.00
Yes	13.00
Living Arrangement	
Outside PH (Ref)	84.90
In Parental Home	15.10
Psychological Distress (W3)	
No (Ref)	89.01
Yes	10.99
Physical Limitation	
No (Ref)	92.44
Yes	7.56
Sex	
Female (Ref)	54.10
Male	45.90
Race/Ethnicity	
Non-Hispanic White (Ref)	64.39
Non-Hispanic Black	20.97
Hispanic	4.20
Other	10.44
Age	
25-26	9.95
27	15.33
28	18.46
29	17.23
30	16.82
31	16.28
32-34	5.92

YA Income (In Dollars)		%
	Median	30 000.00
	Minimum	0.00
	Maximum	999 995.00
YA Highest Education Level		
	Less Than High School (Ref)	5.84
	High School Grad	14.93
	Some College	35.89
	College Grad	34.20
	Post-Graduation	9.15
YA Currently In School		
	Yes (Ref)	16.42
	No	83.58
Parental Education		
	Less Than High School (Ref)	12.51
	High School Grad	35.52
	Some College	20.90
	College Grad	21.28
	Post-Graduation	9.81

Ref= Reference Category

YA= Young Adult

Turning to the bivariate analysis (Table 4.2) 17.11% of the young adults who live with their parents' report psychological distress, as opposed to the 11.68% who live outside of the parental home. Women tend to have higher rates of psychological distress than do men (16.57%, as compared to 8.75%). Across different racial groups, non-Hispanic whites, Hispanics, and the "other" category report relatively similar rates of psychological distress (10.74, 11.39, and 15.4%, respectively), and non-Hispanic blacks report the highest rates of psychological distress (20.36%). Psychological distress varies little by age, however, those aged 32 through 33 have the highest reported rates of psychological distress (17.78 and 25.69%, respectively), and 27 year olds the lowest

(8.16)². Those who have a physical limitation are more likely to experience psychological distress (31.28% compared with 11.04%). Psychological distress decreases as income increases (20.66% vs. 7.86%). Increases in education also improves mental health (25.38% of those with less than a High School education experience psychological distress compared to 5.74% of those with a post-graduation degree), and being currently in school appears to make little difference. Finally, when parents are college graduates, respondents' reported the lowest rate of psychological distress (8.46%) compared to those who had parents who did not graduate from high school (17.31%).

Table 4.2: Bivariate Analysis of Psychological Distress and Predictor Variables in Young Adults in Add Health

(N = 2776)

		Psychological Distress	
		Low (%)	High (%)
Living Arrangement			
	Outside PH (Ref)	88.32	11.68
	In Parental Home	82.89	17.11
CES-D Score Wave 3			
	Low (Ref)	0.00	100.00
	High	87.12	12.51
Physical Limitation			
	No (Ref)	88.95	11.04
	Yes	68.72	31.28
Sex			
	Female (Ref)	83.43	16.57
	Male	91.25	8.75
Race			
	Non-Hispanic White (Ref)	89.26	10.74
	Non-Hispanic Black	79.64	20.36
	Hispanic	88.61	11.39
	Other	84.60	15.40

² As there were only 3 respondents aged 34, this age group lacks statistical power and is not discussed.

		Psychological Distress	
		Low (%)	High (%)
Age			
	25	91.70	8.30
	26	85.25	14.75
	27	91.84	8.16
	28	85.17	14.83
	29	87.84	12.16
	30	86.56	13.44
	31	88.83	11.17
	32	82.22	17.78
	33	74.31	25.69
	34	100.00	0.00
YA Income			
	Less than \$15000	79.34	20.66
	\$15000 to 24999	85.61	14.39
	\$25000 to 34999	89.31	10.69
	\$35000 to 49999	92.44	7.56
	\$50000 to 74999	91.50	8.50
	\$75000 or Greater	92.12	7.86
YA Highest Education Level			
	Less Than High School (Ref)	74.62	25.38
	High School Grad	87.36	12.64
	Some College	87.86	12.14
	College Grad	88.79	11.21
	Post-Graduation	94.26	5.74
YA Currently In School			
	Yes (Ref)	88.64	11.36
	No	87.25	12.75
Parental Education			
	Less Than High School (Ref)	82.69	17.31
	High School Grad	86.29	13.71
	Some College	87.46	12.54
	College Grad	91.54	8.46
	Post-Graduation	90.26	9.74

Ref = Reference Category

YA= Young Adult

4.3 ORDINARY LEAST SQUARES REGRESSION

Measuring CES-D on a continuous scale allows for the magnitude of the effect of the independent variables to be demonstrated. That is, an OLS regression will determine how much varying arrangements increase or decrease CES-D scores, rather than whether or not living arrangements increase the risk of having a CES-D score that categorizes one as psychologically distressed (i.e. 10 or greater), which is demonstrated in section 4.5.

Table 4.3 includes models 1 and 2. Model 1 includes living with parents and past CES-D, which was measured at wave 3. Model 2 adds physical limitations.

**Table 4.3: OLS Regression Using Health to Predict Young Adult Psychological Distress
Models 1 and 2
(N=2776)**

Variables	Model 1				Model 2			
	Coeff.		95% CI		Coeff.		95% CI	
Living with Parents	0.837	***	0.385	1.290	0.778	***	0.337	1.219
CES-D Wave3	0.445	***	0.402	0.488	0.429	***	0.386	0.472
Physically Limited					2.206	***	1.524	2.889
Constant	2.849	***	2.642	3.056	2.770	***	2.569	2.970
R ²			0.2130				0.2332	

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

As is evidenced by the results in model 1, living with parents significantly increases CES-D. It should be noted that although living with parents does increase one's CES-D score by 0.837, with a constant of 2.849, the CES-D score has not reached the level of psychological distress, which is a CES-D level of 10. Past mental health has a slight, although statistically significant, effect on increasing respondents' CES-D scores.

In model 2, with the addition of physical limitations, the coefficients for living with parents and past mental health remain relatively unchanged, but having a physical

limitation increases CES-D scores by a coefficient of 2.206. It should be noted that the model's R^2 increases from 0.2130 in model 1 to 0.2332 in model 2, a change in the model fit of 0.0202.

Table 4.4 presents models 3 and 4, which enhance the prior models with demographic and socioeconomic status characteristics, including the young adult's logged income, and educational attainment. These models further improve the fit of the regression model, and living arrangements remain an important predictor of increased CES-D.

**Table 4.4: OLS Regression of Demographic and SES Factors to Predict Young Adult Psychological Distress
Models 3 and 4
(N=2776)**

Variable	Model 3				Model 4			
	Coeff.		95% CI		Coeff.		95% CI	
Lives with Parents	0.781	***	0.334	1.228	0.631	**	0.171	1.092
Mental Health W3	0.417	***	0.376	0.459	0.408	***	0.366	0.450
Physical Limitations	2.133	***	1.455	2.810	1.937	***	1.259	2.615
Male	-0.482	**	-0.813	-0.150	-0.497	**	-0.821	-0.174
Age	0.060		-0.032	0.153	0.063		-0.031	0.156
Black	0.692	**	0.204	1.179	0.606	**	0.155	1.058
Hispanic	-0.118		-0.810	0.574	-0.286		-0.998	0.426
Other	0.277		-0.251	0.804	0.116		-0.397	0.629
YA Income					-0.074		-0.250	0.103
YA HS Graduate					-0.855	*	-1.547	-0.163
YA Some PS					-1.022	**	-1.702	-0.343
YA PS Graduate					-1.116	**	-1.813	-0.420
YA Post-Grad Degree					-1.647	***	-2.386	-0.908
YA Currently in School					-0.211		-0.654	0.231
Parent HS Graduate					-0.174		-0.727	0.378
Parent Some PS					-0.236		-0.870	0.398
Parent PS Graduate					-0.656	*	-1.224	-0.088
Parent Post-Grad Degree					-0.490		-1.212	0.232
Constant	1.248		-1.414	3.911	3.061	*	0.270	5.853
R^2				0.2410				0.2543

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Model 3 introduces demographic characteristics into the model and improves the fit of the R^2 to 0.2410. This model shows that living with one's parents' remains significant in increasing levels of CES-D, past mental health predicts current mental health, and having a physical limitation still has a large effect increasing CES-D scores. The addition of the demographic characteristics show that males have lower CES-D, but being black raises CES-D scores, compared to whites. Age, and having a race/ethnicity of Hispanic or "other" failed to have a statistically significant effect upon CES-D.

As model 4 shows, education has a statistically significant and large effect on CES-D. When compared to those who have less than a high school degree, higher educational levels lower CES-D. Currently attending school and logged income are not significant, and the significance of the other predictors is unchanged. The only parental education level that has a statistically significant effect is post-secondary graduate, which reduces CES-D compared to parents who lack a high school degree. The fit of the model also improves from 0.2410 to 0.2540, which is an overall change of 0.0130.

Overall, it has been shown that those who live with their parents who have poorer previous mental health and physical limitations, and who are black, tend to have higher levels of CES-D than those who live outside of the parental home, have good previous mental health, lack physical limitations, and are white. Increasing levels of young adult education reduce CES-D, as does having parents who are a post-secondary education graduate, when compared to those with lower than a high school degree.

**Table 4.5: OLS Regression of Interaction Terms
Predicting Young Adult Psychological Distress
Model 5
(N=2776)**

Variable	Model 5		
	Coeff.	95% CI	
Lives with Parents	0.433	-0.049	0.915
Mental Health W3	0.409 ***	0.367	0.451
Physical Limitations	1.506 ***	0.846	2.165
Male	-0.486 **	-0.813	-0.159
Age	0.065	-0.027	0.158
Black	0.603 **	0.158	1.047
Hispanic	-0.253	-0.966	0.460
Other	0.105	-0.407	0.618
YA Income	-0.073	-0.249	0.102
YA HS Graduate	-0.837 *	-1.537	-0.136
YA Some PS	-1.018 **	-1.704	-0.333
YA PS Graduate	-1.126 **	-1.826	-0.426
YA Post-Grad Degree	-1.659 ***	-2.399	-0.919
YA Currently in School	-0.234	-0.677	0.208
Parent HS Graduate	-0.143	-0.695	0.409
Parent Some PS	-0.193	-0.832	0.445
Parent PS Graduate	-0.623 *	-1.192	-0.054
Parent Post-Grad Degree	-0.452	-1.172	0.268
Living x Physical Lims	2.080 *	0.199	3.961
Constant	2.997 *	0.236	5.757
R ²		0.2572	

*** p≤0.001, ** p≤0.01, * p≤0.05

Model 5 introduces interaction terms. I tested interaction terms combining living with parents and each of the independent variables; however, only the interaction of physical limitations and living with parents was significant³. Model 5 demonstrates that living with parents increases CES-D more for those with a physical limitation compared

³ Some categories of the interaction term of educational level and living with parents were significant; however, due to low sample sizes of those who had less than a high school degree or post-graduate degree and lived in the parental home, the interaction term was dropped. See Chapter 6 for a discussion on why those with less than a high school degree may not tend to live with their parents as frequently as those with higher education.

to those without a limitation (2.080). Otherwise the coefficients do not change, although the fit increases to 0.2572. It can be seen that having a physical limitation and living with parents creates psychological distress. Living with parents does not impact the mental health of those without physical limitations.

In the next section of this chapter, the results from a binary logistic regression are presented to demonstrate the change in the effects of the independent variables on the risk of experiencing psychological distress measured as a dichotomous variable.

4.4 BINARY LOGISTIC REGRESSION

Table 4.6 presents a series of models predicting psychological distress. The first model introduces the key independent variable of living arrangement, while controlling for past mental health. In model 1, results show that living with one's parents significantly increases the log odds of experiencing psychological distress by 0.445; young adults who live with their parents are approximately 1.6 times more likely to experience psychological distress.

Model 2 adds a control for past mental health. The results from this model show that living with parents in the young adult years is not statistically significant in predicting psychological distress when controlling for previous mental health. Having poorer mental health at an earlier time increases the risk of experiencing psychological distress by 1.236 times.

Table 4.6: Binary Logistic Regression of Living Arrangement and Previous Psychological Distress Predicting Young Adult Psychological Distress Outcomes Models 1 and 2 (N=2776)

	Model 1			Model 2		
	B	SE	OR	B	SE	OR
Lives with Parents	0.445 **	0.155	1.561	0.277	0.184	1.320
Mental Health W3				0.212 ***	0.014	1.236
Constant	-2.023 ***	0.068		-3.217 ***	0.110	
	F(1, 131) = 8.23			F(2, 130) = 113.69		

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

OR= Odds Ratio

SE= Standard Error

Mental Health Outcome: 1= Psychological Distress

Table 4.7: Binary Logistic Regression of Health and Demographic Characteristics Predicting Young Adult Psychological Distress Outcomes Models 3 and 4 (N=2776)

	Model 3			Model 4		
	B	SE	OR	B	SE	OR
Lives with Parents	0.252	0.185	1.287	0.294	0.187	1.341
Mental Health W3	0.208 ***	0.015	1.231	0.202 ***	0.014	1.224
Physical Limitations	1.087 ***	0.231	2.966	1.029 ***	0.231	2.797
Male				-0.505 **	0.170	0.604
Age				0.055	0.046	1.057
Black				0.572 **	0.220	1.772
Hispanic				-0.447	0.438	0.639
Other				0.073	0.235	1.075
Constant	-3.309 ***	0.114		-4.708 ***	1.331	
	F(3, 129) = 73.05			F(8, 124)=30.12		

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

When physical limitations are added in model 3, living with one's parents remains insignificant. Having a physical limitation increases the log odds of psychological distress by 1.087.

Model 4 adds age, sex and race/ethnicity. Males have lower odds of psychological distress than females, which supports this theses' hypothesis. Blacks are 1.772 times more likely to have poor mental health outcomes than whites ($p \leq 0.05$); this was the only racial/ethnic category to be statistically significant.

Table 4.8: Binary Logistic Regression Predicting Young Adult Psychological Distress Outcomes, Full Model Model 5 (N=2776)

Variable	Model 5		
	B	SE	OR
Lives with Parents	0.217	0.189	1.243
Mental Health W3	0.200 ***	0.015	1.221
Physical Limitations	0.935 ***	0.238	2.547
Male	-0.502 **	0.176	0.605
Age	0.060	0.046	1.062
Black	0.523 *	0.208	1.687
Hispanic	-0.477	0.462	0.621
Other	-0.009	0.234	0.991
YA Income	-0.059	0.060	0.942
HS Graduate	-0.762 ***	0.223	0.467
Some PS	-0.667 **	0.222	0.513
PS Graduate	-0.533 *	0.231	0.587
Post-Grad Degree	-1.190 **	0.374	0.304
Completed School	-0.027	0.208	0.973
Parental HS Graduate	0.008	0.251	1.008
Parental Some PS	-0.023	0.285	0.978
Parental PS Graduate	-0.451	0.264	0.637
Parental Post-Grad Degree	-0.139	0.393	0.870
Constant	-3.840 **	1.378	
	F(18, 114)= 14.17		

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Model 5 considers the young adults' income (as a logged variable, to correct for right skew), the young adults' education, and parents' education. Neither income nor parental educational level are statistically significant, however higher levels of the young

adults' education significantly reduces the likelihood of psychological distress. All other coefficients remain relatively unchanged.

Interaction terms were run in preliminary models; however none of the interaction terms were statistically significant in this regression.

4.5 CONCLUSION

To summarize, this chapter looked at the effect that delaying the transition to adulthood by living with one's parents' later has on the mental health of young adults'. When CES-D is measured on a continuous scale, living with parents significantly increases CES-D; however, the inclusion of an interaction term between physical limitations and living arrangements suggests that this may be the case only for those with physical limitations. When measured as a dichotomous variable, living with parents does not significantly increase one's risk of experiencing psychological distress. Overall, it can be seen that the factors which significantly increases young adults' likelihood of experiencing psychological distress include past mental health and physical limitations. In addition, blacks have a higher likelihood of psychological distress than whites. Being male, and having higher levels of education, have a positive impact upon mental health.

CHAPTER FIVE

DELAYED TRANSITIONS AND PHYSICAL HEALTH

5.1 INTRODUCTION

This chapter presents results from statistical models predicting body weight. The first section presents descriptive statistics. Next, bivariate analyses are presented, and finally a multinomial logistic regression will predict body weight outcomes. The hypothesis which frames this analysis is that living in the parental home will increase young adults' BMI, and there will be differences attributable to sex, race/ethnicity, and socioeconomic status.

5.2 SAMPLE CHARACTERISTICS

As most of the descriptive statistics were presented in Chapter 4 (Table 4.1, p. 33-34), they will not be repeated here. However, as seen below in Table 5.1, 19.37 percent of young adults were obese in wave 3, compared to 37.44 percent of the sample in wave 4, an increase of 18.07 percent. Thus, a large proportion of the sample gained weight between waves 3 and 4. As previous research indicates, as youth age, BMI tends to increase (Gordon-Larsen et al. 2010; Harris 2010).

Table 5.1: Descriptive Statistics of Young Adults' BMI in Add Health (N=2694)

	%
BMI Groups (W4)	
Under/Normal weight (Ref)	33.76
Overweight	28.80
Obese	37.44
BMI Groups (W3)	
Under/Normal weight (Ref)	52.09
Overweight	28.54
Obese	19.37

Ref= Reference Category

As is demonstrated in table 5.2, the three body weight groupings are fairly evenly distributed across the two living arrangement outcomes, although those living with parents are almost 8% more likely to be obese than normal weight. With respect to sex, more women have a normal body weight (38.22%), and more men populate the overweight category (34.36%). However, almost equal proportions of men and women are obese. Considering race/ethnicity, whites have the highest percentage of normal weight individuals (36.47%), Hispanics are most heavily populated in the overweight category (37.69%), and blacks have the highest proportion of obese respondents (43.75%). The likelihood of obesity increases with age and the likelihood of falling in the normal weight category decreases, which is consistent with the literature that suggests BMI increases alongside age in the young adult years (Gordon-Larsen et al. 2010; Harris 2010). Those who have a physical limitation are more likely to be obese (48.88% vs. 36.15%). There does not appear to be much variation between the three weight groups by level of income. Higher education is associated with lower weight. For example, the percentage of people who are normal weight and have less than a high school degree is 28.76%; the percentage of people who have a post-graduation degree and are normal

weight is 43.01. This appears to be a fairly linear trend, and the opposite effect happens for those who are obese. Young adults who are currently enrolled in school are slightly more likely to be obese. Parental education has an association with body weight that is similar to, but smaller than, young adults' own educational levels. Finally, it should be noted that body weight in wave 3 is strongly associated with weight in wave 4, as 91.41% of the sample who were obese in wave 3 remains obese in wave 4. With respect to the underweight/normal BMI group in wave 3, 58.26% of the sample remained in the same weight category in wave 3. The respondents who were overweight in wave 3 tended to increase their weight into the obese category in wave 4 (53.61% in wave 4). Thus, as is seen, there are some variations within the bivariate descriptive statistics, such as by education level, but there are also some areas where there is little variation, such as in living arrangements or school completion.

Table 5.2: Bivariate Analysis of BMI Groupings and Predictor Variables
(N = 2694)

	BMI Group		
	Normal (%)	Overweight (%)	Obese (%)
Living Arrangement			
Outside PH (Ref)	33.59	29.96	36.46
In Parental Home	32.36	27.26	40.38
Wave 3 BMI Group			
Underweight/Normal (Ref)	58.26	32.65	9.09
Overweight	8.26	38.12	53.61
Obese	0.96	7.63	91.41
Physical Limitation			
No (Ref)	34.17	29.68	36.15
Yes	23.29	27.83	48.88
Sex			
Female (Ref)	38.22	24.26	37.51
Male	29.01	34.36	36.63

	BMI Group		
	Normal (%)	Overweight (%)	Obese (%)
Race			
Non-Hispanic White (Ref)	36.47	28.43	35.10
Non-Hispanic Black	25.91	30.34	43.75
Hispanic	19.69	37.69	42.61
Other	27.21	32.87	39.91
Age			
25	29.46	7.10	63.44
26	41.34	25.65	33.01
27	34.66	30.49	34.85
28	37.60	27.55	34.85
29	29.77	30.38	39.85
30	30.77	30.42	38.81
31	27.35	33.64	39.01
32	19.76	34.02	46.22
33	13.23	25.69	61.09
34	100.00	0.00	0.00
YA Income			
Less than \$15000	33.76	28.27	37.96
\$15000 to 24999	32.78	27.39	39.83
\$25000 to 34999	30.54	31.39	38.07
\$35000 to 49999	37.16	26.54	36.30
\$50000 to 74999	30.83	36.38	32.79
\$75000 or Greater	36.41	27.99	35.60
YA Highest Education Level			
Less Than High School (Ref)	28.76	28.24	43.00
High School Grad	27.53	30.19	42.28
Some College	30.87	27.13	41.99
College Grad	37.89	31.28	30.83
Post-Graduation	43.01	33.34	23.64
YA Currently In School			
Yes (Ref)	36.36	29.97	33.67
No	32.79	29.46	37.75
Parental Education			
Less Than High School (Ref)	25.72	30.24	44.05
High School Grad	31.96	28.78	39.26
Some College	33.65	31.39	34.96
College Grad	38.06	29.62	32.32
Post-Graduation	39.49	27.47	33.04

Ref = Reference Category

YA= Young Adult

5.3 MULTIVARIATE LOGISTIC REGRESSION

To fully assess the association between living arrangements and differing risks of body weight outcomes, a multinomial logistic regression with eight separate additive models was run, which displays changes in the impact of the independent variables on the log odds of being overweight or obese compared to having a body weight within the normal or underweight range. For ease of presentation, each model is presented separately. As is seen in model 1, living with one's parents does not significantly affect the likelihood of being overweight or obese relative to the normal/underweight BMI category.

Table 5.3: Multinomial Logistic Regression Predicting BMI Category with Living Arrangements
Model 1
(N=2694)

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.057	0.173	0.944	0.139	0.135	1.149
Constant	-0.114	0.074		0.082	0.070	

F (2, 130)= 0.92

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Note: in this regression, there was no statistical significance

OR= Odds Ratio

SE= Standard Error

Reference Category: Normal Weight

Model 2 considers previous body weight. Living with parents remains non-significant. As would be expected, one's past BMI is highly significant in predicting current BMI, with those who were overweight in wave 3 being 8.3 times more likely to be overweight in wave 4 and almost 42 times more likely to be obese in wave 4. Those who were obese in wave 3 are 14.3 times more likely to be overweight in wave 4, and 614 times more likely to be obese, compared to normal weight.

Table 5.4: Multinomial Logistic Regression Predicting BMI Category with Living Arrangements and Past Weight

**Model 2
(N=2694)**

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.173	0.170	0.841	-0.145	0.202	0.865
Overweight W3	2.115 ***	0.164	8.291	3.734 ***	0.184	41.843
Obese W3	2.660 ***	0.537	14.295	6.420 ***	0.500	614.240
Constant	-0.556 ***	0.088		-1.838 ***	0.122	

F(6, 126)=105.19

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

When physical limitations are considered (model 3), they significantly increase the risk of being obese relative to the normal weight reference category. Otherwise, the model does not change.

Table 5.5: Multinomial Logistic Regression Predicting BMI Category with Living Arrangements and Health Related Predictors

**Model 3
(N=2694)**

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.190	0.172	0.827	-0.174	0.205	0.840
Overweight W3	2.125 ***	0.163	8.371	3.761 ***	0.184	42.995
Obese W3	2.671 ***	0.538	14.453	6.452 ***	0.500	634.162
Physical Limitations	0.453	0.246	1.573	1.034 ***	0.302	2.811
Constant	-0.582 ***	0.089		-1.921 ***	0.122	

F(8, 124)= 79.38

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

When demographic characteristics are added in model 4, living with parents remains non-significant. Past BMI groupings continue to have a strong likelihood of increasing the risk for being overweight or obese, compared to normal weight. In particular, being obese in wave 3 increases the risk of obesity by 637.512 times. As is shown by this model, there is a very low possibility that people who are in the obese category in wave 3 will cease to be in wave 4. Physical limitations retain significance in

predicting increased odds of becoming obese (0.974). Being male is significant only for being overweight, and it increases the risk of becoming overweight by almost 1.7 times. Hispanics are 2.98 times more likely to be overweight and 3.1 times more likely to be obese than whites. Blacks are not significantly more likely than whites to be overweight or obese compared to normal BMI. Age was not significant.

**Table 5.6: Multinomial Logistic Regression Predicting BMI Category, Previous Model and Demographic Considerations
Model 4
(N=2694)**

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.296	0.169	0.744	-0.280	0.206	0.756
Overweight W3	2.073 ***	0.167	7.951	3.761 ***	0.188	43.003
Obese W3	2.642 ***	0.539	14.047	6.458 ***	0.501	637.512
Physical Limitations	0.416	0.248	1.517	0.974 **	0.313	2.648
Male	0.518 ***	0.137	1.679	0.097	0.156	1.101
Age	0.051	0.038	1.052	-0.001	0.052	0.999
Black	0.384	0.205	1.468	0.364	0.191	1.439
Hispanic	1.091 **	0.368	2.978	1.146 ***	0.318	3.145
Other	0.404	0.225	1.498	0.444	0.320	1.559
Constant	-2.399 *	1.084		-2.061	1.495	

F(18, 114)= 37.12

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Theoretically, young adults' income could have an effect on both living arrangements and BMI, as income has a buffering effect against weight gain, and higher incomes would logically predict living outside of the parental home, as one could afford to do so. In addition, education as a predictor of higher SES has been shown repeatedly to have a positive effect on health. In models not shown, income and education were introduced separately, but neither was statistically significant. Therefore, only the final model, which includes all the young adult SES variables in addition to parental education, will be shown.

Model 5, presented in table 5.7⁴, includes the full model. This model shows that none of the socioeconomic indicators have an impact in predicting the likelihood of one belonging to either the overweight or obese category instead of the normal weight category, as young adults' income and education attainment or parental education coefficients are not significant. Other coefficients remain relatively unchanged from previous models: past weight, physical limitations for the obese outcome, males for the overweight outcome, and being Hispanic compared to white are all significant predictors of BMI.

Following the final models, interaction terms were run for all the variables combined with living in the parental home. It was found that living with parents and having a physical limitation, living with parents and being of the "other" racial/ethnic category, and living with parents and being obese at wave 3 were all statistically significant.

From model 6 (Table 5.8)⁵, it is shown that those who live with their parents and have a physical limitation are about 4 times more likely to be obese instead of normal weight compared to those who have a physical limitation but do not live with their parents'. This interaction term was not significant for the overweight outcome. Young adults without physical limitations who live at home actually have a lower likelihood of obesity than those who live on their own.

⁴ Table 5.7 can be seen on page 53.

⁵ Table 5.8 can be seen on page 54.

**Table 5.7: Full Model Multinomial Logistic Regression Predicting BMI Category
Model 5
(N=2694)**

Variable	Overweight			Obese				
	B	SE	OR	B	SE	OR		
Living with Parents	-0.307	0.171	0.736	-0.346	0.217	0.708		
Overweight W3	2.078	***	0.168	7.992	3.773	***	0.190	43.489
Obese W3	2.667	***	0.536	14.392	6.470	***	0.490	645.483
Physical Limitations	0.377		0.256	1.457	0.856	**	0.308	2.354
Male	0.557	***	0.146	1.746	0.136		0.165	1.145
Age	0.048		0.038	1.049	-0.006		0.051	0.994
Black	0.359		0.218	1.433	0.313		0.204	1.368
Hispanic	1.024	**	0.395	2.784	1.026	**	0.335	2.791
Other	0.373		0.235	1.452	0.356		0.320	1.427
YA Income	-0.059		0.055	0.943	-0.100		0.060	0.905
YA HS Graduate	0.177		0.349	1.194	0.337		0.466	1.400
YA Some PS	0.115		0.280	1.122	0.254		0.409	1.289
YA PS Graduate	0.175		0.326	1.192	-0.049		0.415	0.952
YA Post-Grad Degree	0.259		0.364	1.296	0.046		0.492	1.047
YA Completed Education	-0.069		0.167	0.933	0.015		0.188	1.015
Parental HS Graduate	-0.214		0.243	0.807	-0.275		0.252	0.759
Parental Some PS	-0.182		0.264	0.834	-0.297		0.288	0.743
Parental PS Graduate	-0.346		0.273	0.707	-0.502		0.276	0.605
Parental Post-Grad Degree	-0.341		0.287	0.711	-0.144		0.295	0.866
Constant	-1.963		1.233		-1.342		1.503	

F(38, 94) = 18.34

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Table 5.8: Multinomial Logistic Regression, Full Model and Living with Parents and Being Physically Limited Interaction Term Predicting BMI Category
Model 6
(N=2694)

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.37	0.19	0.69	-0.48 *	0.23	0.62
Overweight W3	2.08 ***	0.17	8.04	3.79 ***	0.19	44.11
Obese W3	2.68 ***	0.54	14.52	6.49 ***	0.49	656.21
Physical Limitations	0.23	0.28	1.26	0.58	0.32	1.79
Male	0.56 ***	0.15	1.75	0.14	0.16	1.15
Age	0.05	0.04	1.05	0.00	0.05	1.00
Black	0.37	0.22	1.45	0.32	0.21	1.38
Hispanic	1.03 **	0.39	2.80	1.04 **	0.33	2.84
Other	0.37	0.24	1.45	0.35	0.32	1.42
YA Income	-0.06	0.06	0.95	-0.10	0.06	0.91
YA HS Graduate	0.19	0.35	1.20	0.36	0.47	1.43
YA Some PS	0.11	0.28	1.12	0.26	0.41	1.30
YA PS Graduate	0.16	0.33	1.18	-0.06	0.41	0.95
YA Post-Grad Degree	0.25	0.36	1.29	0.04	0.49	1.04
YA Completed Education	-0.07	0.17	0.93	0.00	0.19	1.00
Parental HS Graduate	-0.21	0.25	0.81	-0.27	0.25	0.77
Parental Some PS	-0.17	0.27	0.84	-0.28	0.29	0.76
Parental PS Graduate	-0.34	0.27	0.71	-0.49	0.28	0.61
Parental Post-Grad Degree	-0.34	0.29	0.71	-0.13	0.30	0.88
Living x Physical Lims	0.77	0.62	2.16	1.42 *	0.63	4.14
Constant	-1.97	1.24		-1.39	1.49	

F(40.92)=17.02

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Model 7 (Table 5.9) tests the possibility that living with parents has different effects on BMI based on race/ethnicity. This interaction term was only significant for the overweight category, and as it shows, those who live with their parents and are of the “other” racial/ethnic group are less likely to end up in the overweight category than those who do not live with their parents. Those in the “other” racial/ethnic group and do not live at home are almost 1.8 times more likely to be overweight; thus, it appears that living in the parental home is beneficial for this group.

Table 5.9: Full Multinomial Logistic Regression with Race/Ethnicity and Living Arrangements Interaction Predicting BMI Category

Model 7
(N=2694)

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.110	0.211	0.896	-0.302	0.258	0.740
Overweight W3	2.078 ***	0.167	7.985	3.771 ***	0.190	43.422
Obese W3	2.655 ***	0.535	14.230	6.467 ***	0.488	643.355
Physical Limitations	0.386	0.254	1.471	0.858 **	0.309	2.359
Male	0.556 ***	0.145	1.743	0.135	0.165	1.145
Age	0.051	0.038	1.052	-0.004	0.051	0.996
Black	0.418	0.251	1.519	0.307	0.244	1.359
Hispanic	0.973 *	0.401	2.645	1.008 **	0.345	2.739
Other	0.562 *	0.268	1.755	0.442	0.368	1.555
YA Income	-0.056	0.055	0.945	-0.100	0.061	0.904
YA HS Graduate	0.179	0.344	1.196	0.329	0.458	1.390
YA Some PS	0.124	0.276	1.132	0.261	0.404	1.299
YA PS Graduate	0.186	0.324	1.204	-0.042	0.410	0.959
YA Post-Grad Degree	0.265	0.361	1.304	0.051	0.491	1.053
YA Completed Education	-0.058	0.167	0.944	0.018	0.188	1.018
Parental HS Graduate	-0.205	0.245	0.815	-0.264	0.253	0.768
Parental Some PS	-0.164	0.267	0.848	-0.278	0.290	0.757
Parental PS Graduate	-0.319	0.275	0.727	-0.484	0.277	0.617
Parental Post-Grad Degree	-0.308	0.289	0.735	-0.118	0.299	0.889
Living x Black	-0.352	0.477	0.703	-0.005	0.548	0.995
Living x Hispanic	0.139	0.697	1.149	0.097	0.704	1.101
Living x Other	-1.083 *	0.538	0.339	-0.378	0.686	0.686
Constant	-2.109	1.233		-1.431	1.500	

F(44, 88)= 15.54

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Table 5.10: Full Model Multinomial Logistic Regression with Living Arrangements and Past Weight Interaction Terms Predicting Current BMI Category
Model 8
(N=2694)

Variable	Overweight			Obese		
	B	SE	OR	B	SE	OR
Living with Parents	-0.334	0.197	0.716	-0.056	0.308	0.945
Overweight W3	2.138 ***	0.190	8.480	3.878 ***	0.224	48.316
Obese W3	2.321 ***	0.554	10.186	6.283 ***	0.484	535.234
Physical Limitations	0.372	0.257	1.450	0.847 **	0.306	2.333
Male	0.556 ***	0.146	1.743	0.130	0.165	1.138
Age	0.048	0.038	1.049	-0.005	0.052	0.995
Black	0.363	0.218	1.438	0.316	0.203	1.371
Hispanic	1.018 *	0.396	2.768	1.019 **	0.332	2.770
Other	0.373	0.234	1.452	0.351	0.318	1.420
YA Income	-0.059	0.055	0.942	-0.100	0.060	0.905
YA HS Graduate	0.180	0.350	1.197	0.339	0.464	1.403
YA Some PS	0.111	0.281	1.118	0.255	0.409	1.290
YA PS Graduate	0.172	0.327	1.187	-0.047	0.414	0.954
YA Post-Grad Degree	0.256	0.364	1.292	0.045	0.492	1.046
YA Completed Education	-0.075	0.166	0.928	0.008	0.191	1.008
Parental HS Graduate	-0.209	0.244	0.811	-0.279	0.252	0.756
Parental Some PS	-0.175	0.266	0.840	-0.306	0.287	0.737
Parental PS Graduate	-0.346	0.275	0.708	-0.506	0.276	0.603
Parental Post-Grad Degree	-0.338	0.288	0.713	-0.144	0.295	0.866
Living x Overweight	-0.273	0.485	0.761	-0.599	0.495	0.550
Living x Obese	13.825 ***	0.676	1009319.000	12.963 ***	0.533	426378.400
Constant	-1.934	1.235		-1.398	1.516	

F(42, 90)= 283.73

*** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

Model 8 (Table 5.10) presents the interaction term of past BMI and living with parents. Living with parents and being obese in wave 3 astronomically increases the risk of being both overweight or obese in wave 4. Results also show that those who are overweight in wave 3 and do not live with parents have an increased risk of staying overweight or gaining weight between waves 3 and 4 (odds ratio of 8.480 and 48.316, respectively for overweight and obese at wave 4). Being obese at wave 3 and not living in

the parental home also drastically increase the risk of being obese in wave 4 (log odds of 535.234). These results suggest that there is absolute continuity in maintaining or increasing overweight and obesity in the transition from adolescence to young adulthood, and that the risks are even greater among those who were overweight or obese in adolescence and continue to live with their parents.

5.4 CONCLUSION

In short, this chapter looked at the health effects of delaying the transition to adulthood through living with one's parents. The relationship between living arrangements and BMI was not significant. Thus, the original hypothesis with respect to body weight was not supported. Findings suggest that demographic characteristics, such as race/ethnicity and gender, and physical disabilities predict weight, rather than SES or delayed transitions. However, interaction terms revealed a buffering effect on body weight for those who are living with their parents and are included in the "other" racial/ethnic category. Counter to this, those who have a physical limitation and live with their parents are more likely to be overweight or obese than those who do not live at home, and those who were overweight or obese and live with their parents are at an extreme risk of remaining so.

CHAPTER 6

DISCUSSION AND CONCLUSIONS

6.1 INTRODUCTION

This thesis endeavored to understand the health effects of the delayed transition out of the parental home on health. Two measures of health were used to capture this relationship: obesity and psychological distress. In this chapter, the overall findings are reviewed, followed by a consideration of their relevance on the existing literature. Lastly, limitations and future research suggestions will be discussed.

6.2 SUMMARY OF FINDINGS

Overall, the results of this thesis suggest that the hypothesized stressor of a delayed transition to adulthood through living with parents does not impact health outcomes on its own. It is living in the parental home in conjunction with other predictors of health that impacts young adult health. The results are discussed below according to health outcome.

6.2.1 Mental Health

Mental health was measured as a scale, wherein predictor variables either increased or decreased rates of psychological distress, and as a binary outcome, where respondents either experienced or did not experience psychological distress according to a cut-point used in previous literature (Boardman and Alexander 2011). The results for the two models were very similar.

The baseline findings from the continuous measure suggest that living with parents increases the risk of experiencing psychological distress. It was only after further analysis that living with parents' was found to increase psychological distress only for those with a physical limitation. Those who have a physical limitation but do not live with their parents also experience a greater risk of psychological distress than individuals without a physical limitation, but it is lower than of those who live with their parents. From this, we can conclude that living with parents (in and of itself) does not impact psychological distress, but that among those who have a physical limitation, living with parents increases one's risk of psychological distress. As discussed earlier in this thesis, being physically limited can impact one's available options and abilities (Bierman and Statland 2010). Thus, increased psychological distress among those living with parents could be due to the severity of the physical limitation, as it could limit the capability of young adults to live in a separate residence.

In models using the binary measure of psychological distress, the interaction term of living with parents and having a physical limitation was not a significant predictor of psychological distress. Thus, it is apparent that having a physical limitation and living with parents does increase the level of psychological distress, but not enough to meet the definition utilized in previous research (Boardman and Alexander 2011).

Although depressive symptoms decline as adolescents age (Adkins et al. 2008; Harris et al. 2006a), results show that experiencing psychological distress in adolescence tends to increase the risk of poorer psychological health in young adulthood. Similar to previous research (Adkins et al. 2008; Hankin et al. 2007; Avison and McAlpine 1992) women experience more depressive symptoms than men. Neugarten et al. ([1965] 1996)

theorized that women are more aware of social clocks and age-appropriate behaviors than young men because of social pressure placed on women to marry at a socially designated and appropriate age. It was hypothesized that this could account for gender differences in mental health from off-time transitions; thus, an interaction between gender and living with parents was tested, but was not significant and therefore this analysis did not find support for gender differences in the mental health effects of the delayed transition into adulthood. Blacks experienced an increased risk of psychological distress compared to whites. Racial differences are well documented within the literature on mental health (Boardman and Alexander 2011; Adkins et al. 2008; Williams et al. 1997), and racial differences are tied very strongly into differential SES predictors and life outcomes (Link and Phelan 1995), so this finding was not surprising. However, there were no racial/ethnic differences in the effect of living with parents on psychological distress.

With respect to socioeconomic status, research has shown it to be strongly correlated with psychological distress (Miech and Shanahan 2000; Pearlin 1999; Kessler and Cleary 1980). Although income did not significantly impact psychological distress, education did. Having a high school degree or more lowers the risk of psychological distress; as each increase in educational level occurs, the risk of psychological distress reduced so that young adults with a post-graduate degree (such as a M.D. or a PhD) have the lowest risks of experiencing psychological distress. This supports previous literature that finds that levels of education predict better mental health (Miech and Shanahan 2000; Williams et al. 1997). In addition, having a parent with a post-secondary degree lowers the risk of experiencing psychological distress, compared to those with parents

who do not have a high school degree, and this concurs with previous research (Mirowsky and Ross 1998).

When I examined the effects of living at home for different educational levels, there were very few respondents with less than a high school degree who still lived within their parents' home. This finding has been found in the literature, where those without a high school degree or with only a high school degree tend to transition into adulthood more rapidly than their peers who take a slower route via prolonged education and delayed family formation (Settersten and Ray 2010). These "quick starters" undertake adult roles such as forming families, having children, and taking on full time employment earlier in life, and with more rapidity, than their peers. However, Settersten and Ray (2010) note that those who enter into adulthood earlier also tend to have less stable lives, volatile marriages, jobs which do not pay very well, unbalanced incomes, and are more likely to be living paycheck to paycheck. That there are very few people in the Add Health sample with less than a high school degree living with their parents suggests that many have taken a quicker route to adulthood by leaving the parental home at an earlier life stage. Overall, the analysis finds little evidence that living with parents is a stressor that increases psychological distress.

6.2.2 Physical Health

Living in the parental home later in life does not impact BMI in and of itself; however, interaction terms suggest that living with parents does affect the BMI of certain subgroups of young adults. In particular, being overweight or obese in adolescence were strong predictors of being overweight or obese in young adulthood, but being obese

earlier in life and living with parents increased the risk of being overweight or obese in young adulthood to an even greater extent. Previous research (Gordon-Larsen et al. 2010; Scharoun-Lee et al. 2009; Harris et al. 2006a) has found that body weight increases through the young adult years, and the findings of this thesis were similar. The finding that those who live with parents have an even greater risk of being obese is an occurrence which cannot be explained by previous literature.

Having a physical limitation did not significantly increase the risk of being obese; however, it did for those who live with their parents. This has been found in previous research, where physical limitations and BMI increase simultaneously (Fontaine and Barofsky 2001; Fine et al. 1999). Similar to the findings regarding psychological distress, those who live with parents may have a more severe physical limitation, which increases their BMI.

Regarding race/ethnicity and gender, Hispanics have a higher risk of being both overweight and obese than whites. This finding is in concordance with previous research (Harris, Perreira, and Lee 2009). While the interaction of living in the parental home and being Hispanic was not significant, Hispanics who do not live with their parents are more likely to be overweight or obese. Interestingly, living with parents and being of the “other” race/ethnicity lowered the risks of being overweight, but the sizes in this sample were not large enough to determine racial/ethnic differences within the “other” category. Surprisingly, blacks were not significantly more likely to be overweight or obese than whites, which contrasts with previous research (Ogden et al. 2006).

Surprisingly, the socioeconomic status indicators did not significantly impact the risk of being overweight or obese. Perhaps, as Zhang and Wang (2004) found, the correlation between socioeconomic status and obesity has decreased over time due to increasing rates of obesity across all socioeconomic levels. It could be that other factors tied to socioeconomic status have a greater influence on obesity, such as neighborhood collective efficacy (Cohen et al. 2006), proximity to fast food restaurants (Reidpath et al. 2002), or peer groups (Trogon, Nonnemaker, and Pais 2008), which have all been found to have an effect on body weight in the obesity literature. More diverse indicators of SES might be needed to fully capture the SES of young adults (Scharoun-Lee et al. 2009).

6.3 RELEVANCE OF THE STUDY

As noted earlier in this thesis, there are increasing numbers of young adults who are currently delaying the transition into adulthood through residing in the parental home later. Due to changing economic situations, increasing amounts of time are necessary for the establishment of adulthood: this is a trend which I believe will increase in the future so that living in the parental home will become more normalized and not be considered an “off-time” transition. Thus, considering the health outcomes of these young adults is an important research topic.

The implications of this research are two-fold. First, this research considers the impact of living with parents in young adulthood on health, which is a previously unexplored topic. This thesis adds to a growing body of literature on the timing of transitions within the area of life course research.

Second, until recently, the life course literature has argued that “off-time” transitions could have negative implications. This thesis lends support to emerging research suggesting that it is instead a logical strategy and response to changing social and economic circumstances. This contributes to the life course perspective because it emphasizes the principle of agency, and that decisions are being made within opportunities and constraints. Accordingly, delaying the move from the parental home is not a stressor that is detrimental to the indicators of health measured here. Also, the findings have implications for potentially widening inequality among young adults; not all can take advantage of delaying the transition. Previous research by Settersten and Ray (2010) found that some young adults stated that if they had the opportunity of returning home or more familial aid, they could have enjoyed different life outcomes. My analysis found that very few young adults with low education lived in the parental home, which reinforces Settersten and Ray’s (2010) suggestion that young adults’ with lower SES and low educational aspirational have a quicker transition into adulthood.

6.4 LIMITATIONS

This study provides new insight into the delayed transition into adulthood and health in general. However, as in any research, there are limitations that must be considered. First, Add Health was created as a longitudinal dataset, but it does not account for the respondents’ actions between each reporting period. Thus, for the variable “living at home”, there is the possibility that some people have never left the parental home, left and returned, or moved out two months before they were interviewed. Longitudinal studies are generally composed of waves, rather than what Clipp, Pavalko, and Elder (1992) term “life records”. That is, Add Health links cross-sections to create

longitudinal developments (*ibid.*), rather than fully following a cohort over time. This is a limitation that should be kept in mind when interpreting the results.

Another limitation is that we do not know the reason young adults are living in the parental home. The reason for one's current living arrangement was not explicitly asked within Add Health's questionnaire. This potentially affects the results, as different reasons could lead to different health outcomes. For instance, respondents who remain in the home to save money for a down payment on a first home would theoretically experience a different mental health state than respondents who experienced marriage dissolution and subsequently returned to their parents' home.

With regard to measurement, the "other" race/ethnicity category is not informative to the research as it is composed of North American Natives, Asians, and those who reported being of a "mixed race". Because there was a significant interaction between the "other" category and living at the parents' home, it would be useful to separate this group. This step would require a larger sample size than the one provided in the Add Health public use file.

6.5 DIRECTIONS FOR FUTURE RESEARCH

A longitudinal study incorporating the timing, duration, and frequency of living with parents would provide further insight into the health effects of this aspect of the delayed transition to adulthood. DeVanzo and Goldscheider (1990) found that young adults had differential rates of returning to the parental home when considering factors such as marital status and "transitional roles" or non-permanent life course transitions, such as military service or attending an educational institution not in the parents' home

town, and of those who left home prematurely. One way to further this work is consider some reasons why one might return to the parental home and what the differential health impacts of this would be. Greater use of the longitudinal aspect of the Add Health data would also shed light on findings related to the effects on mental health of physical limitations and living in the parental home. A longitudinal analysis would allow the research to consider when the young adult acquired a physical limitation, if that physical limitation led to the return to the parental home, or if the young adult with a physical limitation managed to leave the parental home.

Because of important racial/ethnic differences in health, for future research it would be beneficial to use the full, restricted Add Health dataset to increase the statistical power of the racial/ethnicity categories. I would hypothesize that it is the Asian race/ethnicity that is driving the effect found in Chapter 5, as they tend to have very strong familial ties, lower rates of obesity than other racial/ethnic groups, whereas Native North Americans have higher rates of obesity.

6.6 CONCLUSION

The goal of this thesis was to understand how delaying the transition into adulthood impacts individuals' health outcomes. A substantial body of literature has developed on the transition to adulthood, and has tended to focus on factors that cause young adults to leave, to leave and return to the parental home, and cause young adults to stay in the parental home longer. Studies within this body of work failed to consider the impact that this delayed transition has on the health of young adults. This thesis suggests

that perhaps living with one's parents' in young adulthood should no longer be considered an "off-time" transition.

Contrary to the original hypothesis, living with parents is not a significant predictor of health outcomes. In 1979, Neugarten (1996) argued that we are moving towards an age-irrelevant society where norms and expectations which were once age regulated and defined, are losing significance. Shanahan et al. (2005) also suggest that a destandardization of the life course is occurring, such that young adults can take longer and more varied routes into adulthood. However, these varied routes into adulthood can have implications which further increase inequalities. Not all young adults are able to take advantage of living with their parents into adulthood. This limits the choices these young adults can make with respect to furthering education or job options and opportunities. Thus, while no health differences are apparent yet, diverging trajectories of health based on who did and did not delay the transition into adulthood may yet emerge for this cohort. It is well documented that socioeconomic differences impact health trajectories and outcomes; delayed transitions could only further serve to increase those differences.

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Curriculum Vitae

EDUCATION

Master of Arts, Sociology

University of Western Ontario, London, ON, Canada 2010-2012

Bachelor of Arts, Sociology

University of Alberta, Edmonton, AB, Canada 2006-2010

TEACHING

Teacher's Assistant:

University of Western Ontario, London, ON

- Sociological Research Methods Winter 2012
- Introduction to Population Studies Fall 2011
- Introduction to Sociology Fall 2010- Winter 2011

King's University College at the University of Western Ontario, London, ON

- Introduction to Sociology Fall 2011- Winter 2012

Huron College at the University of Western Ontario, London, ON

- Introduction to Sociology Winter 2012

PROFESSIONAL PRESENTATIONS

"Mental Health Outcomes of Delayed Transitions into Adulthood" May 29, 2012

Canadian Population Society, Graduate Student Workshop at Congress 2012
Waterloo, Ontario

**"Health Implications of the Delayed Transition into Adulthood:
Preliminary Findings"** March 16, 2012

Western University Sociology Graduate Student Conference, London, ON

INVITED GUEST LECTURES

University of Western Ontario, London, ON

- “Using SPSS to Analyze Datasets” March 15, 2012
- “An Introduction to SPSS” March 14, 2012
- “Migration Techniques: Understanding and Presenting Results” November 16, 2011
- “Computing Mortality and Fertility within Excel” November 2, 2011

King’s University College at the University of Western Ontario, London, ON

- “Masculinity and Violence” February 14, 2012

PROFESSIONAL SERVICE

SARI Therapeutic Riding Center Volunteer Arva, Ontario	2011-2012
Western University Sociology Graduate Program Video University of Western Ontario	2011-2012
Graduate Committee Student Representative University of Western Ontario	2010-2011

SCHOLARSHIPS AND AWARDS

Western Recruitment Scholarship, \$500	2010
Shortlisted Twice for Undergraduate Essay Award Department of Sociology, University of Alberta	2010
<ul style="list-style-type: none"> • “Cougars: A Multifaceted Approach to Women and their ‘Prey’” • “The Socialization of Children Towards Death in the Harry Potter Novels” 	
Alexander Rutherford Scholarship for High School Achievement, \$2,500	2006