

YOUNG, ALIENATED AND EXCLUDED: YOUTH LABOUR FORCE
PARTICIPATION AND MENTAL HEALTH IN CANADA

by

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ABSTRACT

This thesis explores the relationship between youth labour force participation and mental health. Unemployment is generally considered to have a negative association with youth mental health. However, few studies have examined youth mental health in association with being both out of the labour force and out of school (OLFS). I hypothesize that OLFS, a state in which youth are no longer job-searching and are not in school, has a negative association with mental health that is weaker in comparison to that of unemployment, which involves active job-searching. I further hypothesize that socioeconomic status (SES) and recession moderate the relationship between youth labour force participation and mental health, such that both unemployment and OLFS have a stronger negative association with mental health in youth of low SES, and during recession. Two empirical studies are presented to test these hypotheses. The first examines whether SES moderates the relationship between youth labour force participation and mental health, across three constructs of mental health: distress, depression, and life-satisfaction. The results indicate that unemployment is associated with poor mental health across all mental health constructs, and has a stronger association with distress among low-SES youth. OLFS is associated with depression only, with a stronger association among low-SES youth. Among high-SES youth, OLFS is also associated with better life-satisfaction. The second study looks at the relationship between youth labour force participation and mental health in the periods before (2003, 2005), during (2008-2009), and after the most recent global recession (2010-2012). The findings suggest that the recession was related to improvements in the mental health of unemployed youth but was not clearly related to the mental health of OLFS youth. The concluding chapter highlights the contributions of this thesis, addresses its limitations, and discusses implications for policy makers and for future analyses. Policy makers should consider the association between OLFS and mental health, and the effect modification by SES, when designing programs for unemployed youth. Future research

can examine the mechanisms between OLFS and mental health across macrosocial contexts, and over the life course.

PREFACE

This is an original work by the author, Anita Minh. All of the research presented conducted with approval from the University of British Columbia's Research Ethics Board (certificate number H13-02622).

The co-authors, Dr. Chris McLeod, Dr. Patricia O'Campo, and Dr. Martin Guhn, made contributions as commensurate with the supervisory committee duties. With substantive input and guidance from the above co-authors, Anita Minh designed the studies, conducted all statistical analyses, and wrote the manuscripts presented in this thesis. Versions of Chapters 3 and 4 will be submitted as manuscripts for academic publication.

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For my dad

CHAPTER 1.

INTRODUCTION

It took two people in a pyramid scheme to undo my assumptions about “not working”. “Reframe the way you think about not working”, they had said, asking me to reconsider their invitation. Ben and Sarah looked like the other customers at the café: young, university-educated, and without employment. They had graduated from school during a recession period, which meant that they had encountered difficulty with finding work. Since then, they had stopped job searching and now did other things that they considered to be meaningful: they were spending time with family members; both held considerable financial assets that provided them with a small but adequate income; they were taking part in a mentorship program in which they coached others to follow in their footsteps. While “not working” remains an important predictor of poor mental health in youth (Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014), Ben and Sarah’s experience of not working illustrates how some youth may be associated with fewer adverse effects than others.

“Not working” is expected to negatively impact mental health during youth because in this stage of life – roughly the period between the ages of 15 to 29 – work may help to facilitate identity formation, social connectedness, and financial stability (Bynner & Parsons, 2002; Erikson, 1980; Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014). However, studies suggest that unemployed individuals of higher socioeconomic position, as indicated by their social class standing or family income, may have better mental health than unemployed individuals with lower socioeconomic backgrounds (McLeod, Lavis, MacNab, & Hertzman, 2012; Karsten Ingmar Paul & Moser, 2009; Schaufeli, 1997). The features of the economic environment, as indicated by changing unemployment rates, may also *moderate* – shape the strength and direction of – the association between labour force participation and mental health (Corcoran &

Arensman, 2011a; Kondo, Subramanian, Kawachi, Takeda, & Yamagata, 2008; Novo, Hammarström, & Janlert, 2001; Karsten Ingmar Paul & Moser, 2009).

Of the many studies that have looked at the relationship between not working and youth mental health (Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014), few have attempted to study those who, like Ben and Sarah, are neither looking for work nor attending school. These youth may be referred to as *out of the labour force and out of school* (OLFS) (O'Campo et al., 2011), and may be contrasted with the "unemployed" – defined as those who are actively seeking work (Kolev & Saget, 2005). Though research on youth who are out of the labour force is limited, there is evidence from studies in working-age adults which suggests that being out of the labour force – not actively job searching -- may be less detrimental to mental health than unemployment with job searching (Benjet et al., 2012; Franzén & Kassman, 2005; Sellström, Bremberg, & O'Campo, 2011). As well, OLFS youth may be differentiated from *students* – those who are not actively searching for work but are attending school – because as some studies suggest, students may have better mental health than other youth who are not working (McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Selenko, Batinic, & Paul, 2011; Warr, 1987).

This thesis explores the association between not working and mental health by looking at a comprehensive range of labour force participation states for youth, including OLFS. It examines how socioeconomic status (as indicated by household income) and economic conditions (as indicated by the economic recession of 2008-2009) may influence this relationship.

Chapter 2 sets up the conceptual framework and study hypotheses for this thesis with a brief review of the empirical and theoretical research on the relationship between labour force participation mental health. Chapter 2 also introduces the research

literature on socioeconomic status and economic recession to illustrate how these constructs may be conceptualized as moderators of the relationship.

Chapters 3 and 4 present empirical studies that investigate labour force participation and mental health using data from youth ages 15-29 who took part in various cross-sections of the Canadian Community Health Survey (CCHS). The CCHS is a nationally representative health survey conducted by Statistics Canada (Statistics Canada, 2005, 2006, 2010, 2011, 2013b, 2013c). In both studies, labour force participation is defined according to 5 categories: being out of the labour force (i.e. not searching for work) and out of school (OLFS), unemployed (i.e. actively job-searching), attending school, employed, and both employed and at school.

Chapter 3 presents a study of the association between labour force participation and three constructs of mental health: distress, depression, and satisfaction with life; and, examines whether these associations are modified by youths' SES, as indicated by their household income. Chapter 4 examines whether the relationship between labour force participation and mental health changed for youth during the recent global recession (2008-2009), when compared to the periods before (2003, 2005) or after (2010-2012).

Chapter 5 concludes with a synthesis and discussion of the study findings. The overall strengths and limitations of the study are presented. Their relevance to policy makers and future research in the areas of youth labour force participation, socioeconomic inequality, and economic recession are discussed.

CHAPTER 2.

YOUTH LABOUR FORCE PARTICIPATION AND MENTAL HEALTH IN THE LITERATURE

2.1 Introduction

Experiences in childhood sometimes impact dramatically upon the twists and turns of individual biographies later, but it is in youth - when individuals first encounter the wider institutions of social and economic (re)production outside of their family of origin - that the nature and direction of this transition solidifies and becomes difficult to change. Whilst the consequences of the school-to-work, family and other careers that make up youth transitions are not completely irrevocable, most find it difficult to escape them in adulthood. (MacDonald, Mason, Shildrick, Webster, & Johnston, 2001, para. 5.8)

Canadian youth face a number of challenges with job attainment and career advancement as they navigate the labour market. Canada's labour market has been described as *two-tiered*: an environment where high-skilled jobs and low-skilled jobs have thrived, but mid-level positions have disappeared (Langille, 2013). Over the last few decades, many of Canada's entry-level jobs have become globalized and automated (Gaudet, 2007). The job opportunities that *are* available may remain unfilled because of the phenomenon termed a *skills mismatch*, an ill fit between youth's qualifications and the types of jobs that are available ¹ (Certified General Accountants Association of Canada, 2012).

¹ Approximately one in three youth aged 25 to 29 that have graduated from college or university have ended up with low-skilled jobs in 2011 ("The path to adulthood," 2012).

Unsuccessful transitions to employment have the potential to negatively impact youth mental health because this period is critical for psychological change (Viner et al., 2012). In adolescence and until the mid-twenties, rapid development in the central nervous system and other bodily systems interact with social development to drive identity formation, to change behaviours, and to set the stage for future health and illness (Viner et al., 2012). As well, employment in youth may be a prerequisite for engagement with societal resources that can benefit mental health:

To have a job means adult status, self-respect, money, independence and the opportunity to broaden one's social contacts. Young people who are cut off from work are losing a vital chance to get new perspectives and to integrate into wider society (European Commission, 2002, p. 49).

However, “not working” may not necessarily mean isolation from institutional and structural resources (Hammer, 2000) or poor mental health. While some youth who are not working may be at a higher likelihood of chronic unemployment, reliance on social assistance and poverty (Bell & Blanchflower, 2011; Franzén & Kassman, 2005), others may find that not working is relatively inconsequential to their labour market trajectories (Yates & Payne, 2006). The potential for negative mental health outcomes to emerge may differ between these situations. The motivating questions of this thesis are therefore: to what extent do Canadian youth who are not working experience disparate mental health and, under what conditions are these youth *most* vulnerable?

The majority of the literature suggests that there is a negative overall effect of youth unemployment on mental health; but, prior research has lacked specificity when defining the concept of unemployment in youth. For example, youth may become unemployed and look for work, may return to school, or may drop out of the labour

force². Though all of these terms describe the absence of work, the mental health implications of unemployment may differ from that of returning to or continuing with schooling (Benjet et al., 2012; Franzén & Kassman, 2005; Sellström et al., 2011); which, may in turn differ from the mental health implications of dropping out of the labour force (McKee-Ryan et al., 2005; Selenko et al., 2011; Warr, 1987).

Youths' experiences of being without work may also be affected by other factors, including their socioeconomic status. A failed transition to employment may be made more stressful by educational debt (Cooke, Barkham, Audin, Bradley, & Davy, 2004; Richardson, Elliott, & Roberts, 2013), fewer family resources to fall back on (Schneider, 2000), and fewer job prospects to look forward to (A. Clark, Knabe, & Rätzl, 2010; Tompa, Scott-Marshall, Dolinschi, Trevithick, & Bhattacharyya, 2007). At the same time, the stress of uncertainty may be reduced with adequate financial support and guidance from parents (Axelsson & Ejlertsson, 2002; Jacob, 2008), cultural normalization of a prolonged economic dependence (Kapunvári, 2011; G. C. Murphy & Athanasou, 1999), or governmental job search or income assistance (Coutts, 2010; Franzén & Kassman, 2005). Youths' socioeconomic backgrounds may be a key modifier in the relationship between labour force participation and mental health, with youth of lower socioeconomic status experiencing worse mental health consequences than more advantaged youth.

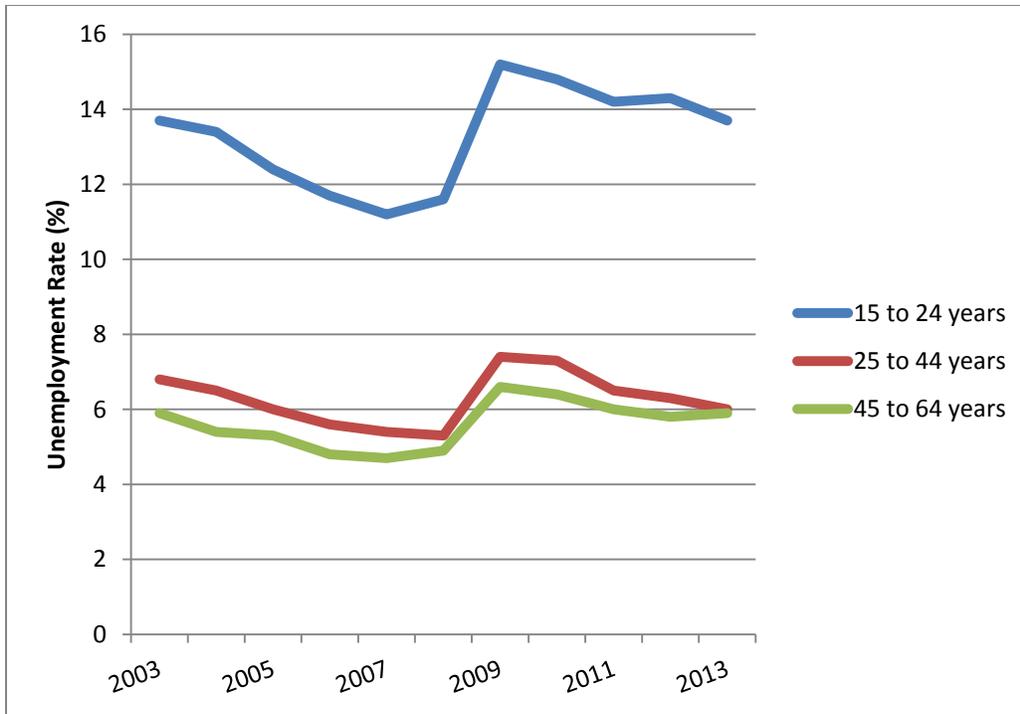
Economic conditions may also affect the experience of being without work. Poor health is disproportionately represented amongst unemployed people during recessions

² When unemployment rates fell in 2013, adjusted estimates by Statistics Canada revealed that the improvement observed was mainly a result of youth dropping out of the labour force (Statistics Canada, 2013d). Youth who dropped out of the labour force made up more than half of Canadian youth neither employed, nor in education or training in 2011 (Marshall, 2012). Due to attendance at school, teenagers made up a smaller proportion of this group than their older youth counterparts over 20 years old (1 out of 4 were teenagers), but teenagers not in school have a higher likelihood of dropping out of the labour force than non-student youth in their twenties (Marshall, 2012).

(Kondo et al., 2008). Youth who are not working may have fewer career opportunities when the economy declines than in other periods (Kahn, 2010; OECD, 2010), which may impact their outlooks on their futures (Giuliano & Spilimbergo, 2009). Youth who transition between adolescence and adulthood during the recession have been found to develop pessimistic attitudes about their ability to exert control over their employment and future prospects (Giuliano & Spilimbergo, 2009); which has in turn been linked with poor mental health (Goldsmith, Veum, & Darity Jr., 1995; Goldsmith, Veum, & William, 1996).

Although the recent recession has not resulted in the levels of youth unemployment in Canada that was seen in past recessions³ (Certified General Accountants Association of Canada, 2012), youth unemployment was double that of other age groups. The relative difference between the unemployment rate of youth and the general population has remained high even during economic recovery. As of April 2014 (13.4%), the unemployment rate for youth ages 15 to 24 has yet to return to its pre-recession level (Bernard, 2013; Statistics Canada, 2014) and has been slower to recover than that of older adults (Figure 1). Thus the economic recession may have had continuing negative impacts on youth who are not working, even as the economy itself began to recuperate.

³ The height of unemployment in the current recession was 15.2%. In the recession of the early 1980's it was 17.2% and in the recession of the early 1990s it was 19.2% (Galarnau et al., 2013).



Source: Statistics Canada: CANSIM Table 282-0002

Figure 1 The unemployment rate in Canada by age group, 2003-2012

Together, these four concepts – not working, mental health, socioeconomic status, and economic recession – form the basis of the conceptual framework that guides the research in this thesis. These concepts are reviewed in the next section in order to develop this conceptual framework within the literature on labour force participation and mental health.

2.2 Defining “not working”: unemployment vs. OLFS

Research on the association between youth unemployment and mental health has its roots in the studies of unemployment in the Great Depression of the 1930’s (Bakke,

1933; Eisenberg & Lazarsfeld, 1938). Despite some evidence to the contrary⁴ (Breslin & Mustard, 2003), research across contexts continues to converge on the finding that unemployment is negatively associated with mental health (Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014). Reneflot and Evensen (2014) reviewed 24 Nordic studies of the relationship between unemployment and mental health in young adults, and found that unemployed youth had a greater prevalence of mental health problems than other youth. Paul and Moser (2009) conducted a meta-analysis of 237 cross-sectional and 87 longitudinal studies from 26 countries. They found in their longitudinal results that becoming employed after leaving school led to improvements in symptoms of distress, while becoming unemployed led to a reduction in distress.

Youth unemployment may also have long-term negative effects on mental health (Hammarström & Janlert, 2002; Mossakowski, 2009; Strandh, Winefield, Nilsson, & Hammarström, 2014), in part because it is associated with later unemployment (A. E. Clark, Georgellis, & Sanfey, 2001; Hammarström & Janlert, 2000; Korpi, 1997). Hammarström and Janlert (2002) described a five-year follow-up of a sample 1,083 Swedish youth between the ages of 16 and 30. They found that early unemployment predicted smoking behavior, as well as psychological symptoms at follow-up. Building on these results, Strandh et al. (Strandh et al., 2014), found that in the same sample, an exposure to unemployment of at least 6-months between the ages 18-21, and 21-30 was associated with poorer mental health at the ages of 21, 30, and 42. Mossakowski (2009) used panel data from a nationally representative sample of US youth ages 14-22 to look at the relationship between duration of unemployment across 15 year and its

⁴ Breslin and Mustard (2003) observed no association between distress, depression, and unemployment in youth. They hypothesized that, unlike adults, youth may be less likely to decrease their household income as a result of becoming unemployed, or that more youth who were susceptible to poor mental health had shifted out of the workforce than susceptible adults. Neither hypothesis was supported.

relationship with mental health. She found that unemployment duration predicted depressive symptoms net of demographic factors such as family background and SES. Reine et al. (2008) found that the long-term mental health consequences of unemployment may be greater for some groups than others, with adult men exhibiting poor psychological health in association with long-term unemployment but not adult women.

This literature clearly implies that not working may be detrimental to mental health; yet, this statement lacks clarity for describing how not working may effect youth. The life course literature has pointed to “increasing individualization” or variability in youths’ (dis)engagement with the labour market over the last few decades (Shanahan, 2000). Youth who are not working may have, for example, *dropped out of the labour force*. These youth are different from the standard definition of *unemployed*⁵ youth because they are not actively searching for work. They may choose to be out of the labour force because they are *students*. Youth may also drop out of the labour force for reasons unrelated to education, including skills building, family-care, involuntary job-loss or giving up the job search. In Canada, this group makes up more the half of youth who are not working, and who are not in school or other formal training (Marshall, 2012). The remaining youth who are not in employment, education, or training are looking for work and would meet the standard definition of “unemployed”.

Despite some overlap in terms of *how* “unemployment” and “being out of the labour force” may influence mental health (e.g., both may be characterized by feelings of discouragement⁶, and by loss of income⁷) (Goldsmith et al., 1996; Selenko et al., 2011),

⁵ Note that administrative definitions of unemployment contain a job-search criterion (Kolev & Saget, 2005).

⁶ For example, the mental health of both unemployed youth and youth out of the labour force have been found to be mediated by feelings of low self-esteem i.e. *discouragement* (Goldsmith et al., 1996)

studies have found that the magnitude of association between unemployment and mental health is different than that of being out of the labour force (Mossakowski, 2009; Selenko et al., 2011). In a longitudinal study of 360 working-age individuals, for example, the association between being out of the labour force and distress was smaller in comparison to that of unemployment; and, unlike with unemployment, it was not mediated by either time structure or social contact (Selenko et al., 2011). This evidence highlights *psychosocial* differences (e.g., differences in sense of identity, or control) between being out of the labour force and unemployment. Unemployed individuals may also have more exposure to the rejection that inevitably comes with job searching than those who are out of the labour force (McKee-Ryan et al., 2005; Warr, 1987), which may lead to worse mental health. The evidence presented pertains to working-age populations and not specifically to youth; it nonetheless suggests that being out of the labour force may be different, and potentially less harmful to mental health than unemployment.

Youth still in education or training are another distinct labour force category. This is particularly important as *students* may have better mental health than other youth who are not working (Benjet et al., 2012; Franzén & Kassman, 2005; Sellström et al., 2011). Terms such as *status-zero* (Williamson, 1997), or *NEET* (not in employment, education or training) (Coles et al., 2002) exemplify the thinking that attendance at school is better for youth than other situations of not working. These terms arise from social and economic policies in the UK that are targeted to jobless youth that are not attending school. In Sweden, an analogous term that has been used is *economically inactive* i.e. youth who are

⁷ Both unemployed individuals and those out of the labour force have been found to have poorer mental health than employed individuals because both lack financial resources (Selenko et al., 2011).

not self-supporting because they are without income or with very little income and who are not attending school (Franzén & Kassman, 2005; Sellström et al., 2011).

NEET youth are generally found to have inferior mental health compared to students. For example, NEET youth in a representative sample of youth between ages 12 to 17 in Mexico City had greater odds of psychiatric disorder, substance use, and suicidal behaviours than youth who were solely studying (Benjet et al., 2012). In a representative sample of Swedish youth, economically inactive youth were found to have greater rates of hospital admissions due to depression, self-harm, alcohol-related disorder, and drug abuse than students (Sellström et al., 2011). Bjarnason & Sigurdardottir (2003) also found that for youth in Denmark, Finland, Iceland, Norway, Scotland and Sweden between the ages of 18 and 24, moving from unemployment to school was associated with reduced symptoms of distress. Students may therefore be a unique subset of youth who are not working, because they may have relatively better mental health.

Throughout this thesis, youth labour force participation is defined so that it takes into account these multiple states of not working. Five labour force participation states are outlined: Youth who are 1) *out of the labour force and school* (OLFS) are defined as youth who are neither working nor job searching, and who are not attending school (O'Campo et al., 2011). Those who are 2) *unemployed* are defined as youth who are jobless but who are job searching. 3) *Students* are defined as those who attending school. 4) *Employed students* are defined as youth who are both working and attending school. Finally, 5) *Employed non-students* are defined as youth who are only working.

2.2.1 Pathways from OLFS and unemployment to mental health

A number of broad *pathways* underlie the influence that unemployment and OLFS have on mental health. Pathways are the theoretical means through which social conditions affect health. Some may be similar between unemployment and OLFS because they generalize the mental health effects of not working (e.g., the *material* and *psychosocial*

pathways, and *labour market scarring*). However, just as one's metabolism can differently affect the risk of obesity in someone who exercises frequently compared with someone who doesn't, pathways between unemployed and OLFS can be similar but can still operate differently to have different effects on mental health. Other pathways (e.g., *incongruence*) are not shared by unemployment and OLFS; for example, there may be pathways that link unemployment and mental health that do not link OLFS with mental health.

Material pathways describe how mental health differences can result from the distribution of *material* risk factors in society (i.e. income, wealth, and poverty). This perspective describes how adverse material conditions and poor health are together overrepresented amongst those who lack income, such as unemployed and OLFS youth. Youth who lack income may be limited in their ability to invest in resources that would benefit their mental health, such as social and leisure activities, food, housing, and general physical security (Hobfoll, Freedy, Green, & Solomon, 1996; Ullah, 1990). Unemployed and OLFS youth may experience financial strain during unemployment, which has been associated with changes in cortisol levels, a biological response to stress⁸ that may indicate changes in mental health (Grossi, Perski, Lundberg, & Soares, 2001). Youth who lack financial resources may also be unable to afford training, may carry educational debt, or may be economically dependent on their parents (Hango & de Broucker, 2007; Mikkonen & Raphael, 2010; Schneider, 2000). Economic dependence on one's parents, may further impact mental health through *psychosocial* pathways, such as identity and self-esteem. As Hill (1977) has argued, being without employment during youth lengthens the stay at home, and increases dependence on parents at a

⁸ In a study of 85 middle-aged unemployed individuals, cortisol levels, a biological response to stress, were found to respond to financial strain (Grossi et al., 2001).

time when youth are typically establishing independence by moving out and transitioning into adult roles. Unemployed and OLFS youth may thus be expected to have worse mental health than youth who are work because they lack income and may be less able to invest in the material and psychosocial resources that promote good mental health.

Not working may also directly limit the *psychosocial* resources available to individuals, leading to poorer mental health. This perspective attributes mental health differences to *social and psychological factors* that impact on mental health such as social role, identity, or self-esteem. This model as applied to the work and health relationship is exemplified by the work of Jahoda (1981, 1982) and Warr (1987). Both proposed that employment confers individuals non-income related benefits, such as a structured experience of time, opportunity for social contact, and status, which fulfill the psychological needs of individuals.

Ample evidence supports a mediating effect of these psychosocial benefits of work on mental health in working-aged populations (P. A. Creed & Machin, 2002; P. A. Creed & Macintyre, 2001; P. A. Creed, Muller, & Machin, 2001; Hassall, Muller, & Hassall, 2005; J. Muller, Creed, & Francis, 2004; Selenko et al., 2011). However, psychosocial factors appear to operate differently for unemployment than for being out of the labour force. Selenko et al. (2011) found that psychosocial factors, such as time structure and social contact, mediated the association between mental health and unemployment but not being out of the labour force⁹. Paul and Batinic (2010) similarly found that there were no significant differences between employed persons and persons out of the labor force

⁹ Selenko et al. (2011) found that while unemployed individuals had less *social contact* and *time structure*, leading to worse psychological health than employed persons, only increased financial hardship was found to lead to worse mental health for individuals out of the labour force.

with regards to psychosocial dimensions in a sample of 998 German individuals. They found that unemployed individuals reported less status than employed persons and those out of the labour force. Thus, the psychosocial pathways to mental health for unemployment may not be the same psychosocial pathways that operate for OLFS.

Both youth unemployment and OLFS may have an *accumulated impact* on mental health over time, as evidenced by the negative effect on mental health by *labour market scarring* (A. E. Clark et al., 2001; Daly & Delaney, 2013; Strandh et al., 2014). Labour market scarring refers to the negative impacts on future employment and earnings due to unemployment or being out of the labour force (Hammer, 1997; Raaum & Roed, 2014). One way in which this phenomenon occurs is through *capital depletion*, which for the purposes of this discussion, can be defined as the loss of the ability to mobilize resources to ultimately benefit mental health (Bassani, 2007). For example, youth's skills and credentials are resources that can be developed into *human capital*, or more skills and credentials. When youth have positive and active relationships with employers or with a professional network, this reflects an increase in *social capital* (Coleman, 1988). Human and social capital may ultimately lead to more opportunities for work that may benefit mental health. However, as Mortimer et al. have argued, in the context of the United States, youth's educational credentials may not be sufficiently mobilized into human capital without early work experiences:

In this contemporary context of prolonged general education and continuing structural changes in the labor force, and the absence of institutional bridges between these spheres, adolescent work experience may have become an important means of human capital acquisition for many young people. (Mortimer, Staff, & Oesterle, 2003, p. 440)

This treatment of capital may be simplistic in that it does not account for institutional and structural contributors to capital like social networks and community resources; but it can be used to explain how unemployed and OLFS youth in Canada may experience labour market scarring and poor mental health. It suggests that unemployed and OLFS youth have fewer opportunities to translate their skills and credentials into higher

wages and employment opportunities because they are not working or at school. Over time, as the gap in accumulated human and social capital widens, individuals who were unemployed and OLFS as youth may be at a greater risk for poor mental health relative to their counterparts who were employed or students.

Finally, unemployment and OLFS may lead to poor mental health via distinct pathways. Paul and Moser (2006), in their *incongruence theory*, argue that unemployment leads to poor mental health because there is incongruence between an individual's desire to work and the state of unemployment. They further argue that people out of the labour force do not experience incongruence. Though Paul and Moser did not explicitly test their assumptions about incongruence in those who are out of the labour force, a recent Canadian report supports their contention: 82% of Canadian youth who were out of the labour force reported not wanting a job (Marshall, 2012). There is also indirect support for the theory of incongruence from evidence that students have better mental health than unemployed youth (Bjarnason & Sigurdardottir, 2003). Meanwhile, feelings of incongruence were found to be associated with decreased mental health and wellbeing in a meta-analysis of 27 studies of 21,245 unemployed individuals (Karsten Ingmar Paul & Moser, 2006). OLFS and students may therefore fail to experience the negative mental health effects of incongruence, while incongruence may be a key pathway to mental health adversity for unemployed youth.

2.2.2 Health selection vs. social causation

A bi-directional arrow between youth labour participation and mental health may be used to depict the association between youth labour force participation and mental health. It points to those aspects of the relationship that can be explained by *social causation* (not working predicts mental health), which have been discussed in the previous section. It also points to a *health selection effect* (mental health predicts labour participation). Health selection, or the conception that mental health is a determinant of

labour force participation, is supported for many theoretical and empirical reasons. For example, poor mental health has been strongly associated with barriers in finding employment, returning to work, and in work productivity (Andersen, Nielsen, & Brinkmann, 2012; Harvey, Henderson, Lelliott, & Hotopf, 2009; Schuring, Burdorf, Kunst, & Mackenbach, 2007). The much observed *healthy worker effect*, that workers generally report better health than the general population, is thought to be a consequence of health selection into employment (Dahl, 1993). As well, repeated cross-sectional studies have found that the mental health of unemployed individuals improves during periods where unemployment rates are high (A. E. Clark, 2003; A. Clark et al., 2010; Corcoran & Arensman, 2011b; Shields, Wheatley Price, & Wooden, 2007). The findings of these studies suggest that only those most affected by poor mental health are not working when unemployment rates are low.

For youth, health selection *into* unemployment or OLFS may be partially attributed to the hurdles that youth face in completing school when they have poor mental health. In Canada, it has been estimated that between 11.9 to 17.1 percent of young people have not completed high school by the age of 24 (Thiessen, 2001). Substance use, and mental illness, emotional disorder, and behavioural problems are all associated with dropping out of school (Brooks-Gunn, Guo, & Furstenberg Jr., 1993; Freudenberg & Ruglis, 2007; Haynes, 2003; Lynskey & Hall, 2000; Yamada, Kendix, & Yamada, 1993). In turn, a lack of school attachment at the age of 15 has been associated with a 12.7 percent greater probability of experiencing unemployment at age 21 (Caspi, Wright, Moffitt, & Silva, 1998; Thiessen, 2001). Given the advantages that higher education has for job attainment, youth who prematurely leave school because of mental health issues may encounter barriers to their labour market success for years to come.

At the same time, there may be health selection *out of* employment. Not only are youth who have mental illness less likely to become employed when transitioning from school to work (Karsten Ingmar Paul & Moser, 2009), but youth who have mental health

disorders and substance use during youth may have difficulty holding work over their life times (Huang, Evans, Hara, Weiss, & Hser, 2011; Mullahy & Sindelar, 1996). In the absence of community and social policies that redress social biases in the access and support for employment, youth with better health may be more likely to be employed (Hammarstrom & Janlert, 1997).

Recently, longitudinal study designs (Goldman-Mellor, Saxton, & Catalano, 2010; A Milner, Page, & LaMontagne, 2013; Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014), and statistical methodology such as propensity-score matching (Willson, 2009) have helped to disentangle the causation-selection effects in the relationship between not working and mental health. Other study designs that attempt to minimize the effect of health selection include natural experiments, exemplified by studies on factory closures (Browning & Heinesen, 2012; Eliason & Storrie, 2009; Eliason, 2014; Hamilton, Hoffman, Broman, & Rauma, 1993; Keefe et al., 2002). Studies have also attempted to minimize selection effects by comparing periods of higher and lower unemployment (Hagquist, 2009; Kondo et al., 2008; Novo, Hammarström, & Janlert, 2000; Novo et al., 2001), or areas of higher and lower unemployment (McLeod et al., 2012; Karsten Ingmar Paul & Moser, 2009). The majority of this evidence offers stronger support for the causation hypothesis than for selection (Helgesson, Johansson, Nordqvist, Lundberg, & Vingård, 2013; A Milner et al., 2013).

Still, studies find evidence of health selection. For example, Paul and Moser (Karsten Ingmar Paul & Moser, 2009) meta-analyzed data from 237 longitudinal studies of unemployment and mental health published from 1950. They found that young people who became unemployed after finishing school showed more symptoms of distress while at school than those who managed to find a job. Selection effects were small but significant, with a standardized mean difference in mental health of only $d=0.08$ ($p < 0.01$) between those who became employed and those who did not. Though selection

effects may be less prominent than causation, both directions of effect are at play in the association between youth labour force participation and mental health.

2.3 Measuring mental health in youth

Youth mental health may be characterized by both the emergence of psychological disorder and by psychological growth. Klerman and Weissman's report (1989) was one of the first to draw public attention to the epidemiology of mental health in young adults. They described high rates of depression within youth, a trend towards decreasing age of onset of depression, and increasing rates of suicide among youth ages 15-24. The onset of most mental disorders, including major depression, anxiety, and substance dependence, occurs either in childhood or late adolescence (Costello, Egger, Copeland, Erkanli, & Angold, 2011; Kessler et al., 2009; Mash & Wolfe, 2012). By the age of 21, 3 out of every 5 young adults may be expected to have met the criteria for psychiatric disorder at some point in their lives (Copeland, Shanahan, Costello, & Angold, 2011). The cumulative burden of poor mental health in youth may be even greater if estimates were to include the many youth who experience *subclinical* disorder i.e. youth whose symptoms do not meet diagnostic thresholds. However, positive psychosocial growth has also been observed in youth samples. Schulenberg et al. (Schulenberg, O'Malley, Bachman, & Johnston, 2000), for example, found that between the ages of 18 to 22, life satisfaction, social support, self esteem and self efficacy increased with age, which corresponded with declines in loneliness, fatalism and self derogation. As Larson noted, disenfranchisement reported by youth may not necessarily indicate mental disorder, but may rather suggest deficiency in positive development (Larson, 2000). Thus, youth mental health may be characterized by a high burden of mental health problems on one end of the spectrum, and may be defined according to positive mental health on the other.

There are several theoretical reasons to study these mental health constructs in relation to youth labour force participation. Link and Phelan (1995) have described the idea of

contextualizing health risk, to emphasize the social conditions that shape individuals' exposures, and make it more or less preventable. Life course researchers have discussed the modifiability of mental health risk according to the transition to adulthood. This paradigm places a central focus on the changes to social roles and environments (e.g. work, marriage, etc.) that occur during youth (Elder, 1998; Gore, Jr, & Schilling, 2003; Hammer, 2007). Development psychologists have described youth as a developmental stage, characterized by changes to the ways that individuals negotiate a myriad of developmental challenges, such as identity building and social emotional growth (Arnett, 2004, 2006). This research considers that stable work roles may be related to reductions in youths' mental health problems and to positive psychological development, because of their prominence in youths' transitions to adulthood.

A relevant methodological question to the study of this relationship is whether the tools used to assess mental health are appropriate. One problem with measuring mental health in youth is that scale measures have often been developed for use in adults. Few studies have looked at age-differences in the construct validity and psychometric properties of scale measures, but there is evidence that construct validity and psychometrics differ between younger and older adults in some measures (e.g., the General Health Questionnaire, and the Mental Health Inventory) (Cleary, Bush, & Kessler, 1987; Martin, 1999; Ostroff, Woolverton, Berry, & Lesko, 1996). Other measures, such as Kessler's psychological distress scale (K6), have demonstrated consistent construct validity across age groups (Marchand, Drapeau, & Beaulieu-Prévost, 2012).

Four constructs of mental health were measured in this research: distress, depression, satisfaction with life, and self-rated mental health. Indicators for each of these constructs were included in some or all versions of the Canadian Community Health Survey. As described in Table 1, each has also been validated by previous research in samples of youth and/or in working-age populations that include youth. Distress was measured using the K6 (Kessler, Barker, Colpe, & Et, 2003). Depression was assessed

using the World Health Organization Composite International Diagnostic Interview (WHO-CIDI) (Wittchen & Max-planck-Institut, 1994). Satisfaction with life was measured using a single-item, 11-point response to the question "How satisfied are you at present with your life as a whole?" Self-rated mental health was assessed with a single-item, 5-point response to the question "In general, would you say your mental health is: excellent? Very good? Good? Fair? Poor?"

Table 1 List of mental health measures (K6, CIDI, life satisfaction, and self-rated mental health), and description of validation in working-age and youth populations

Measure	Description of validation in research studies
Kessler's psychological distress scale (K6)	Kessler's psychological distress scale (K6) was originally developed as a brief screening scale for non-specific psychological distress in adults (Kessler et al., 2002). It consists of six questions that ask respondents how frequently they experienced each of the six symptoms of major depression and generalized anxiety disorder in the month before the interview. Respondents provide answers on a 5-point Likert type scale ranging from 'never' to 'all of the time'. The K6 has been shown to be strongly predictive of adult serious mental illnesses (Kessler et al., 2010, 2003). It has also been demonstrated to be a good predictor of serious emotional disturbance in adolescents, conditions that are defined by the DSM-IV criteria as a diagnosable emotional or behavioural disorder (Green, Gruber, Sampson, Zaslavsky, & Kessler, 2010). Using nationally representative data for 6483 adolescents between the ages of 13-17 in the US, Green et al. (2010), showed that the K6 had fairly good predictor of internalizing ($AUC^{10} = 0.80$) and behavioural ($AUC = 0.74$) disorders.
Composite International Diagnostic Interview (CIDI)	The Composite International Diagnostic Interview (CIDI) was designed to assess the disorders defined by the International Classification of Diseases (ICD) and the Diagnostic and Statistical Measures of Mental Health (DSM), including major depressive disorder. A review of 16 studies of the reliability and validity of the CIDI found that there was good to excellent concordance with diagnoses of mental health disorders for most diagnostic sections, as indicated by kappa values between 0.5 – 0.7 (Wittchen & Max-planck-Institut, 1994). It has also been validated against lifetime diagnoses of mood disorders in adolescents. In a sample of 347 adolescents between the ages of 13 and 17, Green and colleagues (2012) showed that diagnoses under the CIDI had good concordance with independent clinical diagnoses of major depressive disorder with the Schedule for Affective Disorders and Schizophrenia for School-Age Children ($AUC = 0.86$).
Life satisfaction (single item, score: 0-10)	Life satisfaction is an important concept for positive psychology, defined as "a global assessment of a person's quality of life according to his [or her] chosen criteria" (Shin and Johnson 1978, p.478). It has been described as a measure of both 'happiness' and psychopathology (Proctor, Linley, & Maltby, 2008). In four large representative surveys, the reliability of single item measures has been estimated to be between 0.68 and 0.74 (Diener, Inglehart, & Tay, 2013; Lucas & Donnellan, 2008). Meanwhile, multi-item measures, such as the Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985), have been positively correlated with self-esteem, hope, and negatively correlated with anxiety, depression, and other symptoms of psychological disorder (Proctor et al., 2008). While multi-item scales like the SWLS, were developed as an alternative to the single-item measure, van Beuningen (Beuningen, 2012) has observed that in a Dutch sample of 3,402 people aged 18 or older, associations between the single-item measure and aspects of well-being were similar to that of the multi-item scale.
Self-rated mental health (single item)	There are five possible responses to the self-rated mental health measure: poor, fair, good, very good, and excellent. In a cross-sectional study using nationally representative data of the Canadian population of people ages 15 or older, Mawani and Gilmour (Mawani & Gilmour, 2010), assessed the relationship between fair/poor self-rated and an array of other mental health measures (e.g., depression, bipolar disorder, and anxiety disorders). They found that the proportion of respondents with fair/poor self-rated mental health was distributed according to a gradient that corresponded with the recency of other mental health symptoms. There was a greater proportion of fair/poor self-rated mental health among those with more recent symptoms. Though self-rated mental health is not a substitute for other measures of mental health, it may thus be used for monitoring general mental health.

¹⁰ The AUC or *area under the curve* is the probability that a randomly selected respondent with a serious emotional disturbance could be distinguished from a respondent without a disturbance given the same K6 score. An AUC of 0.50 would correspond to an equal probability for both respondents to be identified by the K6 as a case. An AUC of 1.0 would correspond with a perfect prediction of caseness.

2.4 Socioeconomic circumstances and economic context as moderators

A number of key social and economic factors can influence the relationship between youth labour force participation and mental health. Socio-economic circumstances at the individual level, and social and economic context at the macro-social level, may moderate this relationship because each of these constructs is directly related to the choices that youth make and the opportunities that youth have to for good mental health. They also determine the availability and accessibility of resources that have the potential to benefit youths' mental health.

Moderation of this relationship by socioeconomic circumstances is such that not working has a greater negative association with mental health for individuals in poorer conditions than more advantaged individuals (McLeod et al., 2012; Karsten Ingmar Paul & Moser, 2009; Schaufeli, 1997). In this thesis, socioeconomic circumstances are indicated by household income, and described as *socioeconomic status* (SES) – one's position in a society stratified by the distribution of income, education, and positions in the labour market (Chan & Goldthorpe, 2007; Galobardes, Lynch, & Smith, 2007; Weber, 1978). SES, as well as other indicators of social position (i.e., gender, educational achievement, and race), are related to the choices that youth make and the opportunities that they have with regards to the labour market (Bynner, 2005; Mortimer et al., 2003). For youth, SES is also related to the social position of their parents or family environment, which may influence their mental health when they are not working. A study of Swedish college graduates, for example, found that unemployment had negative mental health effects for youth whose parents were less well-off, but not for youth from more well off households (Schaufeli, 1997). SES may therefore moderate the association between youth labour force participation and mental health.

Economic context similarly shapes the extent that youth's mental health are affected by their labour market participation (Corcoran & Arensman, 2011a; Kondo et al., 2008;

Novo et al., 2001; Karsten Ingmar Paul & Moser, 2009). Economic context is defined in this thesis as the economic and labour market changes that were associated with the recent economic downturn (Ariizumi & Schirle, 2012; Bernard, 2013; Hatt, 2013). Compared with other age groups, youth may have been more vulnerable during the economic recession. The poor labour market conditions of the recession may have magnified the challenges that youth face in attaining employment (OECD, 2010). In July 2009, the average unemployment rate for all age groups was the highest it had been in over a decade, at 8.6% (Statistics Canada, 2009), but the rate for youth ages 15-24 was about double that, at 16.4% (Statistics Canada, 2009). Although unemployment rates have decreased in recent years, the unemployment rate has not recovered with the rate seen in the general population (Canada's Public Policy Forum, 2013; Statistics Canada, 2012). Moreover, the negative labour market effects that economic recession has on youth who are not working may be sustained through decreased wages and lifetime earnings years later (Kahn, 2010). The relationship that youth labour force participation has with mental health may thus have been moderated by the most recent economic recession.

2.4.1 Socioeconomic status according to intersectionality and the theory of 'fundamental causes'

I draw from two broad frameworks to discuss how SES may moderate the relationship between youth labour force participation and mental health. The first is *intersectionality*, which has been used to describe the dependent and interacting aspects of social stratification (Choo & Ferree, 2010). I draw on this paradigm because it considers that multiple systems of oppression – described by social constructs that emerge from distributions of power within society like race, class, gender, and others – may simultaneously place individuals in positions of *disempowerment* or vulnerability. Building on this framework, SES may be thought to moderate the association between labour force state and mental health because it indicates whether unemployment or OLFS occurs along with other risks to create vulnerability to poor mental health. While

unemployment and OLFS may be temporary states between school and work for youth of higher SES, youth from disadvantaged backgrounds may experience unemployment and OLFS as part of an *intersection* of vulnerability that is associated with low-SES and poor mental health.

The second is the theory of the *fundamental causes*, which discusses SES-based differences in mental health according to the *resources* afforded by power and status. Link and Phelan (1995) argue that SES is persistently associated with health outcomes, despite attempts to improve health through other mechanisms such health behaviours or access to health services. The reason for the persistence of this association is because SES represents an array of resources including knowledge, power, prestige, and interpersonal resources that ultimately protect health (Link & Phelan, 1995; Phelan, Link, & Tehranifar, 2010). This perspective would suggest that SES moderates the effect of labour force participation on mental health because lower-SES youth have fewer resources to benefit their mental health so may rely more on having a job for good mental health than more affluent youth.

Yates and Payne's qualitative findings (2006) illustrate how intersectionality may be relevant to the relationship between youth labour force participation and mental health. Their study criticizes the conception of NEET¹¹ as an indicator of vulnerability in and of itself. Thus, instead of finding a single experience of NEET, their interviews with 855 NEET youth in the UK between the ages of 12 to 23 revealed that some unemployed and OLFS youth were more vulnerable than others. Unemployment and OLFS were a temporary transitional state for some youth; but it coincided with the *intersection* of a number of risks to mental health (e.g. a combination of, homelessness, delinquency,

¹¹ NEET (i.e. not in employment, education or training) is a term that encompasses both unemployment and OLFS

school underachievement, etc.) for others¹². Yates and Payne did not explicitly study SES but a number of the risks identified in the latter group have been associated with low-SES, including: youth homelessness (McLoyd, 1998), dropping out of school (Freudenberg & Ruglis, 2007; Macmillan & Hagan, 2004), and delinquency (Moore & McArthur, 2014). SES-based differences in cultural and family environments (e.g. disadvantaged family circumstances and family values regarding education) have also been implicated in the social stratification of youth's labour market activity (Bynner, 1998; Elder Jr., Johnson, & Crosnoe, 2003; Mortimer et al., 2003). Conversely, experiences that may facilitate a quick transition between school and work, such as early employment opportunities and educational achievement, have been found to be concentrated in more economically advantaged youth (Bynner, 2005). Thus, unemployment and OLFS may be associated with greater risks to mental health in youth who are low-SES than in youth from high-SES backgrounds, because of the different social experiences of low-SES compared with high-SES youth.

A number of studies also find support for the "fundamental causes" perspective (Fryer, 1986, 1992; Kroenke, 2008; Payne, Warr, & Hartley, 1984; Shanahan, 2000; Wilkinson, 1994). Lower SES has been associated with fewer psychosocial and material resources specific to youth's wellbeing such as quality parent-child communication, stable family structures, and economic security (Kroenke, 2008; Shanahan, 2000; Wilkinson, 1994), which have been associated with good mental health (Axelsson & Ejlertsson, 2002). Poverty may also be a key contributor to the distress felt by jobless individuals in that it makes it difficult to plan and organize a meaningful future (Fryer, 1986, 1992). As Feather argued,

¹² Yates and Payne (2006) also describe a third group of NEET: young parents that consciously decided to be jobless and out of school to look after their children.

“it is those people who suffer financial hardship and who feel that their lives have no purpose and structure who seem to be most affected by unemployment... these two factors seem to play a central role in regard of psychological distress” (Norman T Feather, 1990, p. 49)

Youth of lower SES may also have fewer financial and social resources for *coping* with unemployment or OLFS than higher-SES youth (Payne et al., 1984). As before, these studies suggest that employment may not be as necessary to the wellbeing of higher-SES youth as to lower-SES youth, leading to poorer mental health for unemployed and OLFS youth from lower-SES backgrounds.

The key distinction between these two frameworks is that the latter focuses on the SES as a marker of resources, while the former emphasizes how SES may indicate social experiences. To view these theories as resource- and risk-based orientations of SES is to provide a conceptual linkage between SES and inequality. But to recognize the specific orientations of these frameworks is also to acknowledge that there are limitations to how much SES can measure social inequality. For example, the sociological and some epidemiological literature has described social inequality according to, *social class* (Marx, 2001; Weber, 1978) an alternative measure of inequality. SES and social class, though related, are not interchangeable because of their different historical and disciplinary roots, which lend to different conceptual interpretations. Link and Phelan’s fundamental causes theory, for example, suggests that SES reflects the distribution of health-relevant commodities. The intersectional perspective, on the other hand, suggests that SES is related to issues of power and control; but the way that it is defined in this thesis, essentially places SES as an indicator of privileged/ underprivileged social experiences. These conceptualizations do not capture subjective evaluations of class (e.g., shared values and norms within groups); or ideas of control that stem from occupational class hierarchies (e.g., owner and worker classes) (Oakes & Rossi, 2003;

Wohlfarth, 1997). The theoretical background of the social class construct is discussed elsewhere¹³. Though these theories of social stratification highlight the conceptual and empirical limitations of the current research, they converge with the current conceptualization of SES in that they similarly suggest that unemployed and OLFS youth in poorer social circumstances may differ from youth in better social positions (Weber, 1978). It is within this gap that mental health inequalities may emerge.

2.4.2 Economic recession: two conflicting hypotheses

Two conflicting hypotheses describe how economic recession modifies the relationship between youth labour force participation and mental health. Recession may exacerbate the negative effect of not working on youth mental health. Recession has also been hypothesized to lessen the negative association between not working and mental health.

Not working may be more detrimental to youth mental health during recession because of changes in the conditions of the labour market and the corresponding opportunities for good mental health that are associated with it. For example, youths' mental health may suffer from the added difficulty of acquiring jobs during recession (OECD, 2010), which may foster feelings of disappointment with the job search (McKee-Ryan et al., 2005; Warr, 1987) and feelings of helplessness (Goldsmith et al., 1995, 1996). Youth may also be spending lengthier periods of time spent without work (J. B. Turner, 1995), leaving youth with fewer financial resources to invest in their wellbeing (Hobfoll et al., 1996; Ullah, 1990). The relationship between youth mental health and not working may

¹³ Other researchers have elaborated on the theoretical and historical background of measures of social stratification, and their application in health (Galobardes et al., 2007; Krieger, 2001; Lynch & Kaplan, 2000)

also be negatively affected by non-economic changes associated with the recession (e.g., destabilized family relationships) (Liem & Liem, 1988), decreased perceptions of control, and negative attitudes towards future prospects (Giuliano & Spilimbergo, 2009).

As for how the negative association between not working and mental health may be lessened during recession, there are two explanations. The first is *norm emergence*, the development of shared definitions about a situation within a group, in a given circumstance (R. H. Turner & Killian, 1987). In this context, for example, the circumstances of recession, including widespread unemployment among youth, may give way to a common definition of not working as acceptable. This explanation would suggest that less self-blame (Cohn, 1978) and stigma is experienced by those who are not working during recession (Bell & Blanchflower, 2011; Bjarnason & Sigurdardottir, 2003). A second explanation is that of *health selection* i.e. poor mental health may lead to not working. Under this perspective, widespread unemployment of healthy youth during recession results in an increased proportion of healthy youth among those who are not working. As such, there appears to be an overall improvement in the mental health of the group during recession.

The majority of the research evidence is mixed in terms of support both for and against these hypotheses, with a minority of studies finding no effect of recession on the mental health of the unemployed in either direction (Novo et al., 2000; Viinamaki, Hintikka, Kontula, Niskanen, & Koskela, 2000). Evidence from studies of both working age populations and in youth have supported a negative impact of economic recession on mental health (Chang, Gunnell, Sterne, Lu, & Cheng, 2009; Lee et al., 2010; Allison Milner, Page, & LaMontagne, 2012; Novo et al., 2000, 2001; Karsten Ingmar Paul & Moser, 2009; Wang et al., 2010). Among youth populations, ecological studies have found increases in suicide mortality (Allison Milner et al., 2012), and repeated cross-sectional studies have observed increases in mental health inequalities (Hagquist, 2009;

Kondo et al., 2008; Novo et al., 2000, 2001). Ecological studies do not examine the effect of recession on the health of unemployed individuals, and cross-sectional studies are limited by their inability to test causal hypotheses; however, similar findings have been observed with stronger study designs. For example, a *cross-national* investigation by Paul and Moser (Karsten Ingmar Paul & Moser, 2009) found through a *meta-analysis* of studies on unemployment and mental health from 26 countries that unemployment had a stronger effect on the mental health of workers in countries where unemployment rates are higher.

In contrast, a number of studies found overall better mental health for unemployed individuals on average when the unemployment rate was high (A. E. Clark, 2003; A. Clark et al., 2010; Shields et al., 2007). Corcoran and Arensman (Corcoran & Arensman, 2011b) looked at individual suicide risk in relation to a period of economic boom in Ireland between 1996 and 2006. They found that unemployed men and women were at decreased risk of suicide when the national unemployment rate was higher. Findings in this direction were limited in their ability to differentiate between selection and *causation* (i.e. not working has an effect on mental health), due to limitations in accounting for health selection. For youth populations, it may be argued that selection bias plays a smaller role. Youth as a whole may be considered to be healthier, so the prior health status of a large proportion of unemployed youth may be comparable to employed youth. This literature suggests that not working may have a weaker association with mental health when aggregate unemployment is higher.

Though the evidence presented is ambiguous as to the direction that recession moderates this relationship, an argument can be made that recession compounds the negative association between not working and mental health in youth. First, robust findings from numerous studies of youth populations suggest that there is a moderating effect of recession in a negative direction, even after accounting for health selection. Some of the previously mentioned studies, for example, have minimized

health selection by comparing the unemployment-mental health relationship in youth for periods of low- and high- unemployment (Hagquist, 2009; Kondo et al., 2008; Allison Milner et al., 2012; Novo et al., 2000). Natural experiments in working-age populations such as factory closures also reduce health selection. A number of these studies have found a negative association between unemployment and mental health during widespread unemployment (Browning & Heinesen, 2012; Eliason & Storrie, 2009; Eliason, 2014; Hamilton et al., 1993; Keefe et al., 2002). This evidence provides support for the hypothesis that recession intensifies the negative *effect* that not working has on mental health.

Second, there may be limited generalizability to youth populations for studies that find that recession is related to improvements in the mental of unemployed individuals. Generalizability may be limited because students in these samples may be categorized as unemployed. As such, estimates would have conflated the positive mental health effects of attending school during recession with the negative mental health effects of unemployment. Because youth are more likely to return to school when job opportunities are fewer (Bell & Blanchflower, 2011; D. Clark, 2011; Kahn, 2010), this phenomenon may partially explain why some studies of working-age populations observe a weaker association between not working and mental health during recession.

Finally, one may argue that even when studies detect a decrease in the negative mental health effect of not working during recession, they have not necessarily indicated a protective effect of recession. Such studies may instead have failed to sufficiently account for a *lag period* between recession and the emergence of mental health symptoms i.e. the time that negative mental health outcomes require for development from the time of exposure to recession to the point of being observable. This explanation is supported by research that shows an effect of labour market scarring for youth that fail to transition into the labour force during recession (Kahn, 2010), a phenomenon that has been associated with disparate mental health outcomes in adulthood (A. E. Clark et

al., 2001; Daly & Delaney, 2013; Strandh et al., 2014). Thus, even though the recession may appear to be associated with a reduction in the poor mental health of unemployed youth cross-sectionally, it may be that the recession has a negative impact on youth, for which a mental health effect only becomes apparent later in life.

2.5 Conceptual framework

In the previous sections, the concepts of “not working”, mental health, socioeconomic status, and economic recession were integrated into a conceptual framework (see Figure 2). This framework was adapted from the World Health Organization Commission of Social Determinants of Health Employment Conditions Hub (Muntaner, Benach, Chung, Edwin, & Schrecker, 2010) by O’Campo et al. (O’Campo et al., 2011). It illustrates how context (including recession) determines opportunities for youth labour force participation. Opportunities, in turn, constrain how youth participate in the labour force, which ultimately leads to variability in mental health consequences and vice versa. This framework also suggests that:

- Youth labour force participation may be associated with mental health, such that unemployment and OLFS is associated with worse mental health outcomes than employment or attendance at school. Both labour force states are related to mental health via the material and psychosocial pathways, and labour scarring. Unemployment may additionally be associated with poor mental health through feelings of incongruence.
- SES may modify the association between youth labour force participation and mental health at the individual level. While high-SES youth may become unemployed or drop out of the labour force as part of a transition between school and work, low-SES youth may be more likely to become unemployed or drop out of the labour force as part of an intersection of risks that may negatively influence mental health. Low-SES youth may also rely more on their labour force

state for good mental health because they may have fewer resources that would protect their mental health.

- Economic recession may also modify this relationship from the macrosocial level. Though the research evidence has been ambiguous about the direction of modification, an argument can be made that recession exacerbates the effect negative association of not working on mental health because it may be associated with reductions in the economic and psychosocial resources available to the mental health of youth.

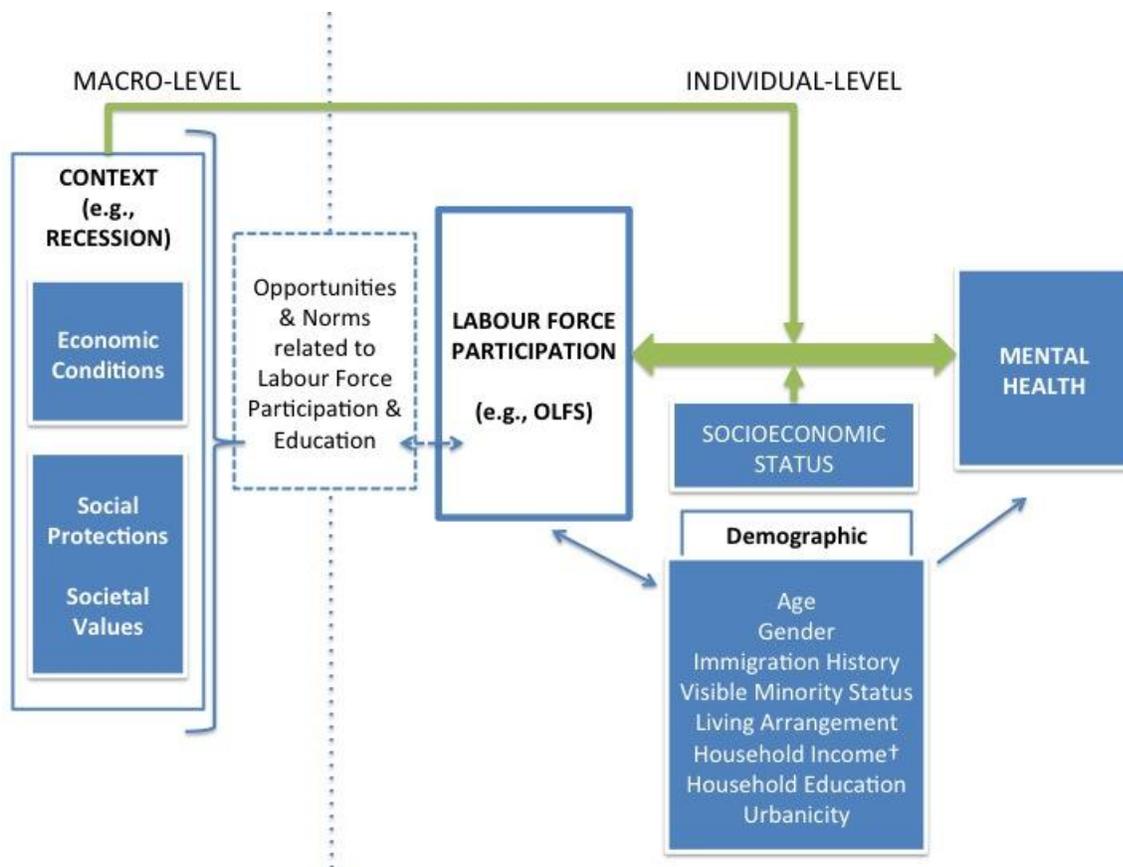


Figure 2 Conceptual Framework

Note: OLFS = out of the labour force and out of school

† Household income was modeled as a confounder in models looking for a main effect of labour force participation on mental health. Household income was left out of the models that were stratified by socioeconomic status.

2.5.1 Confounding variables

The conceptual framework illustrates how demographic variables ¹⁴ (such as age, gender, living arrangement, etc.) may be *confounders* of the relationship: characteristics of the sample that may be a source of variability in mental health across labour force states, but are not on the causal pathway. Because each of these variables is related to both labour force participation and to mental health (Braveman, Egerter, & Williams, 2011; Viner et al., 2012), they have the potential to introduce variability across labour force states even if mental health does not vary. Without accounting for this variability (e.g., by conditioning all other observable variables on confounders) it may appear as if youth labour force participation is related to mental health when the true causal relationship is between the confounding variable and mental health (Gordis, 2009).

2.6 Concluding remarks and hypotheses

Prior research has lacked specificity in their descriptions of how mental health is associated with “not working”. Specifically, the mental health associated with being out of the labour force and out of school has been conflated within definitions of “not working”. The relationship between mental health and labour force participation might also be shaped or influenced by structural variables at the individual level i.e. socioeconomic position, and at the macro-social level i.e. economic recession. These concepts form the theoretical framework that guides the research in this thesis.

Application of this framework to the current research thus leads to the following hypotheses for Chapters 3:

¹⁴ Refer to the Appendix Table 5 for a description of variables.

1. Unemployed youth and OLFS youth will have worse mental health than youth who work or youth at school, but unemployed youth will have the poorest mental health.
2. Unemployed youth and OLFS youth from lower-SES households will have a greater risk of poor mental health than the same youth from higher-SES households.

And the following hypothesis for Chapter 4:

3. Unemployed youth and OLFS youth will have worse mental health relative to youth at work or school at all times; but will have the worst mental health during economic recession.

CHAPTER 3. LABOUR FORCE PARTICIPATION AND YOUTH MENTAL HEALTH BY SES

3.1 Introduction

Social background may be key in determining the extent that youth will encounter negative mental health consequences as a result of not working. Link and Phelan, in their theory fundamental causes (Link & Phelan, 1995; Phelan et al., 2010), suggest that individuals' socioeconomic backgrounds are reflective of the access they have to resources that may benefit their health. Socioeconomic status (SES) may reflect whether youth have such resources as parental income, or social support, to help them to cope with unemployment; or, to promote positive wellbeing in lieu of employment (Kroenke, 2008; Payne et al., 1984; Shanahan, 2000; Wilkinson, 1994). Youths' social backgrounds may also be related to their likelihood of leaving unemployment. The resources that allow unemployed youth to successfully transition into work (e.g., employment opportunities, education, etc.) are concentrated in youth from affluent backgrounds (Bynner, 2005; Yates & Payne, 2006), while barriers to this transition – such as delinquency, school-dropout and homelessness (Yates & Payne, 2006) – are concentrated among unemployed youth from lower socioeconomic backgrounds (Freudenberg & Ruglis, 2007; Macmillan & Hagan, 2004; McLoyd, 1998).

In 2011, 57.4 percent of Canadian unemployed youth failed to find work after leaving school (Certified General Accountants Association of Canada, 2012). Other unemployed youth had been keeping house prior to looking for work, while another 14.8 percent of unemployed youth had suffered involuntary job-loss. Youth is an important stage for the onset of depression and other mental health disorders (Gore et al., 2003); and, youth without work may be at a greater risk of short and long term detriments in mental health compared with working youth or youth in school (Hammarstrom & Janlert, 1997;

Hammarström & Janlert, 2002; Hammer, 2007; Karsten Ingmar Paul & Moser, 2009; Reine et al., 2008; Reneflot & Evensen, 2014).

Socioeconomic status (SES) may, however, moderate the negative association between unemployment and mental health. A study on Swedish college graduates found that while unemployment had negative mental health effects for youth whose parents were less well-off, it had no effect on youth from more affluent families (Schaufeli, 1997). Studies in working-age populations similarly suggest that unemployed individuals of lower SES have worse mental health outcomes than those who are more affluent or who have higher social status (McLeod et al., 2012; Karsten Ingmar Paul & Moser, 2009; Schaufeli, 1997). Paul and Moser (2009) found in a meta-analysis of cross-sectional and longitudinal studies of unemployment in working-age populations that the negative mental health impact of unemployment was greater for blue-collar workers than for white-collar workers. McLeod et al. (McLeod et al., 2012) found that in the United States, unemployment associated mortality was higher amongst persons with lower educational credentials. This evidence suggests that low-SES may be associated with a higher risk of poor mental health than high-SES.

Less is known about SES-differences in the relationship between mental health and dropping out of the labour force and out of school (OLFS). Unlike traditional definitions of unemployment that include a job-search criterion (e.g., unemployment rates are calculated using only people who are searching), OLFS is defined by the cessation of job seeking due to reasons unrelated to school or formal training such as apprenticeship. As such, this group is distinct from unemployed youth who are actively job searching. This group is also distinct from students: youth who are also out of the labour force, but whose mental health has often been found to be better than other youth that are not working because they are at school (Benjet et al., 2012; Franzén & Kassman, 2005; Sellström et al., 2011).

3.1.1 Mental health and (out of the labour force (OLFS) and school)

There are a number of theoretical and empirical reasons to suggest that OLFS has a different association with mental health than unemployment, though prior research has lacked specificity for defining the OLFS state. Paul and Moser (2006) have suggested that people out of the labour force may differ from unemployed individuals because the latter are job-seeking and the former are not. They proposed that job seeking by unemployed individuals indicates a greater motivation to work in comparison to those out of the labour force. Unemployed individuals may subsequently feel a sense of *incongruence* between the desire to work and the work-state that is not shared by those out of the labour force. Their conception of incongruence as a unique psychosocial pathway to mental health for unemployed people is supported by reports that the majority (i.e. 82%) of Canadian youth who dropped out of the labour force do not want to work (Marshall, 2012). About half of these youth were disabled, and only about 20% of these youth had children. Meanwhile, incongruence has been associated with increased distress levels among the unemployed (Karsten Ingmar Paul & Moser, 2006). Thus OLFS may be differently associated with mental health than unemployment, because OLFS is not associated with incongruence.

OLFS and unemployment may also differ in terms of other psychosocial pathways that operate between each state and mental health. From the standpoint of a frameworks that focus on the *benefits of work*, the OLFS and unemployment may have a similar association with mental health because both labour force states are characterized by a lack of financial resources (due to a lack of income) and psychosocial resources (such as social contact, control, and meaning) (Fryer, 1986; Jahoda, 1981, 1982; Warr, 1987). However, studies on working-age populations suggest that the psychosocial deprivation that mediates the negative effect of unemployment may differ from that of being out of the labour force (Karsten I Paul & Batinic, 2010; Selenko et al., 2011). Selenko et al. (Selenko et al., 2011), found that individuals out of the labour force had

better mental health than unemployed individuals but worse mental health than those employed. This effect was partially explained by comparatively worse access to psychosocial benefits of work such as social contacts and time structure for unemployed people despite that both unemployed people and those out of the labour force had fewer financial resources. Paul and Batinic (Karsten I Paul & Batinic, 2010), in their study of a representative sample in Germany, found that while employed persons and those out of the labour force did not differ in terms of the latent benefit of identity/status, unemployed people reported less status than either.

Recent investigation into the psychological consequences of job-seeking behaviour of working-age adults have found worse health for job-seekers and those not actively seeking work (P. a. Creed, Muller, & Patton, 2003; Karsten I Paul & Batinic, 2010; Selenko et al., 2011; Wanberg, Griffiths, & Gavin, 1997). Job seeking may be a stressful experience that necessarily includes facing rejection (McKee-Ryan et al., 2005; Mossakowski, 2009; Wanberg, 1997). In a meta-analysis and systematic review of cross-sectional and longitudinal studies on unemployment and wellbeing in the working-age populations of 104 empirical studies, McKee-Ryan et al. (2005) found that engaging in job-search behaviours was associated with poorer mental health for unemployed persons. This evidence suggests that unemployment may have a greater negative association with mental health than OLFS.

Despite evidence that OLFS is a distinct labour force state, the majority of empirical research has lacked specificity in defining OLFS as a separate category from unemployment or from attendance at school. As an example, a study Goldsmith et al. (Goldsmith et al., 1995, 1996) used nationally representative data from the US National Longitudinal Survey of Youth (NLSY) to provide evidence of a psychological difference between youth out of the labour force and unemployed youth. They found that being both out of the labour force was similar to being unemployed in that both generated feelings of depression and low self-esteem. In this study, OLFS youth were categorized

along with students in the out of the labour force group. As another example, *economically inactive* youth were found to have worse mental health than those who were working or at school in a national sample of Swedish youth (Sellström et al., 2011). The economically inactive youth category, however, included both youth who are out of the labour force have and unemployed youth (i.e. youth who are continuing to search for work). Although this evidence suggests that OLFS may be associated with worse mental health relative to working, it does not look explicitly at how mental health may be differently associated with OLFS than to attendance at school, or to unemployment.

This study therefore has two objectives. First, it examines the extent that the association between mental health and OLFS differs from that of unemployment, employment, or attendance at school. This association is studied for three mental health outcomes (distress, depression, and life satisfaction), which allows for the examination of the association between OLFS and positive and negative measures of mental health as well as diagnostic and subclinical measures. Second, this study examines whether there is effect modification in the relationship between labour force participation and mental health by SES. It is hypothesized that:

1. Unemployed and OLFS youth will be at greater risk of poor mental health than employed youth and students, but following Selenko's findings (Selenko et al., 2011) and Paul and Moser's theory of incongruence (Karsten Ingmar Paul & Moser, 2006), unemployed youth will have worse mental health than OLFS;
2. SES will modify the association between unemployment and OLFS such that low-SES unemployed and OLFS youth will have a worse mental health than high-SES youth.

3.2 Methods

3.2.1 Study population

Cross-sectional data drawn from the Canadian Community Health Survey 2012 – Mental Health (CCHS – MH) were used in this study. The CCHS – MH survey is a nationally representative survey conducted by Statistics Canada to order to assess the mental health status of Canadians on both illness and positive mental health measures (Statistics Canada, 2013c). The CCHS – MH was conducted by Statistics Canada between January and December 2012 and 23,113 individuals aged 15 or older who lived in a private dwelling were surveyed (a sample response rate of 68.9%). Persons living on First Nation reserves, government-owned land, or living in institutions, and residents of the three territories of Canada were excluded from the sample

Respondents between the ages of 15-29 at the time of the survey, who were neither permanently unable to work nor retired, were retained for this study. Parents were also excluded from the sample as the relationship between labour force participation and mental health is likely shaped by the need to provide care to children. The study sample included only respondents without missing information to all variables in the fully adjusted models, leading to a final sample of 4,883 youth. Univariate distributions of demographic variables and logistic regression were used to detect a non-random pattern of missing information. Non-responders were more likely to have lower household income, to be an ethnic minority, and to have higher levels of distress. They were less likely to be between the ages of 19-29. Approval for this study was obtained from the University of British Columbia Research Ethics Board (certificate number H13-02622).

3.2.2 Labour force and educational participation

Figure 3 shows the derivation of labour force and educational participation from four questions about youths' labour force activities. Five mutually exclusive categories were

created: (1) employed non-students, (2) employed students, (3) students, (4) unemployed, and (5) out of the labour force and out of school (OLFS). Employed non-students were defined as those who worked at a job or business and were not in school in the week before taking survey. Youth who were in school were defined as either employed students (those who worked at a job or business but who were in education the week before taking the survey) or students (in education only). Those not in work or school were classified as either unemployed (defined as actively looking for work in the four weeks before the survey), or out of the labour force and out of school (OLFS).

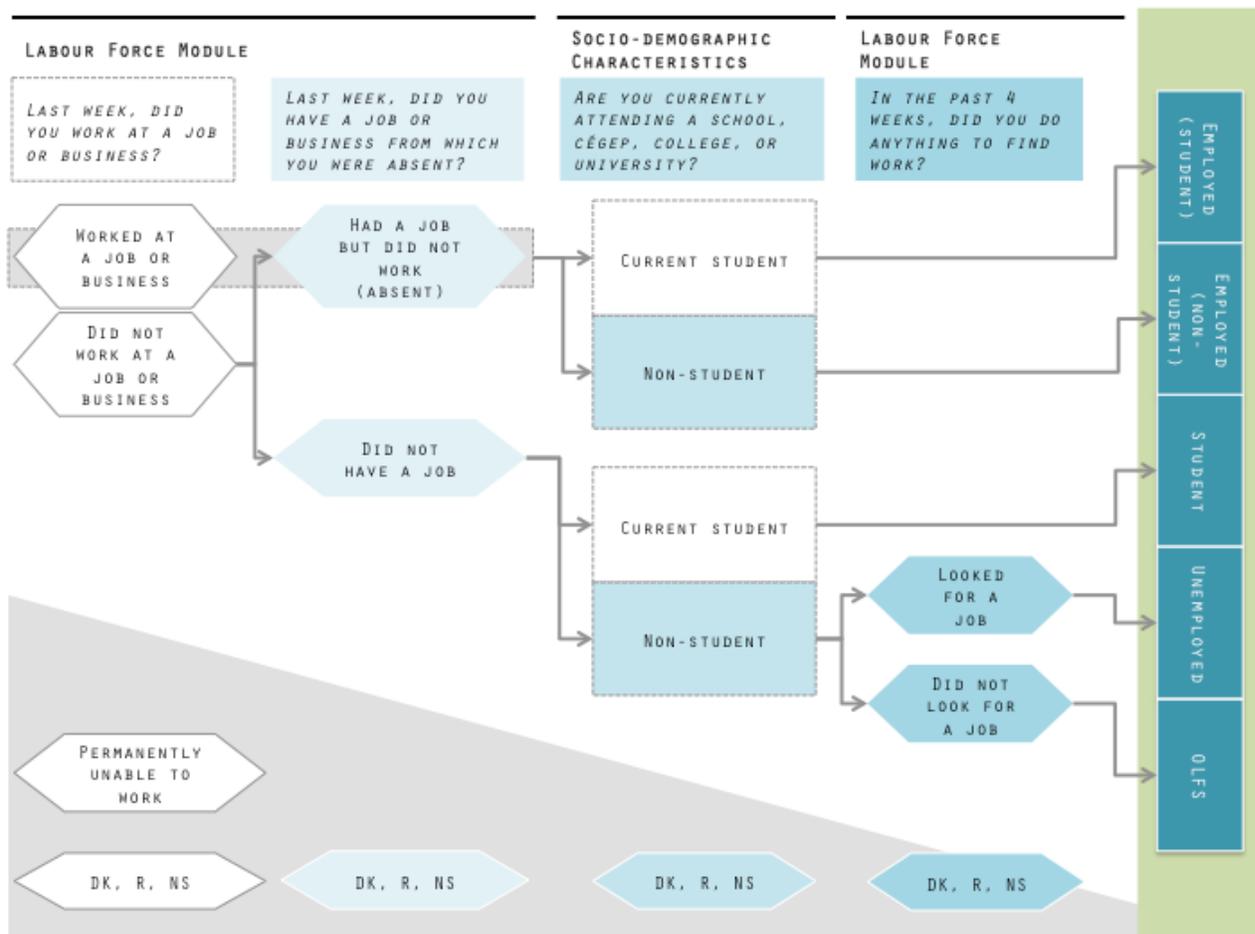


Figure 3 Labour force participation assessment process

Note: OLFS = out of the labour force and out of school, DK = don't know, R = refusal, NS = not stated

3.2.3 Mental health outcomes

3.2.3.1 *Depression*

Depression was defined as a dichotomous variable indicating a major depressive disorder, as assessed by the World Health Organization version of the Composite International Diagnostic Interview (WHO-CIDI). The WHO-CIDI is a standardized instrument for the assessment of mental disorders and conditions operationalized according to definitions and criteria of the DSM-IV (Diagnostic and Statistical Manual of Manual Disorders) (American Psychiatric Association, 2000) and the ICD-10 (International Classification of Diseases) (Statistics Canada, 2003; World Health Organization, n.d.). Major depressive disorder was defined in the survey as a “period of 2 weeks or more with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, and feelings of guilt, hopelessness, or suicidal thoughts” (Statistics Canada, 2013a). The instrument has previously demonstrated good validity and reliability (Kessler et al., 2004; Wittchen & Max-planck-Institutc, 1994).

3.2.3.2 *Psychological distress*

Psychological distress was defined as an ordinal variable using the K6 scale developed by Kessler and colleagues (Kessler et al., 2002, 2003). The K6 is comprised of six items that asked about the frequency, within the previous 30 days, that respondents felt nervous, hopeless, restless, depressed, that everything was an effort, and worthless. Items were scored from 0 “none of the time” to 4 “all of the time”. The total psychological distress score was computed for each respondent by summing the six item scores, producing a score between 0-24 with a higher score indicating greater psychological distress. Though it measures non-specific psychological distress, it has tested well in its assessment of mood and anxiety disorders as defined by the DSM-IV

(Furukawa, Kessler, Slade, & Andrews, 2003). Construct validity of the scale has been previously tested within the age group of interest (Drapeau et al., 2010).

3.2.3.3 *Satisfaction with life*

Satisfaction with life was defined as an ordinal variable, gauged using the question “How satisfied are you at present with your life as a whole?” with answers on a scale ranging from 0 “completely dissatisfied” to 10 “completely satisfied”. Overall life satisfaction has frequently been employed as a summary measure of an individual’s psychological state, and is strongly correlated with other survey instruments designed to reflect subjective wellbeing (Diener, Suh, Lucas, & Smith, 1999; Veenhoven, 2013). To be consistent with the other mental health measures used in this study, the overall satisfaction with life score was reverse coded such that a higher score reflects a lower satisfaction with life.

3.2.4 **Socioeconomic status**

Socioeconomic status (SES) was defined according to the respondent’s household income, dichotomized using a cut-off point of the 40th percentile within the respondent’s province. This cut-off point was preferred to a lower cut-off because it allowed for a larger sample size in the stratified analysis. Individuals below the 40th percentile were considered to have low-SES, while individuals above the 40th percentile were categorized as high-income.

3.2.5 **Confounders**

The following demographic and socioeconomic variables were included as confounders:

- age group (15-18 years old/19-24 years old/25-29 years old),
- gender (male/female),

- highest level of education achieved in the respondent's household (less than highschool/highschool graduate/some post-secondary/post-secondary school graduate),
- immigration history (Canadian-born/not Canadian-born),
- visible minority status (white/non-white),
- respondent's living arrangements (child living with two parents/child living with single parent/unattached individual/living with spouse or partner), and
- urbanicity of respondent's place of residence (urban/rural).

Equivalized household income (defined as the respondent's household income decile within respondent's province of residence adjusted for household composition), was also included as a confounder in the un-stratified analyses.

3.2.6 Analysis

To examine the relative differences in the risk of poor mental health by labour force and education status, odds ratios (OR) and their 95% confidence intervals (CI) of depression, distress, and lower life satisfaction, were estimated using employed non-students as the reference group. Logistic regression was used to model depression, a dichotomous variable. Ordered logit regression was used to model distress and life satisfaction, ordinal variables. Ordered logit models have been said to be appropriate when the dependent variable is categorical and sequential and when it is assumed that errors are normally distributed (Winkelmann & Winkelmann, 1998). Additionally, use of the ordered logit regression allowed for the generation of an OR, which allows for comparability across dependent variables.

To address potential confounding, estimates were adjusted for demographic variables as described above. Province of residence was included as a variable in the model; however, it was not included in the reported analyses for reasons of parsimony, and because the inclusion of this group of variables did not affect the ORs on the labour

force and educational status variables. Finally, models were stratified by equivalized household income to account for potential modification by socioeconomic status.

To look at both relative and absolute estimates of risk, the average predicted probability for the analytic sample was calculated from the stratified models for each category of labour and educational participation (Grant, 2014; C. J. Muller & MacLehose, 2014). The predicted probability is an adjusted estimate of absolute mental health risk. This method was in line with that of previous population studies on health inequalities in Canada (McLeod, Lavis, Mustard, & Stoddart, 2003). As Harper has noted, absolute estimates may be used to delve deeper into health inequalities, given that the odds ratio does not contain information about changes in the rates of mental health for different comparison groups (Harper et al., 2010). Using predicted probabilities, we were thus able to consider the fact that a difference in the odds ratios between low and high-SES youth could be a result of differences in the rates of mental health in the baseline and/or comparison group.

All estimates were weighted using sampling weights provided by Statistics Canada to account for the complex multi-stage sampling design of the CCHS-MH. All analyses were conducted using survey procedures in STATA software, version 12 (StataCorp., 2011).

3.3 Results

3.3.1 Sample characteristics

Table 2 describes the characteristics of the study sample. Unemployed youth were found to have greater depression, distress; and, had lower life satisfaction than employed or student youth. A higher prevalence of depression was found in unemployed youth (14.1%, CI: 13.1-15.1%) than in employed non-students (6.5%, CI: 5.8-7.4%), employed students (6.2%, CI: 5.5-6.9%), and students (5.5%, CI: 4.9-6.1%).

Higher mean distress scores were also observed for unemployed youth (mean: 5.3, CI: 4.45-6.1), compared with employed non-students (mean: 3.4, CI: 3.2-3.7), employed students (mean: 3.7, CI: 3.5-4.0), and students (mean: 3.7, CI: 3.5-4.0). Finally, lower means scores for satisfaction with life were observed for unemployed youth (mean: 2.9, CI: 2.5-3.3) compared with employed non-students (mean: 2.1, CI: 2.0-2.2), employed students (mean: 2.0, CI: 1.9-2.0), and students (mean: 1.8, CI: 1.7-1.9).

The prevalence of depression was found to be lower for OLFS youth (11.3%, CI: 10.4-12.2%) than for unemployed youth, but was higher than all other participation groups. Lower mean distress scores were also observed for youth OLFS compared to unemployed youth (mean: 4.2, CI: 3.1-5.3), as well as higher life satisfaction (mean: 2.3, CI: 1.9-2.6), though youth OLFS had a higher mean distress score and lower life satisfaction than all other participation groups.

Other descriptive results revealed a higher prevalence of depression in females (8.9%, CI: 8.1-9.7%), and Caucasians (7.1%, CI: 6.4=7.8%). Higher mean distress was observed in females (mean: 4.0, CI: 3.8-4.2). Lower satisfaction with life was observed among youth from households in which the highest level of educational achievement was high school graduation (mean: 2.3, CI: 2.1-2.4).

Table 2 Sample Characteristics

	Overall (n=4883)			Depression (n=4870)			Distress [†] (n=4862)			SWL [§] (reverse-scored) (n=4879)		
	%	LCI	UCI	%	LCI	UCI	Mean	LCI	UCI	Mean	LCI	UCI
Total				6.7	6.0	7.4	3.5	3.3	3.7	2.0	1.9	2.1
Employed non-students	40.9	39.5	42.3	6.5	5.8	7.2	3.4	3.2	3.7	2.1	2.0	2.2
Employed students	26.1	24.9	27.3	6.2	5.5	6.9	3.7	3.5	4.0	2.0	1.9	2.0
Unemployed	3.5	3.0	4.0	14.1	13.1	15.1	5.3	4.5	6.1	2.9	2.5	3.3
OLFS	4.4	3.8	5.0	11.3	10.4	12.2	4.2	3.1	5.3	2.3	1.9	2.6
Student	25.1	23.9	26.3	5.5	4.9	6.1	3.7	3.5	4.0	1.8	1.7	1.9
Gender												
Male	50.1	48.7	51.5	4.7	4.1	5.3	3.4	3.2	3.6	2.0	2.0	2.1
Female	45.9	44.5	47.3	8.9	8.1	9.7	4.0	3.8	4.2	2.0	1.9	2.1
Age (years)												
15-18	29.3	28.0	30.6	5.9	5.2	6.6	3.9	3.7	4.1	1.8	1.7	1.9
19-24	41.1	39.7	42.5	7.7	7.0	8.4	3.8	3.6	3.1	2.1	2.0	2.2
25-29	29.6	28.3	30.9	6.0	5.3	6.7	3.3	3.0	3.6	2.1	1.0	2.2
Immigration history												
Canadian-born	80.6	79.5	81.7	7.1	6.4	7.8	3.8	3.6	3.9	2.0	1.9	2.1
Born Outside Canada	19.4	18.3	20.5	4.8	4.2	5.4	3.4	3.0	3.8	2.1	2.0	2.3
Visible minority status												
Caucasian	70.0	68.7	71.3	7.1	6.4	7.8	3.7	3.6	3.9	2.0	1.9	2.1
Visible minority	25.5	24.3	26.7	6.7	6.0	7.4	3.4	3.1	3.7	2.1	2.0	2.2
Missing	4.5	3.9	5.1	11.2	10.3	12.1	4.7	4.1	5.4	2.3	2.0	2.5
Living arrangement												
Unattached	20.4	19.3	21.5	8.9	8.1	9.7	3.9	3.6	4.3	2.2	2.1	2.3
With spouse/partner	12.8	11.9	13.7	5.9	5.2	6.6	3.1	2.8	3.5	1.8	1.6	2.0
Child with single parent	12.9	12.0	13.8	6.8	6.1	7.5	4.1	3.7	4.6	2.3	2.1	2.4
Child with two parents	44.2	42.8	45.6	5.2	4.6	5.8	3.6	3.4	3.8	1.9	1.8	2.0
Other	9.7	8.9	10.5	9.3	8.5	10.1	3.7	3.1	4.3	2.2	2.0	2.4
Household Education												
Less than SS Graduation	2.0	1.6	2.4	12.6	11.7	13.5	4.8	3.7	6.0	2.2	1.9	2.5
SS Graduation	8.4	7.6	9.2	8.7	7.9	9.5	3.9	3.4	4.4	2.3	2.1	2.4
Some PS	5.7	5.0	6.4	9.9	9.1	10.7	4.5	3.7	5.4	2.3	1.9	2.6
PS Grad	2.5	2.1	2.9	6.2	5.5	6.9	3.6	3.4	3.8	2.0	1.9	2.1
Missing	11.4	10.5	12.3	5.7	5.0	6.4	3.6	3.2	3.9	1.9	1.8	2.1
Household income												
Decile 1 (highest)	7.3	6.6	8.0	4.7	4.1	5.3	3.4	2.9	3.9	1.9	1.7	2.2
Decile 2	7.5	6.8	8.2	5.6	5.0	6.2	3.6	3.2	4.0	1.8	1.6	2.0
Decile 3	11.1	10.2	12.0	5.6	5.0	6.2	3.2	2.7	3.6	1.9	1.7	2.0
Decile 4	10.1	9.3	10.9	3.7	3.2	4.2	3.3	3.0	3.7	1.9	1.7	2.0
Decile 5	10.2	9.3	11.1	7.0	6.3	7.7	3.6	3.2	4.1	2.0	1.8	2.2
Decile 6	9.9	9.1	10.7	8.1	7.3	8.9	3.3	3.0	3.7	2.0	1.8	2.2
Decile 7	10.1	9.3	10.9	8.8	8.0	9.6	3.8	3.3	4.5	2.2	2.0	2.4
Decile 8	11.2	10.3	12.1	9.1	8.3	9.9	4.1	3.6	4.7	2.2	2.0	2.4
Decile 9	10.4	9.5	11.3	5.5	4.9	6.1	4.2	3.7	4.8	2.3	2.1	2.4
Decile 10	12.2	11.3	13.1	9.6	8.8	10.4	4.0	3.5	4.6	2.2	2.0	2.3
Urbanicity												
Urban	87.5	86.6	88.4	5.4	4.8	6.0	3.7	3.5	2.9	2.0	2.0	2.1
Rural	12.5	11.6	13.4	6.8	6.1	7.5	3.6	3.3	3.9	1.9	1.7	2.0

Note: SWL = satisfaction with life, LCI/UCI = lower/upper 95% confidence intervals, OLFS = out of the labour force and out of school, SS/PS = secondary/post-secondary school

† Distress was measured using the Kessler's Psychological Distress Scale (K6; score 0-24). Higher scores indicate greater distress

§ Satisfaction with life was measured with a single-item question. It was reverse scored (score 0-10), with higher scores indicating lower satisfaction with life

3.3.2 Unemployment and OLFS

Unemployed youth had greater odds of adverse mental health compared to employed non-students for all outcomes (Table 3). In the fully adjusted models the odds of depression was 2.3 times greater (CI: 1.2-4.4) for unemployed youth than for employed non-students. The odds of reporting higher levels of psychological distress and lower life satisfaction, respectively, were 2.2 times (CI: 1.5-3.4) and 2.4 times (CI: 1.4-4.2) that of employed non-students.

No differences were observed in the fully adjusted models between youth OLFS in terms of distress (OR: 1.0, CI: 0.5-2.0) or satisfaction with life (OR: 0.8, CI: 1.4-4.2) compared to employed non-students. There was an increased OR for depression in the unadjusted (OR 1.8, CI: 0.8-4.3) that was slightly attenuated after adjustment for confounding variables (1.5, CI 0.8-3.0). However these estimates were inclusive of a null finding (i.e. OR: 1.0) at the 95% confidence level.

Other results of the multivariable analyses revealed that neither jobless students nor employed students significantly differed from employed non-students with regards to depression (OR: 0.8, CI: 0.8-3.0; and, OR: 0.9, CI: 0.6-1.5, respectively), distress (OR: 1.1, CI: 0.9-1.4; and, OR: 1.2, CI: 1.0-1.5, respectively), and life satisfaction (OR: 0.7, CI: 0.6-0.9; and, OR: 0.9, CI: 0.7-1.1, respectively).

Table 3 Unadjusted and adjusted odds ratios from logistic regression on depression, psychological distress (scale score, 0-24 where a higher score means more distressed), and satisfaction with life (reverse scored, 0-10 where a higher score means less satisfied)

	Depression (n=4870)						Distress (n=4862)						Satisfaction with Life (reverse-scored) (n=4879)					
	Unadjusted			Adjusted [†]			Unadjusted			Adjusted			Unadjusted			Adjusted		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Employed non-students	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--
Employed students	0.95	0.61	1.47	0.90	0.55	1.47	1.31	1.08	1.59	1.19	0.96	1.47	0.83	0.69	1.01	0.92	0.74	1.13
Unemployed	2.35	1.25	4.42	2.25	1.16	4.36	2.43	1.64	3.60	2.22	1.47	3.37	2.54	1.51	4.29	2.40	1.37	4.20
OLFS	1.83	0.79	4.25	1.51	0.77	2.96	1.08	0.47	2.51	0.95	0.46	2.00	1.15	0.66	2.00	0.84	0.48	1.49
Student	0.84	0.54	1.31	0.82	0.49	1.38	1.23	1.01	1.50	1.09	0.86	1.37	0.65	0.53	0.80	0.70	0.56	0.89

Note: OLFS = out of the labour force and out of school, OR = odds ratio, LCI, UCI = lower, upper 95% confidence interval. An OR > 1.00 indicate worse mental health. For full regression results, see Appendix Table 6

[†] Adjusted for age, gender, household income, highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, and urbanicity

3.3.3 Moderation by SES

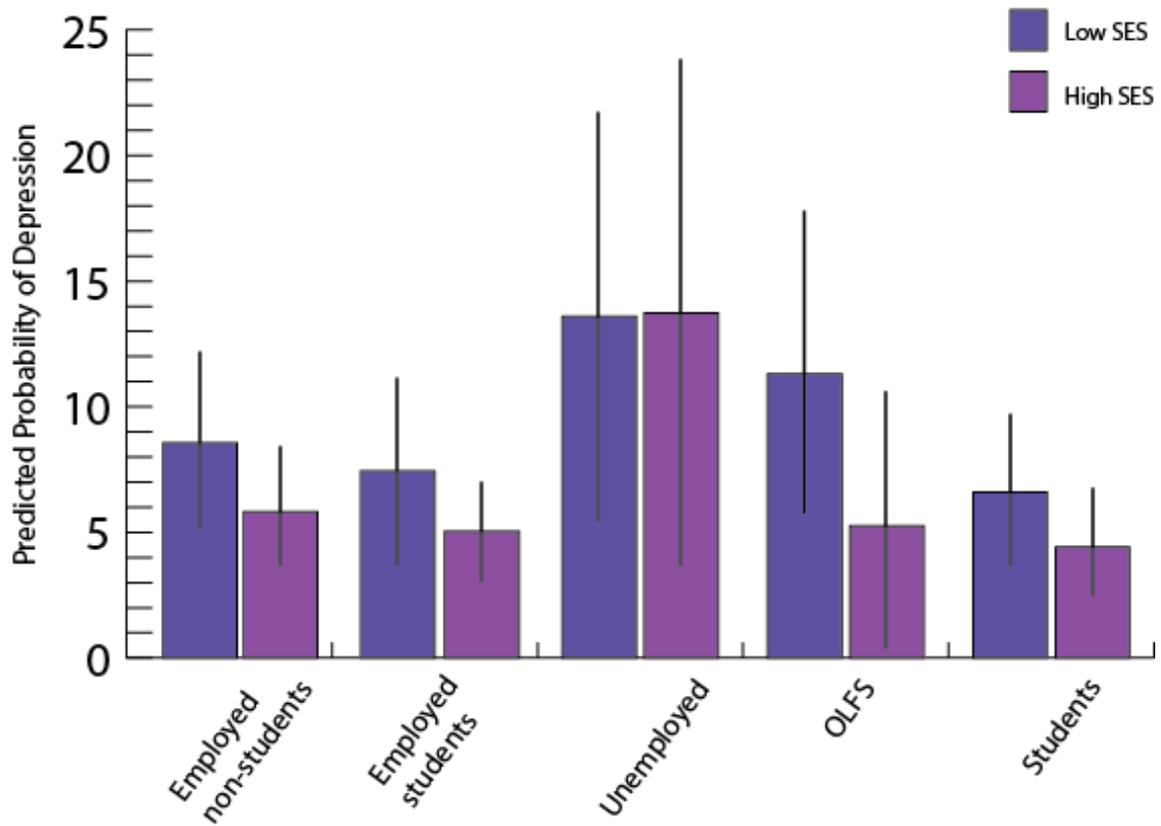
The results of the stratified regression models are not shown but may be seen in Appendix Table 7. Stratification revealed that unemployed youth from both low-SES (OR: 1.7, CI: 0.7-4.0) and high-SES households (OR: 2.7, CI: 0.6-7.7) had greater odds of depression than employed non-students, but that the relative difference was greater in high-SES youth. Similar findings were observed for life satisfaction (OR: 2.0, CI: 0.9-4.5 for low-SES households; and, OR: 3.1, CI: 1.5-6.6 for high-SES households). The opposite was found for distress. There was a greater relative difference in distress between unemployed youth and employed non-students in low-SES households (OR: 2.5, CI: 1.4-4.3) than in high-SES households (OR: 1.8, CI: 0.9-3.5)

The predicted probability of depression, distress, and life satisfaction for each type of labour and educational participation were calculated from the estimates of the stratified regressions (Figure 4, Figure 5 and Figure 6, respectively). Figure 4 shows that the probability of depression did not differ between unemployed youth from low-SES households (13.6%, CI: 5.6-21.5%) and high-SES households (13.7%, CI: 3.6-23.9%). No differences were observed in the predicted probability of life satisfaction scores between unemployed youth from low- and high-SES households (Figure 6). Figure 5, however, shows that the probability of higher distress scores was greater for unemployed youth from low-SES households than for youth from high-SES households. For example unemployed youth from low-SES households had a 5.4% probability (CI: 3.2-7.6%) of a distress score of 9, while youth from high-SES households had a 2.5% (CI: 0.66-4.30%) probability of the same score.

None of the regression estimates of association between OLFS and mental health from the stratified models reached statistical significance at a 95% confidence level. However, there appeared to be differences in the patterns of association between low- and high-SES OLFS youth. Among low-SES youth, OLFS was associated with elevated odds of depression (OR: 1.4, CI: 0.6-3.0) compared with employed non-students. Among high-SES youth, however, OLFS youth did not appear to differ from employed non-students (OR: 0.9, CI: 0.3-2.9). Low-SES OLFS youth did not appear to differ from employed non-students with regards to life satisfaction (OR: 1.1, CI: 0.6-2.2); but high-SES OLFS had decreased odds of low life-satisfaction compared with employed non-students (OR: 0.4, CI: 0.14-1.10, respectively). No effect modification was observed for OLFS and distress (OR: 0.9, CI: 0.4-2.4 in low-SES, and OR: 0.9, CI: 0.5-1.9 in high-SES households).

The probability of depression was greater for OLFS youth from lower SES households (11.3% CI: 4.8-17.9%) than for OLFS youth in higher SES households (5.3% CI: 0.0-10.5) (Figure 4). There was considerable overlap between the 95% confidence intervals for these estimates, however, suggesting that these findings may not be considered to be statistically significant at a 95% level of confidence. A similar pattern was observed for the predicted probability of lower satisfaction with life: OLFS youth from high-SES had a decreased probability of lower life satisfaction compared with low-SES households (Figure 6). For example, the probability of a score of 0 on the satisfaction with life scale (after it was reverse-coded, thus indicating perfect satisfaction) was 26.6% (CI: 7.6-44.6%) for high-SES households and 10.2% (CI: 4.5-15.8%) for OLFS youth from low-SES households; whereas, the probability of a score of 4 (i.e. lower satisfaction with life) was 1.9% (CI: 0.0-3.8%) for those from high-SES households and 7.8% (CI: 3.6-12.0%) for youth OLFS from low-SES households. No difference was observed between youth OLFS from low- and high-SES households with regards to distress (Figure 5).

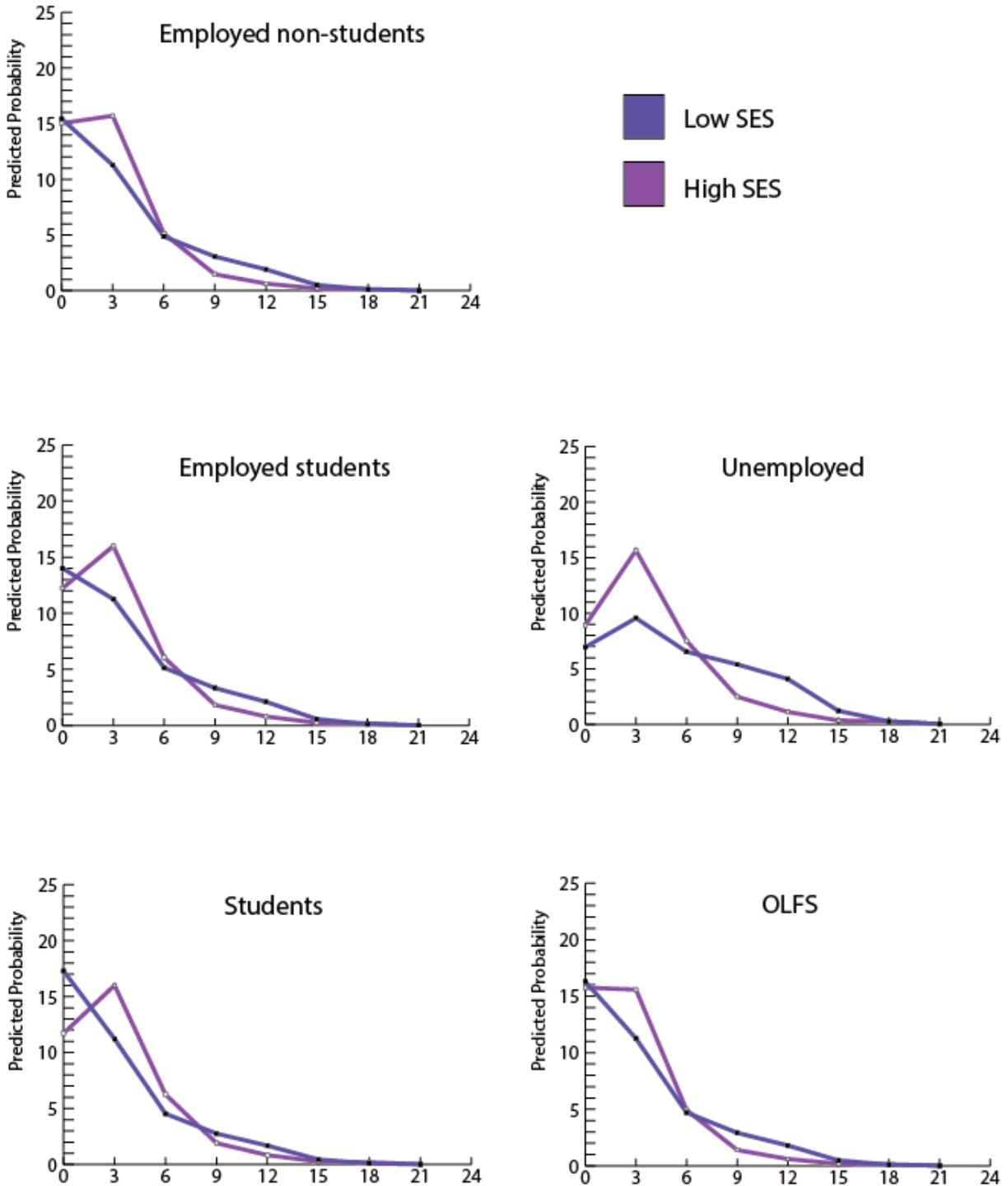
Figure 4 The predicted probability of depression by labour and educational participation by SES† (household income below/above 40th percentile in province)



*Note: Estimates have been adjusted for age, gender, household income, highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, and urbanicity. OLFS = out of the labour force and out of school, bars correspond to 95% confidence intervals

† Low-SES sample (n=2,152), high-SES sample (n=2,718)

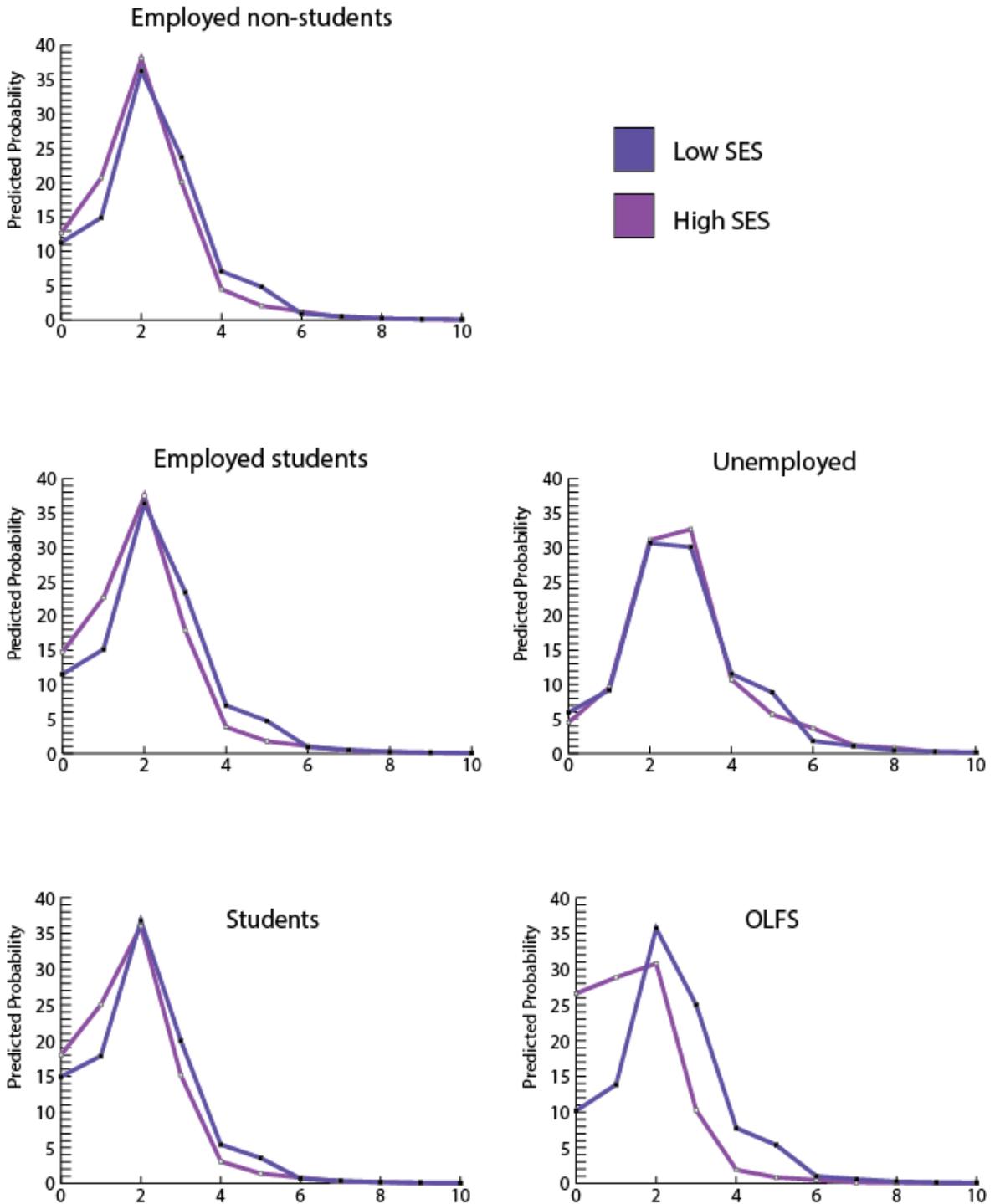
Figure 5 The predicted probability of distress across the K6 scale (score: 0-24) by labour force participation and by SES[†] (household income below/above 40th percentile in province)



*Note: Estimates have been adjusted for age, gender, household income, highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, and urbanicity. OLFS = out of the labour force and out of school

† Low-SES sample (n=2,145), high-SES sample (n=2,717)

Figure 6 The predicted probability of satisfaction with life across the scale (score 0-10, reverse coded: higher = lower life satisfaction) by labour force participation and by SES† (household income below/above 40th percentile in province)



*Note: Higher scores indicate less life satisfaction; estimates have been adjusted for age, gender, household income, highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, and urbanicity. OLFS = out of the labour force and out of school

† Low-SES sample (n=2,159), high-SES sample (n=2,720)

3.4 Discussion

This study investigated the association between youth labour force participation and mental health and looked at SES-based differences in a nationally representative sample of Canadian youth. It yielded two main findings. First, while unemployment is associated with depression, distress, and lower life satisfaction, OLFS is not consistently associated with poor mental health. OLFS was only associated with depression, and this estimate was not found to be significant at a 95% confidence level. Second, SES is a modifier of the association between mental health and youth labour participation, but has a different influence for unemployment than for OLFS, and also differs by mental health outcome.

- Both the relative odds of distress for unemployed youth relative to employed non-students, and the predicted probability of distress scores were greater for low-SES youth than for high-SES youth.
- Contrary to expectations, SES was not a moderator for the relationship between unemployment and depression or low life-satisfaction. Though unemployed youth from high-SES households had greater odds of depression and low life satisfaction relative to employed non-students than low-SES youth, unemployed youth across SES-strata had similar predicted probabilities of depression and life satisfaction. (It was low-SES employed non-students, the reference group, who had a higher probability of depression and low-life satisfaction than their high-SES counterparts).
- Low-SES OLFS youth appeared to be more vulnerable to depression. Both the relative estimates and absolute probability of depression was higher among OLFS youth from low-SES households than among OLFS youth from high-SES households.

- High-SES OLFS youth appeared to be protected from vulnerability to low-life satisfaction. While no-difference was observed between OLFS youth and employed non-students among low-SES youth, high-SES OLFS youth had lower odds of low-life satisfaction relative to employed non-students, and a lower probability of low-life satisfaction compared with low-SES youth

3.4.1 Unemployment is negatively associated with mental health, but OLFS may not be

This study demonstrated that there is a stronger negative association with mental health for unemployment than for OLFS, a finding that is consistent with other theoretical and empirical research (P. a. Creed et al., 2003; Karsten I Paul & Batinic, 2010; Selenko et al., 2011; Wanberg et al., 1997). Unemployment has been associated with poor mental health due to deprivation in psychosocial resources such as status (Karsten I Paul & Batinic, 2010), social contact, and time structure (Selenko et al., 2011), which was not found for being out of the labour force. Unemployment may also influence mental health through job-seeking (McKee-Ryan et al., 2005; Wanberg, 1997), a behaviour that is not relevant to the pathway between being out of the labour force to mental health. Paul and Moser's theory of *incongruence* has argued that unemployed individuals are more negatively impacted by not working than individuals out of the labour force. They suggest that this difference may be attributed to a stronger desire to work amongst unemployed individuals (Karsten Ingmar Paul & Moser, 2006). Finally, while unemployment was associated with a negative impact on mental health in the long term, being out of the labour force was not (Mossakowski, 2009). This evidence suggests that unemployment is more strongly associated with poor mental health than OLFS.

While there was some evidence from this study that was in line with the expectation that OLFS is associated with poor mental health, the results were not conclusive. Though OLFS was negatively associated with depression, estimates did not reach significance at the 95% confidence level. Further, OLFS was neither associated with distress nor low life-satisfaction, suggesting that the association between OLFS and poor mental health may depend on the outcome measured.

Though the reasons for this finding are unclear, it may suggest that OLFS has a negative association with select aspects of mental health instead of a detrimental influence across mental health. Further, because OLFS was associated with depression (a measure in this study was used to identify cases of depression) but not distress or life satisfaction (scale measures that in this study were used to capture a wider range of variability in subclinical aspects of mental health), OLFS may be an important determinant for cases of depression but not for subclinical aspects of mental health ¹⁵. Alternatively, OLFS may have had a different association with mental health measures because of the biases that were introduced by each measure (e.g., response bias); or, because different labour participation groups may have had differing frames of reference for each mental health measure.

The null finding between OLFS and distress and life satisfaction may also suggest that the association between poor mental health and OLFS is comparable to that of being at work or at school. Individuals who were out of the labour force, in a representative sample of 998 individuals from the general population

¹⁵ The direction of the association did not differ between models examining life satisfaction and models examining distress, suggesting that OLFS is not more related to positive mental health or to negative measures of mental health.

of Germany (Karsten I Paul & Batinic, 2010), were found to be at a similar risk to employed persons. Further, those who were out of the labour force and those who were employed reported similar levels of status, a psychosocial resource that may be obtained through work (Jahoda, 1981).

This evidence highlights the complexity of defining OLFS according to the absence of work and school, because it suggests that, at least in the short term, OLFS may equally as beneficial to mental health as working or attending school. That is, OLFS can include circumstances that promote good mental health in lieu of employment or school. An analogous discussion has been raised about *discouraged workers*, a concept that has been well described by labour economists. The term suggests that individuals with a history of past unemployment may be less likely to participate in the labour market in the future (A. E. Clark et al., 2001). While discouraged workers have been found to be at higher risk of feeling helpless, and having low self-esteem due to a failed job search (Bjørnstad, 2006; N T Feather & Davenport, 1981; Goldsmith et al., 1995, 1996), discouraged workers have also been described as individuals who leave the labour market to engage with other activities that may be more fulfilling than job-searching (Ehrenberg & Smith, 1996).

In youth populations, fulfilling alternatives to working or to school may include travel, participation in the informal economy, involvement in associations of various kinds, or other productive options. Fryer (Fryer, 1986) has likewise argued in his *agency theory* that a lack of work may not necessarily be detrimental to mental health. He suggests that labour force states negatively affect wellbeing to the extent that they restrict an individual's ability to influence the conditions of her/his life and to actively work towards her/his goals and values. If OLFS youth are engaged in activities that are fulfilling and that are in line with their goals, they may therefore experience good mental health even in the absence of

paid employment and school. Unfortunately, reliable data on youths' activities were not available in this study, so OLFS as a potentially beneficial state requires further research. Nonetheless, study findings suggest that the association between OLFS and mental health is less straightforward than that of unemployment.

3.4.2 Socioeconomic status is a moderator, but operates differently between unemployment and OLFS, and between mental health constructs

This study found some support for the hypothesis that SES moderates the association between labour force participation and mental health. The study showed that there were SES-differences in the association. Low-SES unemployed youth were more vulnerable to distress supporting SES. Low-SES OLFS was associated with added vulnerability to depression, while high-SES was associated with added resilience to low life-satisfaction. However, these findings were inconclusive as this study found that SES-differences were dependent on both the labour force state and the mental health construct of interest. Contrary to expectations, SES-differences were not in the association between unemployment and depression or low life-satisfaction. As well, no SES differences were observed for OLFS and distress. Finally, many of the estimates from the stratified regressions failed to reach significance at the 95% confidence level.

Where a moderating effect was observed for SES, however, results are consistent with theoretical and empirical literature (McLeod et al., 2012; Karsten Ingmar Paul & Moser, 2009; Schaufeli, 1997). Youth may be protected from the negative mental health outcomes that are associated with not working when they have more financial and social support, and better strategies for coping (Fryer, 1992;

Hammer, 2000; Payne et al., 1984). Conversely, low-SES conditions may place additional psychological stress on unemployed youth because of the added financial strain, relative instability in their family structures, and difficulty accessing other resources for mental health (Kroenke, 2008; Phelan et al., 2010; Shanahan, 2000; Wilkinson, 1994).

SES may also moderate the relationship between OLFS and mental health because it is related to the social stratification within the experience of OLFS. For example, the OLFS state may signify, in high-SES youth, a productive break in youths' labour market trajectories (e.g., youth may be traveling, volunteering, or otherwise) that may benefit their mental health. High-SES youth may have the necessary resources (e.g., educational credentials and employment opportunities) to take a break between school and work without consequence to their employment (Bynner, 2005). In low-SES youth, on the other hand, OLFS may signify broad barriers along their labour market trajectories that may negatively impact mental health. Barriers to labour market participation such as homelessness, delinquency, and early school drop-out, for example, have been related to low-SES (Freudenberg & Ruglis, 2007; Macmillan & Hagan, 2004; McLoyd, 1998). Though detailed information about youths' social experiences of OLFS was not available in this study, the literature suggests that SES may indicate qualitatively different states of not working, which may moderate the association between unemployment, OLFS, and mental health.

It is unclear why SES did not moderate the relation between youth labour force participation and mental health for all mental health outcomes. Findings that contradict the hypothesis may suggest that unemployment and OLFS can negatively impact youth mental health even when youth have the necessary resources to cope with unemployment or to facilitate a quick transition to employment. Future studies may want to more accurately define youths' social

backgrounds by using other measures in addition to household income to test this hypothesis.

3.4.3 Strengths and Limitations

This study had several strengths. First, using a nationally representative survey allowed for the creation of mutually exclusive comparison groups representing five distinct education and labour market states. Three mental health outcomes were assessed in this study allowing for a comparison of both positive and negative constructs of mental health, as well as diagnostic and subclinical definitions of mental health. This study also made use of a wide range of covariates ranging from individual demographic, socioeconomic, and health status variables that were controlled for in the analytic models. Finally, this study was able to look at effect modification by SES according to both relative and absolute estimates of risk.

There were also a number of limitations. First, the data were cross-sectional. As such, this study was unable to parse out the individual contributions of causation and selection to the association at hand. Estimates may reflect both the influence of youth labour force participation on mental health, and mental health as a determinant of employment, unemployment, or OLFS (Karsten Ingmar Paul & Moser, 2009). However, there is evidence from other studies to suggest that health selection effects may be minimal. Studies have found that clinical depression does not lead to unemployment (Dooley, Catalano, & Wilson, 1994) and that elevated depression has been associated with higher likelihood of reemployment (Kessler, Turner, & House, 1989). And while selection effects have been found in the social mobility literature, it has been stronger for schizophrenia and conduct disorders than for depression (Fox, 1990; Miech, Caspi, Moffitt, Wright Bradley R. Entner, & Silva, 1999). Regardless, future

studies should attempt to control for prior health status, and should use longitudinal study designs in order to separate the contribution of health selection and causation.

The cross-sectional nature of this study prevented the detection of a possible interaction between the effect of being jobless and the duration of joblessness on mental health. Prior studies have found that a longer duration of unemployment is predictive of feelings of helplessness, while being out of the labour force is not (Goldsmith et al., 1995; Mossakowski, 2009). Panel studies are therefore needed to understand how accounting for duration of joblessness and job seeking might change the associations between participation and mental health.

Numerous confounders assessed in this study may play a mediating role. Household income, for example, may be a mediator of the relationship between participation in the labour force or lack thereof and mental health for youth who are living alone, or who are the main income earners in a multi-person household. Because the data were cross-sectional, this study could not adequately distinguish between mediation effects and confounding. Results may have been misestimated as a result of over-adjusting for possible mediation.

This study used an ordered logistic regression to model scale variables even though the data was not demonstrated to have met the assumption for proportional odds. Other studies have similarly used either the ordered logit or the ordered probit to model the outcome measures that were used in this study (A. E. Clark et al., 2001; Goldsmith et al., 1995; Libby, Ghushchyan, McQueen, & Campbell, 2010; Winkelmann & Winkelmann, 1998). However the models did not meet all of the required assumption for the order logit model and specifically the assumption of proportional odds, as the odds of being in poor mental health changed within the scale (Fullerton, 2009). Study results must therefore be

interpreted as a weighted average of all coefficients along the scale. On balance, the ordered logit was preferred to arbitrarily dichotomizing the life satisfaction and distress scales or assuming that the scale was cardinal and linear. Other models such as the generalized ordered logit regression might be considered for future analyses of these outcomes.

Finally, the lack of information available for investigating the sociodemographic heterogeneity of youth OLFS is a limitation of this study. Importantly, we know what OLFS are *not doing*, but not what they are *doing*. This study made a first attempt to look at heterogeneity in OLFS by stratifying according to household income, a measure of social economic status, which has been related to labour force trajectories. Future research should attempt to further understand the composition of youth OLFS. As well, future research should perform purposive sampling of youth OLFS to increase the power of observing mental health associations with OLFS status.

3.5 Conclusion

This study demonstrated that mental health inequalities in youth are associated with participation in education and the labour force, and that SES may moderate this association. While findings reinforce a long history of evidence that unemployment is associated with poor mental health, they also suggest that this relationship may be different than that of OLFS. OLFS had a more complex relationship with mental health than unemployment. It was not consistently associated with poor mental health and in some aspects of mental health, appeared in some cases to be as beneficial as work and/or school. Moreover, SES appeared to have a role in shaping the association between both unemployment and OLFS with mental health, such that low-SES youth were found to be worse off than high-SES youth.

Although these findings warrant further investigation with larger samples of unemployed and OLFS youth, they suggest that studies that do not distinguish between different categories of not working are introducing heterogeneity into the effect attributed to unemployment. Further, they may be underestimating the effects of unemployment on mental health. Future investigations may want to further explore the mental health inequalities between unemployed and OLFS youth by looking at how meaningful activity among OLFS youth might contribute to differential impacts on mental health. Future research may also want to study mediators of this relationship to investigate why some mental health constructs are associated with OLFS youth and others are not.

Findings also reinforce the need to address socioeconomic status as a determinant of mental health. Again, estimates pertaining to SES as a moderator of this relationship were not significant at a 95% confidence level, so warrant further investigation with larger samples of unemployed and OLFS youth. Nonetheless, findings suggest that policies may need to pay attention to SES as it relates to the circumstances and consequences surrounding labour force participation. Link and Phelan (Phelan et al., 2010) have suggested that the reduction of health inequalities based on SES necessarily involves interventions that benefit health, regardless of individual behaviors or resources. Policies that introduce opportunities for work through co-operative programs offered in public institutions and high schools, for example, have the potential to reduce the amount that youth have to rely on their individual resources for job searching. Policies may thus aim to reduce SES-based inequalities in youth mental health by reducing youths' dependence on their own resources to make a successful transition from school to work.

CHAPTER 4. YOUTH LABOUR PARTICIPATION AND MENTAL HEALTH, 2003-2012

4.1 Introduction

Youth entering today's labour market are confronted with a number of challenges, including globalization and the downsizing of labour markets, which make the transition from school-to-work difficult (Gaudet, 2007). Many of the jobs available to or held by youth in Canada and other OECD countries are part-time, lack benefits or security and do not lead toward career progression (OECD, 2010). With fewer job prospects, youth's labour market trajectories may become more variable. Youth may frequently go back and forth between employment, unemployment, dropping out of the labour force, and school enrollment (Bynner & Parsons, 2002). However, comparatively less is known about OLFS youth compared to unemployed youth and students. Unemployment has consistently been associated with a detrimental effect on suicide-mortality, health behaviours, and mental health (Bambra, 2011; Karsten Ingmar Paul & Moser, 2009; Roelfs, Shor, Davidson, & Schwartz, 2011). Going back to school after a period of unemployment has been associated with decreased distress (Bjarnason & Sigurdardottir, 2003). Yet, there remains a dearth of knowledge on the association between youth's mental health and being both out of the labour force and out of school (OLFS).

In particular, the potential negative implications of the most recent economic recession on the mental health of unemployed and OLFS youth has yet to be studied. The literature has generally described two hypotheses about the influence of economic recession on the association between not working and mental health. First, not working in unfavourable labour market conditions may be less stressful in favourable conditions because there may be a greater prevalence of jobless individuals, resulting in more widespread acceptance of joblessness (Bell & Blanchflower, 2011; Bjarnason &

Sigurdardottir, 2003; Cohn, 1978). Alternatively, not working when unemployment rates are higher may be more stressful because there are fewer opportunities for employment (Dooley, Catalano, & Rook, 1988; McKee-Ryan et al., 2005).

Neither hypothesis has been consistently supported by empirical evidence in working-age populations. McKee-Ryan et al. (McKee-Ryan et al., 2005), for example, failed to find any moderation of the effect of unemployment on wellbeing by unemployment rate. However, results of a more recent meta-analysis of 237 cross-sectional and longitudinal studies from 27 countries by Paul and Moser (Karsten Ingmar Paul & Moser, 2009) describe a modestly stronger negative effect of unemployment on the mental health of workers in countries with higher national unemployment rates. They suggest that because labour market conditions may have only a weak effect on individual mental health, they would require a greater sample size of countries to detect this effect. A review of 67 empirical studies published between 1990 and 2010 by Goldman-Mellor et al. (Goldman-Mellor et al., 2010) found that both individual experiences of joblessness and overall increase in unemployment had a detrimental effect on mental health during economic downturns. The prevalence of poor mental health, including substance and suicide, has also been found in other studies to increase during recession periods (Bezruchka, 2009; Dee, 2001; Katikireddi, Niedzwiedz, & Popham, 2012; Reeves et al., 2012; Stuckler, Basu, Suhrcke, Coutts, & McKee, 2011; Uutela, 2010).

During the most recent recession, the Canadian working-age population experienced detriments to their mental health (D'Arcy, Kou, & Meng, 2011; Wang et al., 2010). Wang et al. (Wang et al., 2010) studied the prevalence of depressive and anxiety disorder in 3579 workers in Alberta between January 2008 and October 2009. They found an increase in major depressive disorders during this period. D'Arcy et al. (D'Arcy et al., 2011) found that one-year prevalence estimates for depression and anxiety rose in the Canadian population during economic downturns and declined as market recovered.

These findings mirror trends of declining mental health that have been observed in other countries after the global economic crisis (Barr, Mrc, & Scott-samuel, 2012b; Katikireddi et al., 2012; Lam, Fan, & Moen, 2013; Lee et al., 2010). Barr et al. (2012a), for example, conducted a time-trend analysis of the relationship between unemployment rates and suicides in the UK. They found that two fifths of the increase in suicides between 2008 and 2010 could be attributed to rising unemployment. In England (Katikireddi et al., 2012), the prevalence of poor health increased from 13.7% in 2008, to 16.4% in 2009, and 15.5% in 2010 in representative samples of the working-age populations between the ages of 25-64. The 12-month prevalence of major depressive episode in 2009 (12.5%) was significantly higher than in 2007 (8.5%), in a sample of 3016 adults in Hong Kong. In general, the recession of 2008 seems to have corresponded with declines in the mental health of working-age populations worldwide.

However, these findings may have limited generalizability to Canadian youth who, compared to adults, face different risks and vulnerabilities to mental health during recession. Youth as a whole may be healthier than their older counterparts; however, when faced with unemployment, they may be at higher risk of poor mental health because they have yet to establish financial stability and labour market experience to help cope with being jobless (McKee-Ryan et al., 2005). Unemployed youth may thus be particularly vulnerable to the economic and labour market changes that occur due to recession. Youth are also more likely to return to school during recession (Bell & Blanchflower, 2011; D. Clark, 2011; Kahn, 2010), which has been associated with improvements in mental health (Bjarnason & Sigurdardottir, 2003). These particularities of youth labour market participation during recession may be missed when studies investigate mental health inequalities within a broader working-age sample.

This study examines the relationship between labour force participation and youth mental health in Canada during the period between 2003 and 2012. It describes trends in youth labour force participation before (2003, 2005), during (2008, 2009), and after the most recent economic recession (2010, 2011, 2012). As well, it presents Canadian estimates of the mental health of unemployed youth, youth out of the labour force and school (OLFS), and mental health during this time period. Drawing from past evidence, it is hypothesized that unemployed youth, and youth who are out of the labour force and out of school (OLFS) will experience worse mental health during recession years than in other years.

4.2 Methods

4.2.1 Study population

This study employs a repeated cross-sectional analysis of 7 waves of the Canadian Community Health Survey (CCHS): 2003, 2005, 2008, 2009, 2010, 2011, and 2012¹⁶. The CCHS is a nationally representative health survey conducted by Statistics Canada (Statistics Canada, 2005, 2006, 2010, 2011, 2013b). All surveys sampled from persons ages 12 or older, living in a private dwelling in Canada. Until 2005, CCHS data were collected from about 130,000 respondents, every two years over a one-year period. In 2007, survey data began to be collected on an ongoing basis rather than every two years. The sample, which remained the same in size, was divided into 12 two-month collection periods. For example, data for the 2003 CCHS Cycle 2.1 was collected by Statistics Canada between January 2003 and December 2003 from a sample of 134,072 individuals aged 12 or older who lived in a private dwelling (response rate of 80.7%). Data from the

¹⁶ Data from other years within the study period were either unavailable, or did not contain adequate detail for the derivation of the labour force status variable.

2012 Annual Component of the CCHS (CCHS-2012) included data for 62,103 individuals aged 12 or over who lived in a private dwelling (response rate of 67.0%). Persons living on First Nation reserves, government-owned land, or living in institutions, and residents of certain remote regions were excluded from all survey samples.

For this study, respondents of each survey cycle were included in the analyses if they were between the ages of 15-29 at the time of each survey. The analytic sample excluded persons that were permanently unable to work; or retired. Parents were also excluded from the sample as the relationship between labour force participation and mental health is likely shaped by the need to provide care to children. Finally, only respondents with valid responses to all analytic variables were included in the analysis, for a total sample of 92,461 individuals (n=21,539 from 2003; n=21,908 from 2005; n=9,886 from 2008; n=9,699 from 2009; n=10,176 from 2010; n=9,941 from 2011; n=9,312 from 2012)

Univariate distributions of demographic variables and logistic regression were used to compare non-responders to the analytic sample. Non-responders were more likely to have lower household income, to have lower household education, to be a visible minority, to be between the ages 15 and 18, and to be either OLFS, unemployed or a student. Non-responders were less likely to be living with a spouse or partner, and less likely to be female. Approval for this study was obtained from the University of British Columbia Research Ethics Board (certificate number H13-02622).

4.2.2 Measures

A description and illustration (Figure 3) of the derivation of labour force and educational participation variable are provided in Chapter 3.

Self-rated mental health was the primary outcome measure. Self-rated mental health has been shown to be a good predictor of depression and other objective mental health

indicators (Jhajj, 2010; Mawani & Gilmour, 2010). In this study, mental health was operationalized as a dichotomous variable based on the question, “in general, would you say your mental health is...” with answers on a 5-point Likert-type scale ranging from “Poor” to “Excellent”. Responses of “Fair” and “Poor” were aggregated together, and responses of “Excellent”, “Very good”, and “Good” were aggregated together.

The following demographic variables were included as possible confounders:

- age group (15-19 years old/20-24 years old/25-29 years old),
- gender (male/female),
- highest level of education achieved in the respondent’s household (less than highschool/highschool graduate/more than highschool),
- household income (quintiles¹⁷),
- immigration history (Canadian-born/not Canadian-born),
- visible minority status (white/non-white),
- respondent’s living arrangement (child living with two parents/child living with single parent/unattached individual/living with spouse or partner),
- the presence of a chronic condition, and the
- urbanicity of respondent’s place of residence (urban/rural)

¹⁷ Household income quintiles were first created by dividing the respondent’s household income by the square root of the number of people in the respondent’s household (B. Murphy et al., 2010), and then converting these values into quintiles within each survey year. Because over 20% of respondents in each of the surveys done before 2011 did not provide valid information about household income, a missing category was included in the variable to account for missing-ness rather than discard these respondents from the analytic sample. Data from the surveys done after 2011 did not contain missing data for household income as missing data was imputed by Statistics Canada (Statistics Canada, 2011, 2013b).

4.2.3 Analysis

First, the prevalence of fair/poor self-rated mental health and labour and educational participation groups were calculated for each survey year. To examine the relative differences in the risk of poor mental health by labour force and education status, the odds ratio (OR) and its 95% confidence intervals (CI) of reporting fair/poor self-rated mental health was estimated using employed non-students as the reference group. Data from each survey year were modeled separately, using logistic regression to estimate the association between labour and educational participation and self-rated mental health.

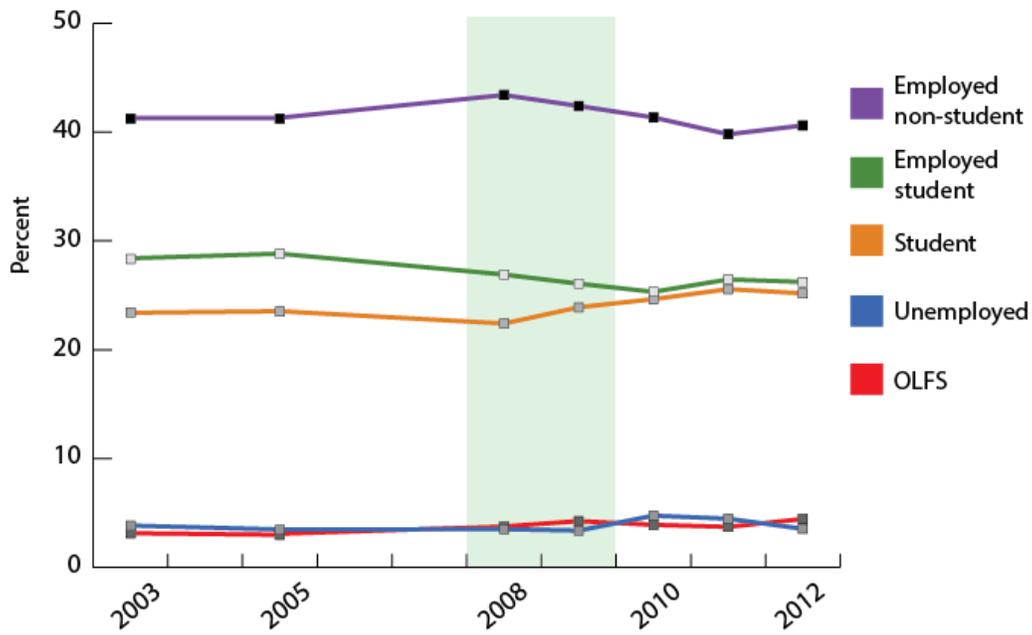
To address potential confounding, estimates were adjusted for demographic variables as described above. Province of residence was included as a variable in the model, but was not included in the reported analyses for reasons of parsimony, as the inclusion of this group of variables did not affect the ORs on the labour force and educational status variables.

The predicted probability of fair/poor self-rated mental health was calculated from the logistic regression estimates to look at absolute estimates of risk for each labour and educational participation type (Grant, 2014; C. J. Muller & MacLehose, 2014). The predicted probability is an adjusted estimate of absolute mental health risk. This method was in line with that of previous population studies on health inequalities in Canada (McLeod et al., 2003). As Harper has noted, absolute estimates may be used to delve deeper into health inequalities, given that the odds ratio does not contain information about changes in the rates of mental health for different comparison groups (Harper et al., 2010). Using predicted probabilities, we were thus able to consider the fact that a difference in the odds ratios between survey years could be a result of differences in the rates of mental health in the baseline and/or comparison group. For comparability across survey years, predicted probabilities were estimated while

holding all demographic variables in the model constant at their 2012 mean values. All estimates were weighted using sampling weights provided by Statistics Canada to account for the complex multi-stage survey sampling design of the CCHS. All analyses were conducted using survey procedures in STATA software, version 13 (StataCorp., 2011).

4.3 Results

Changes to the distribution of youth' participation in the labour force and in education between 2003 and 2012 are depicted in Figure 8. As a whole, the figure shows that the percentage of unemployed youth ranged from 3.3 to 4.7, peaking in 2010. The percentage of unemployed youth appeared to increase after the recession (4.8% CI: 4.3-5.2 in 2010, and 4.4% CI: 4.0-4.9 in 2011), and not during (3.5% CI: 3.2-3.9 in 2008, and 3.4% CI: 3.0-3.7 in 2009). The percentage of both employed non-students fell during recession (43.4% CI: 42.4-44.4 in 2008 and 42.4% CI: 41.4-43.4 in 2009), but appeared to occur alongside an increase in increase in the percentage of students (21.6% CI: 21.6-23.2 in 2008, and 23.9% CI: 23.1-24.7 in 2009). The percentage of youth OLFS ranged from 2.8 to 4.4, with a higher percentage of OLFS in 2009 (4.3% CI: 3.9-4.7) and in 2012 (4.4% CI: 4.0-4.9).



	2003 (n=21,539)			2005 (n=21,908)			2008 (n=9,886)			2009 (n=9,699)			2010 (n=10,176)			2011 (n=9,941)			2012 (n=9,312)		
	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI	%	LCI	UCI
Unemployed	3.8	3.6	4.1	3.4	3.2	3.7	3.5	3.2	3.9	3.4	3.0	3.7	4.8	4.3	5.2	4.4	4.0	4.9	3.5	3.2	3.9
OLFS	3.1	2.9	3.4	3.0	2.8	3.2	3.8	3.4	4.1	4.3	3.9	4.7	3.9	3.5	4.3	3.7	3.3	4.1	4.4	4.0	4.9

Figure 7 The relative distribution of youth labour and educational participation, CCHS 2003-2012
Note: OLFS = out of the labour force and school

Throughout the study period, the proportion of youth who reported poor mental health amongst unemployed youth and OLFS youth were greater than in the other labour force participation groups (Estimates are described in the Appendix, Table 8). The greatest prevalence of poor mental health was found among OLFS youth in all years except 2005, in which more 10.2% of unemployed youth were observed to report fair/poor mental health compared with 9.3% of OLFS youth.

The odds of fair/poor mental health were higher for unemployed youth relative to employed non-students in 2003 (OR: 2.0, CI: 1.4-2.8), 2005 (OR: 2.2, CI: 1.5-3.1), 2009 (OR: 2.1, CI: 1.2-3.8), and in 2011 (OR: 2.8, CI: 1.7-4.8) (see Table 4). The odds of fair/poor mental health for unemployed youth were not found to be significantly different from employed non-students at a 95% confidence level in 2008 (OR: 1.4, CI:

0.7-2.9), in 2010 (OR: 1.5, CI: 0.8-2.7), or in 2012 (OR: 1.8, CI: 0.9-3.5), though estimates were found to approach significance.

OLFS youth experienced higher odds of fair/poor mental health compared to employed non-student youth throughout the study period. With the exception of 2005, this association was greater in magnitude than the odds of poor mental health for unemployed youth. Effect sizes ranged from between 1.9 to 3.5 times the odds of fair/poor mental health and all were significant at the 95% confidence level. Youth OLFS had odds of fair/poor mental health three times that of employed non-student youth in 2003 (OR: 3.1, CI: 2.1-4.8), 2008 (OR: 3.2, CI: 1.6-6.5), 2009 (OR: 3.5, CI: 1.9-6.2), and in 2011 (OR: 3.1, CI: 1.6-6.0).

Other results of the multivariable analyses revealed that there were no differences between the employed non-student youth or students at the 95% confidence level. Employed students had lower odds of poor mental health in 2005 (OR: 0.6, CI: 0.5-0.8) but not in any other year of investigation.

Table 4 Adjusted[†] odds ratios (ORs) and 95% confidence intervals for reporting fair or poor mental health by labour force and educational participation, 2003-2012.

	2003			2005			2008			2009			2010			2011			2012		
	OR	LCI	UCI																		
Employed non-students	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--	1.00	--	--
Employed students	0.75	0.56	1.02	0.60	1.52	3.13	0.97	0.65	1.46	1.06	0.64	1.76	1.15	0.74	1.77	0.73	0.47	1.13	1.23	0.80	1.89
Unemployed	1.96	1.35	2.85	2.18	1.33	2.76	1.43	0.69	2.95	2.09	1.16	3.77	1.47	0.79	2.74	2.83	1.66	4.84	1.81	0.93	3.53
OLFS	3.15	2.06	4.80	1.91	0.79	1.45	3.23	1.60	6.52	3.45	1.91	6.23	2.03	1.22	3.40	3.10	1.60	5.96	2.26	1.19	4.27
Student	1.48	1.07	2.04	1.07	1.17	1.69	0.96	0.64	1.45	1.32	0.83	2.09	1.39	0.90	2.15	1.26	0.77	2.06	1.34	0.84	2.14

Note: OR = Odds ratio, LCI/UCI = lower/upper 95% confidence interval, OLFS = out of the labour force and school. An OR > 1 indicates worse mental health relative to employed non-students.

[†] Adjusted for age, gender, household income, highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, presence of chronic condition, and urbanicity. For full regression results, see Appendix Table 9)

Visual inspection of the predicted probabilities of fair/poor mental health revealed that the probability of fair/poor mental health of unemployed youth was lowest during the recession (Figure 8). Between 2008, during the recession, and 2010, immediately after the recession, the probability of poor self-rated mental health for unemployed youth ranged from 3.8% (CI: 1.7-5.9) to 5.8% (CI: 2.8-8.7) after adjustment for demographic variables, whereas in other years it ranged from 6.6 (CI: 4.5-8.8) to 10.3% (CI: 5.4-16.9).

In contrast, OLFS youth had a higher probability of poor mental health than other labour force and educational participation groups in all years. Where the probability of poor mental health in employed non-students ranged between 2.6 to 4.3 percent, for example, the probability of poor mental health was 5.2 to 11.2 percent for youth OLFS. The probability of poor mental health did not appear to fluctuate during recession for OLFS youth, but appeared to be at its lowest in 2010 (5.2%, CI: 2.7-7.6).

Other results suggest that employed non-students and students experienced a decrease in the probability of poor mental health during and immediately after the recession (i.e. between 2008 and 2010) that was similar to but less pronounced than that of unemployed youth. However, this pattern was not observed in employed students.

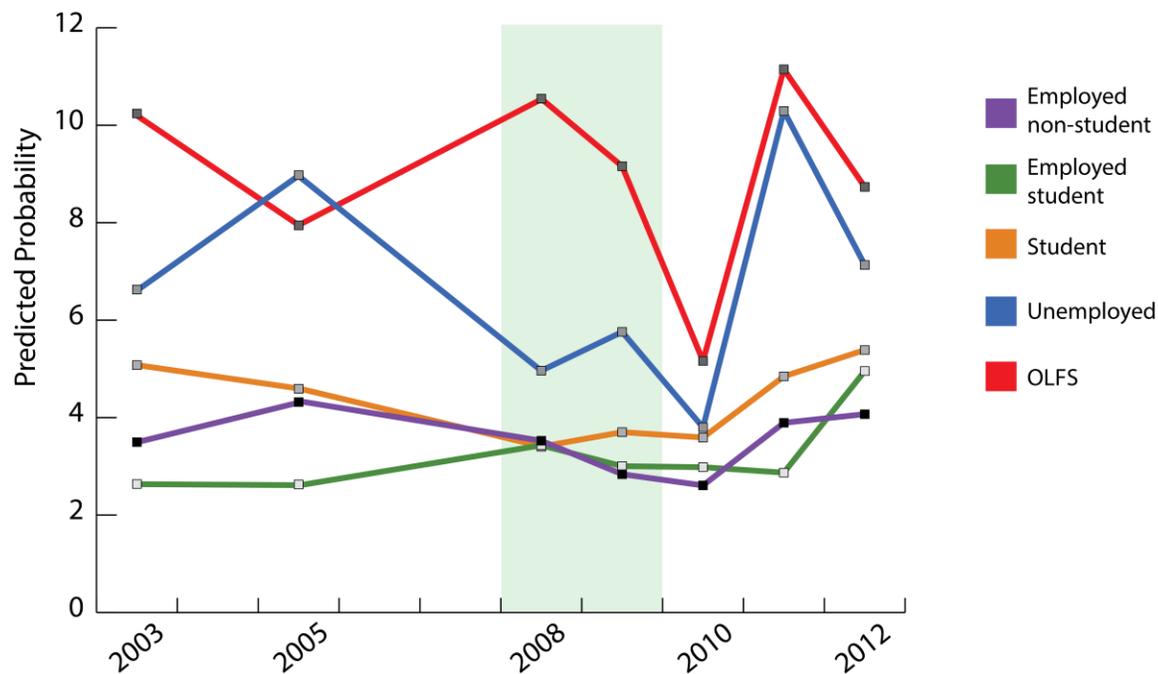


Figure 8 Predicted probability of fair/poor mental health by labour and educational participation, adjusted for demographic characteristics held at their 2012 means, 2003-2012.

Note: OLFS = out of the labour force and out of school

† Adjusted for age, gender, household income, and highest level of education achieved in the respondent's household, immigration history, visible minority status (white/non-white), living arrangement, presence of chronic condition, and urbanicity

4.4 Discussion

The trends reported in this study are based on nationally representative Canadian data from 2003 to 2012, covering a pre-recession, recession, and post-recession period.

Overall, results indicate that declining employment and increasing school enrollment drove the majority of the changes to youth labour force participation during recession, while increased unemployment appeared to be a post-recession occurrence. Irrespective of the economic climate, however, unemployed youth – along with OLFS youth – have worse mental health than employed youth or youth in school. Whether recession moderates this association with mental health appears to differ by labour force status. While the overall mental health of unemployed youth appears to improve during recession, the relationship between recession and the mental health of OLFS remains

unclear. These results provide insight into the labour market activity of Canadian youth during this period, and how it may be related to their mental health.

4.4.1 Trends in youth labour force participation

This study showed a slightly different picture of youth labour force participation over the recession period than can be inferred in the unemployment rate. Canada's unemployment rate increased from 11.6 to 15.2 percent between 2008 and 2009 (Figure 1) (Galarneau, Morissette, & Usalcas, 2013), but this study found that the percentage of youth who were unemployed did not change between 2008 and 2009. Instead, the percentage of employed non-student youth decreased, suggesting that the changes to the labour market participation of youth during recession were primarily driven changes to youth employment.

The recession period simultaneously corresponded with an increase in the percentage of youth who dropped out of the labour force. The percentage of students was found to have increased, a pattern that been much described both in past instances of recession, and in the youth populations of countries outside Canada (Bell & Blanchflower, 2011; Bernard, 2013; D. Clark, 2011; Scarpetta, Sonnet, & Manfredi, 2010). This study also found that the percentage of OLFS youth was higher in 2009, than in all other years (except 2012). Although the significance of this change was not assessed and the magnitude of change was small; the modest increase in OLFS may suggest that a small percentage of youth dropped out of the labour force and out of school, instead of continuing with or returning to school during recession.

School attendance is not random so it stands to reason that certain groups may be at a greater risk of becoming OLFS during recession than others. Younger age, urban residency, higher previous level of education, and shorter durations of unemployment have been found to be predictive of returning to school (Bjarnason & Sigurdardottir, 2003). As well, school enrollment may be concentrated among those who can afford it.

These inequalities in school enrollment may be particularly important given that attending school is associated with reductions in distress and other adverse mental health outcomes (Benjet et al., 2012; Bjarnason & Sigurdardottir, 2003; Franzén & Kassman, 2005; Sellström et al., 2011), and may be protective of mental health during recession. The impact of recession on low-income, less educated youth, who have spent longer periods of time without employment, may thus be an important area of future research.

Finally, this study found that immediately after the recession (between 2010 and 2011), there was a growth in the proportion of unemployed youth. These results suggest that the impact on youth labour markets was not restricted to the recession period. Though youth unemployment rates experienced steady decline following the end of the recession (Figure 1), findings indicate that these changes were not a result of increased employment for youth. While the percentage of employed non-student youth continued to decrease between 2008 and 2011, with a slight increase in 2012, there appeared to be an increased prevalence of students, and employed-students. At the same time, the percentage of youth who were unemployed increased between 2009 and 2010, and the percentage of OLFS youth increased between 2011 and 2012. While the cross-sectional nature of these data does not allow for inferences as to whether these findings occurred because unemployed youth eventually left the labour force, or whether these trends are the result of changes in the composition of these groups, they suggest that even in the post-recession period, youth unemployment was an issue in Canada.

4.4.2 Unemployment, OLFS and mental health

Regardless of the study period, unemployment and OLFS had worse mental health than youth who were at work or at school. This pattern reinforces the findings of prior research, which has in general suggested that not working is associated with poor mental health (Karsten Ingmar Paul & Moser, 2009; Reneflot & Evensen, 2014). However, this study was unable to find support for the hypothesis that recession

exacerbates this association. In contrast to the hypothesis, the overall mental health of unemployed youth appeared to improve during recession, while no conclusive relationship with recession could be gleaned from the association between OLFS and mental health.

This study found that the predicted probability of poor mental health for unemployed youth (and employed non-students) decreased during the recession and immediately after the recession, between the years of 2008 and 2010. Such findings diverge from prior research of unemployed individuals in the UK and in Sweden, whose mental health was found to be worse during recession (Katikireddi et al., 2012; Novo et al., 2001); but are consistent with evidence that the mental health of some individuals who are not working may be better during recession than in periods of economic growth (Novo et al., 2000; Viinamaki et al., 2000). Novo et al. (Novo et al., 2000), for example, found that psychological symptoms among long-term unemployed Swedish men surveyed during the recession in 1994 were fewer in comparison to a group surveyed during boom conditions of 1986. Andres in a study of 15 European countries also observed similar *pro-cyclical* patterns in economic cycles and suicide rates, suggesting that the mental health of unemployed individuals may improve during recession.

There may be a number of reasons that underlie the observed improvements in mental health. The health selection hypothesis would suggest that youth with a higher risk of mental illness might be more likely to be unemployed during periods characterized by low levels of unemployment. During periods of widespread unemployment as in economic recession, there may be a larger representation of healthy youth amongst the unemployed, which may appear as an improvement in the mental health of the unemployed group. However, this study found that the percentage of unemployed youth was fairly stable during recession, suggesting that there are other explanations for this result.

Under the social causation hypothesis, the mental health of unemployed youth might improve during recession because of *norm emergence*, the development of a shared understanding within a population during recession about unemployment. For example, unemployed youth may have experienced better health during economic recession because more youth are unemployed, leading to decreased self-blame and overall improvements to their subjective understanding of their unemployment state. Evidence from the social exclusion literature supports this hypothesis; it has suggested that when many in the population are jobless, there may be increased social acceptance of joblessness, meaning greater social inclusion and support for unemployed youth from parents and peers, leading to increased wellbeing (Bell & Blanchflower, 2011; Bjarnason & Sigurdardottir, 2003). Alternatively, the mental health of the unemployed may have improved if a general unavailability of jobs lead to a smaller proportion of youth employed in positions that are most detrimental to mental health.

Despite the fact that these results point to better mental health for unemployed youth during recession, the findings do not preclude the possibility that a negative impact of recession will emerge in the future. The *labour market scarring* literature, for example, provides evidence that negative mental health outcomes may occur sometime after exposure to recession due to early failure in the transition to employment. Youth who fail to enter the labour market are at increased risk of *labour market scarring*, including decreased wages and earnings over their lifetimes (Kahn, 2010), which has been associated with disparate mental health outcomes in adulthood (A. E. Clark et al., 2001; Daly & Delaney, 2013; Strandh et al., 2014). The issue of how recession may affect the mental health of unemployed youth may therefore be an issue of *when* the impact on mental becomes apparent, rather than *whether* said impact is negative or positive.

Unlike for unemployed youth, economic fluctuations appeared to make little difference to the mental health of OLFS relative to that of youth who are employed or at school. The association between OLFS and mental health was consistently worse than all other

labour force participation groups, and was not clearly related to economic recession. This study did not find conclusive evidence in support of the hypothesis that recession is related to the association between OLFS and mental health.

The reasons that OLFS may differ from unemployment were not examined in this study. However, their different job searching behaviours may be a contributing factor. Youth who are not looking for work, may be less likely than unemployed youth to become employed during periods of economic growth (Flinn & Heckman, 1983; Flinn & Heckman, 1982; Kessler et al., 1989). The composition of the OLFS group may thus be less variable across economic cycles than that of unemployed youth. This argument is a variation of the health selection hypothesis, suggesting that changes to the composition of unemployed youth contribute to changes seen in the overall mental health of the group. The association between OLFS and mental health may have less of a relationship with recession than unemployment because the overall composition of OLFS youth may be less driven by economic changes than that of unemployed youth. Future studies may want to use panel designs that differentiate between the labour trajectories of unemployed and OLFS youth and their associations with mental health.

4.4.3 Strengths and limitations

This study has several strengths. The use of a nationally representative sample supports the generalizability of study findings for the Canadian setting. Comparable surveys across multiple time points were also used, thereby allowing this investigation to take advantage of the natural experiment design induced by the onset of the recent economic recession in Canada. Additionally, all data were available at the individual level allowing us to link labour and educational participation status with health status rather than rely on aggregate measures such as the youth unemployment rate. Though such aggregate measures provide valuable information about context, unlike individual-level measures, they are (1) vulnerable to ecological fallacy in tests of hypotheses regarding

health outcomes; and, (2) limit the ability to differentiate youth by both labour and educational participation.

The study findings must also be considered in light of the study's limitations. First, because of the cross-sectional rather than panel design, this study could not parse out the contributions of causation and selection. Unemployment and OLFS may have a negative effect on mental health but it is likely that poor mental health may make youth more likely to become unemployed or OLFS. Estimates of the association between youth labour force participation and mental health must be considered to be a product of both social causation and health selection. The cross-sectional data also prevented us from looking at changes to youths labour force status and mental health over time, which may explain part of the association with mental health of youth as they experience recession. Second, because self-reported mental health was used, the health outcome variable may be vulnerable to reporting bias. Youth may report what might seem most desirable instead of what their mental health state is. As well, youth of different labour force states may have different reference points for good mental health which may be sources of variability across labour force states. Third, data was only available for nine years of study, which only permitted the study of economic recession. Future research may therefore seek to replicate these findings use longitudinal data spanning a larger time frame in order to look across recession and non-recession cohorts. Finally, despite a large sample size and the observation of time trends, the statistical significance of temporal differences between years was not assessed. Further testing of the findings with individual-level panel designs is warranted before conclusions can be reached about the temporal changes observed in this study.

4.5 Conclusion

Youth who are not working, whether unemployed or OLFS experience a higher risk of poor mental health than youth who work or who attend school. However, as this study

shows, the magnitude of this risk is different between unemployed youth and OLFS youth in the context of recession. Youth unemployment did not increase during recession; only afterwards did the percentage of unemployed youth rise. In contrast, the proportion of OLFS youth was greater in 2009 compared with all other years (except 2012). The negative association between unemployment and mental health appeared to be improved during recession, while the negative association between OLFS and mental health appeared not to have a well-defined relationship to recession. Though these findings warrant replication, they pose important questions for future research and policy makers.

Clearly, OLFS is a different state than unemployment, both in its association with mental health and in its interaction with recession. The question is, how? Given that OLFS had a heightened and consistent vulnerability to poor mental health in this study, and that relatively little else that is known about OLFS in the research literature, mediating pathways remain an important area for future research. Future research may also want to explore the association between OLFS and mental as it plays out over longer periods of time, or across economic contexts.

Meanwhile, this research suggests that economic recession may not have had the negative impact on the mental health of unemployed or OLFS youth that was expected. Unemployed youth may be more vulnerable to poor mental health in the years of economic growth than during the recession of 2008. The mental health of OLFS youth also failed to demonstrate a clear relationship to economic recession, though OLFS was associated with a persistently elevated probability of poor mental health compared to youth who were working or at school. These findings warrant replication with larger samples of unemployed and OLFS youth in panel studies. However, they highlight the idea that unemployment and OLFS may have a negative impact on mental health in spite of the economic changes.

This study therefore reinforces the need to address systemic barriers to the mental health of unemployment and OLFS rather than focus on the fallout of the economic recession. Some of these challenges include student debt, inadequate financial resources, employment insurance, childcare, and a labour market that is unfriendly to youth. While recession may continue to be an important issue facing youth, policies may also aim to address the above barriers to the mental health of unemployed and OLFS youth. They may create opportunities for youth to become employed, to obtain education and training, and to access resources that will benefit their mental health during both economic ups and downs.

CHAPTER 5. CONCLUSION

The main goal of this thesis has been to look at the association between youth labour force participation and mental health, and to study how socioeconomic background and economic recession may moderate this association. The literature on unemployment and mental health generally suggests that unemployment has a negative association with mental health. It also suggests that low-SES, and recession may compound this negative effect. However, less is known about the association between OLFS and mental health in youth.

The following hypotheses were tested:

1. Unemployed youth and OLFS youth will have worse mental health than youth who work or youth at school, but unemployed youth will have the poorest mental health.
2. Unemployed youth and OLFS youth from lower-SES households will have a greater risk of poor mental health than the same youth from higher-SES households.
3. Unemployed youth and OLFS youth will have worse mental health relative to youth at work or school at all times; but will have the worst mental health during economic recession.

5.1 Summary of results

Unemployment was associated with depression, distress, and satisfaction with life. OLFS was not associated with any of these outcomes at the 95% confidence level though findings point to a possible association with depression. Both unemployment and OLFS were associated with decreased self-rated mental health.

There was some evidence that SES modified the association between mental health and youth labour participation. This effect differed between unemployed and OLFS youth, and by mental health outcome. While, unemployment had a similar association with depression and life satisfaction across SES categories, unemployment had a greater association with distress in low-SES youth than in high-SES youth.

There was also some evidence that SES also moderated the association between OLFS and mental. There was a greater association between OLFS and depression in low-SES youth than in high-SES youth. There was also a positive association between life satisfaction and OLFS in high-SES youth compared with low-SES youth, such that high-SES OLFS youth were less likely to report lower life satisfaction than low-SES OLFS youth.

Finally, economic recession appeared to modify the association between unemployment and mental health but not OLFS and mental health. The predicted probability of poor/fair self-rated mental health appeared to be lower for unemployed youth during recession relative to other periods; however, the predicted probability of poor/fair self-rated mental health for OLFS did not have a clear relationship with recession.

5.2 Synthesis of findings

Prior evidence suggests that in working-age populations, being out of the labour force is associated with better mental health than unemployment (P. a. Creed et al., 2003; Karsten I Paul & Batinic, 2010; Selenko et al., 2011; Wanberg et al., 1997). However, findings from the two studies in this thesis conflict on the above point. In chapter 3, OLFS had a consistently weaker association with mental health (depression, distress, and life satisfaction) than unemployment, while in chapter 4, OLFS had a stronger association with poor self-rated mental health than unemployment. Similarly, results

conflict as to whether OLFS has a negative association with mental health or not. OLFS was associated with poor self-rated mental health, and with depression (though this finding was not significant at a 95% confidence level); however, OLFS was not associated with a higher risk of distress or low life-satisfaction.

It would seem that there is a lack of evidence in this research to support either a consistent negative association between OLFS and mental health, or a weaker negative association between OLFS and mental health than that of unemployment. The reasons that results diverge from each other are unclear. OLFS may be related to the intermediate variables on the pathway to self-rated mental health but not related to intermediate determinants of distress or satisfaction with life. Each measure may have introduced its own biases to the findings (e.g., response bias). The operationalization of different measures may have led to different results. Or, labour participation groups may have used differing frames of reference for each mental health measure. Nevertheless, results suggest that the direction and magnitude of the association between OLFS and mental health may differ with the mental health construct that is assessed.

Results from chapter 3 generally support the hypothesis that SES is a moderator of the youth labour force participation and mental health relationship. Consistent with this theoretical and empirical literature, both unemployed and OLFS youth who were low-SES were found to have worse mental health than high-SES youth (Bynner, 2005; Fryer, 1992; Hammer, 2000; McLeod et al., 2012; Karsten Ingmar Paul & Moser, 2009; Payne et al., 1984; Schaufeli, 1997; Yates & Payne, 2006). The theoretical literature has attributed SES differences to unequal resource distribution and to the social stratification of youth labour force participation, among other aspects of social inequality.

However, results were in other ways, tentative in their support for this hypothesis. First, these conclusions are contingent on the replication of the study findings in larger

samples, as many estimates were not significant at a 95% level of confidence. Second, the modification by SES appears to differ between unemployment with OLFS. Whereas SES appeared to modify the relationship between unemployment and distress but not depression and life satisfaction, it did not appear to modify the relationship between OLFS and distress. Instead, SES-differences were observed in the relationship between OLFS and depression, and life-satisfaction.

The above finding points to another issue that requires further research: the moderating effect of SES appeared to differ by mental health construct. In the relationship between OLFS and depression, OLFS youth from lower-SES backgrounds appeared to be more vulnerable to depression than OLFS youth from higher-SES backgrounds. With the association between OLFS and distress, however, OLFS youth from higher-SES backgrounds appeared to have better life-satisfaction than even employed non-students, while their lower-SES counterparts were not different than employed non-students. Both of these findings converged on a common conclusion that low-SES is associated with comparatively worse mental health than high-SES. However, further research is required to answer the questions of whether and how high-SES may be an additional benefit to the mental health of OLFS youth; or conversely, whether and how low-SES may be detrimental to OLFS youth.

Contrary to expectations, findings from chapter 4 offer little evidence to support the hypothesis that unemployed and OLFS youth would have worse mental health during recession. In fact, recession appeared not to moderate the mental health of unemployed youth or OLFS youth in the direction that was expected. Though unemployed and OLFS youth continued to have worse mental health than youth who were working or at school throughout all years studied – before, during, and after the recession – the overall mental health of unemployed youth improved during recession. This finding is consistent with other research showing improvements to population mental health during recession (Novo et al., 2000; Viinamaki et al., 2000). The mental

health of OLFS youth was not related to recession, remaining consistently poor throughout the study period.

It is unclear from this study, why recession appeared to be unrelated to OLFS, and related to improvements in unemployed youth. Health selection may be one reason for this pattern. The mental health of OLFS may have remained poor during recession because OLFS may be comprised of more disadvantaged youth during this time. In times of low-labour market opportunities, more advantaged youth may have the option to go back to school, while this option may be less feasible for disadvantaged youth who may additionally be at greater risk of poor mental health (Fernandes-Alcantara, 2012). Health selection may also explain an improvement in the overall mental health of unemployed individuals. That is, the inflow of healthy individuals into unemployment during recession would have improved the overall health of the unemployed group because, during non-recession periods, it may have been composed of those who are most at risk for poor mental health. However, findings indicate that the recession did not coincide with an increase in the proportion of unemployed youth, suggesting that this effect may have been minimal. Unemployed youth may therefore have experienced better mental health during recession because of increased social acceptance of unemployment. Alternatively, the association between unemployment and mental health may have appeared to vary across years because of a lack of consistency in the samples across cohorts. Regardless, findings suggest that the most recent recession was not associated with the declines in mental health of unemployed and OLFS youth. Their experiences of poor mental health appear to be due to other reasons.

5.3 Strengths and limitations

This study has addressed a gap in the literature pertaining to the mental health effects of not working. Specifically it is the first study that seeks to understand how the association between OLFS and mental health might differ from unemployment and other types of labour force and educational participation. This study used a framework

that integrated the empirical and theoretical literature on social inequality and macro-economic changes in the labour force participation-mental health relationship. It looked investigated this association according to a variety of mental health constructs. Finally, results were analyzed using nationally representative survey data.

There are a number of limitations to these studies that need to be accounted for. First, unemployment and OLFS may signify prior health conditions or other exposures that are associated with mental health. The inability for this study to look at the temporal sequence between unemployment and mental health hinders the disentanglement of the causal effect of unemployment and OLFS on mental health.

Second, this research defined OLFS as a single group with one association with mental health, when OLFS may be a very heterogeneous group with a number of mental health associations. Some OLFS youth may be taking a break between school and work. They may be travelling, participating in organizations of various sorts, working in the informal economy etc. Other OLFS youth may also be out of the labour force because they have faced a number of barriers to labour market entry, including school drop-out, delinquency and homelessness. The research in this thesis made a first attempt at looking at heterogeneity within OLFS by stratifying by SES and found SES-differences in the association with mental health. Because of the lack of data, however, this research was not able to define with greater specificity what OLFS are doing when they are out of the labour force and out of school. In order to understand OLFS more fully, future research may want to look only at OLFS using qualitative research to understand the types of experiences that may characterize this labour force state.

Third, this study used a somewhat arbitrary cut-off in household income to look at SES as a moderator of the association between labour force participation and mental health. This treatment of SES also limited the ability for this study to conceptually distinguish between SES as a measure of social position, class, or social background, from that of

SES as a measure of income earned from employment. The latter was especially an issue in the estimation of the association for working youth who were the sole income earners in their households. For these youth, SES was a mediator on the pathway from employment to mental health as well as a marker for social stratification. Future research should therefore explore such differences using more theoretically driven and precise measures of youths' social positions and social backgrounds. For example, an extensive body of literature has described how family and neighbourhood socioeconomic environments may be formative for the development of social inequalities in health (Georgiades, Boyle, & Duku, 2007; Mayer & Jencks, 2013; Sellstrom & Bremberg, 2006). A separate body of literature has suggested that non-material aspects of SES such as skill and knowledge (i.e. *human capital*), as well as social relationships with others (i.e. *social capital*) are important aspects of youth wellbeing (Shahabudin & Low, 2013). These aspects of SES may be studied along with youth labour force participation and mental health to shed light on the role of SES as a modifier of the relationship.

Fourth, this study did not test the statistical significance of the modification by SES or by recession. To a certain extent, stratification by these variables resulted in non-comparable samples. Although we controlled for a number of compositional factors, future research may validate these findings using other methods such as propensity score-matching, or where possible, find comparable control groups. Research on modification by economic recession may also be improved with the use of panel-studies with data on labour force participation and mental health across various time points.

Finally, there are limitations to the conclusions that can be drawn about the hypotheses that were tested in this thesis, given that many of the estimates were not found to be significant at a 95% confidence level. Future research should oversample OLFS and unemployed youth in order to produce estimates with greater precision.

5.4 Implications for policy

In Canada, a number of policies have the potential to address the mental health inequality that is related to youth labour market participation. A host of *active labour market policies*, remedy the employment situation of youth by providing opportunities for youth to upgrade their skills, introducing youth to employment opportunities, and by other means of connecting youth to the labour market (Coutts, 2010; OECD, 2008). These policies address mental health inequality by improving youths' chances of obtaining and maintaining employment. Under the models of employment and health identified by the theories of Jahoda (1982), Warr (1987), and Fryer (1986), these policies may also improve mental health because they are alternative means of providing psychosocial resources (e.g., social contact, time structure, etc.) assumed to be absent without employment. By contrast, *passive labour market policies* such as the employment insurance policy (EI), offer income supplementation to youth who are not working. These policies may improve youths' mental health by reducing the possibility of financial deprivation. While the study findings support the necessity of such policies for mitigating the mental health inequality attributed to not working, findings additionally demonstrate a need for a more nuanced approach to their design and implementation. Specifically, this thesis suggests that unemployment *as well as* OLFS may be relevant concepts in the policy framework; and that social circumstances, specifically socioeconomic standing, may be an important consideration for the policy influence on mental health.

First, findings suggest that policies may need to define youth who are not working with greater specificity because, as there are differences within this group with regards to mental health, the relevance of SES, and the impact of broader economic conditions. While both unemployment and OLFS were associated with poor mental health, the association between OLFS and mental health was more dependent upon SES, and less related to changes in the macroeconomic environment. Policy efforts that address not

working as one all-encompassing issue among youth may therefore neglect the specific needs and vulnerabilities that these differences represent. For example, active labour market programs are intended to activate all youth that are out of work but may inadvertently privilege those who are actively seeking jobs. If not supplemented with additional measures, the benefits that these programs confer to unemployed youth may be missed by OLFS youth, particularly those who come from disadvantaged backgrounds.

To ensure equitable benefits for both unemployed and OLFS youth, those policies that are targeted broadly to youth who are not working may therefore be assessed for gaps in meeting the needs of unemployed youth but not OLFS, or vice versa. For example, employer-provided training programs may be offered through public schools in order to reach youth before they drop out of the labour force and out of school.

Institutionalized examples of such *dual-apprenticeship* programs are present in Austria, Denmark and Switzerland, in which vocational training is an optional part of school-based education. The smooth integration that such programs may afford to youth has been thought to lead to above average employment, and low youth-adult unemployment ratios relative to rest of Europe (Zimmermann et al., 2013).

The social circumstances associated with not working were also demonstrated in this thesis to be central to determining the mental health consequences for youth. The mental health of OLFS youth appeared to be particularly socially contingent. Though unemployed youth were more likely to be distressed if they were from low-SES households, depression and life satisfaction were similar across SES categories. OLFS youth were more likely to be depressed if they were from low-SES households, but appeared to be protected from low life-satisfaction if they were from high-SES households. Policies may thus seek to strengthen their reach to low-SES youth.

Taking a *proportionate universality* approach might reduce this issue of social inequality. Proportionate universality is defined by a population level intervention that attempts to reach all in the population (i.e. universal), but which additionally attempts to concentrate benefits amongst those who are most disadvantaged (i.e. proportionate). Depending on their implementation, the vocational training programs may be proportionately universal because they are accessed through the secondary schooling, so are universal. They are additionally more beneficial to youth who would otherwise lack the financial and social resources to attain the same vocational training without these programs.

To address issues of social inequality in the association between unemployment, OLFS, and mental health, current policies may therefore be assessed for their potential to have proportionately universal benefits. EI, for example, would be better at addressing social inequality in the needs of youth who are not working if it were proportionately universal. EI is aimed at supplementing the income of people out of work but stipulates that individuals must have had a history of work to be eligible. Though EI payments are somewhat adjusted for the added strain of poverty¹⁸, the amount paid by EI is dependent on the amount that was earned. In this way, EI disadvantages youth who have no prior employment history, whose work history involves low-paying temporary jobs, and whose may come from social backgrounds with fewer financial resources. Income supplementation that is proportional to the financial strain of income loss would help to reduce the social inequality in the association between unemployment and poor mental health.

¹⁸ EI payments are adjusted for regional unemployment rates.

Finally, the findings of this thesis suggest that the mental health impact of unemployment is not a result of recession, but a result of social structural features that may impact youth in both economic recession and economic growth. Contrary to expectations, the mental health of unemployed youth improved during recession and the mental health of OLFS youth did not have a relationship with recession. Findings therefore reinforce the need for policy solutions that address the systemic issues facing youth, including educational debt, generational inequity, social stratification, and poor labour market conditions. These may be the issues that persistently create mental health inequalities in youth.

5.5 Implications for future research

This thesis adds to the body of literature that looks at the association between not working and mental health, by looking beyond the unemployment/employment binary to describe the association between youth labour force participation and mental health. However, much about this association was not explored in this thesis, which points to areas for further research:

- There may be a difference between the mental health associations of unemployment and OLFS, but less is known about the mechanisms that lead these labour force states to mental health outcomes. Future research could employ mediation analysis with longitudinal study designs in order to better understand the pathways from unemployment and OLFS to mental health.
- OLFS youth are similar according to the things that they don't do (i.e. they do not participate in work, job-seeking, or in school) but may vary greatly in terms of what they do. Future research could undertake qualitative study of youth who are OLFS in order to develop a theoretical understanding of heterogeneity within OLFS and its relationship with mental health.

- Economic recession was not associated with OLFS and mental health but other features of the macrosocial environment, including the policy environment, may be relevant to the relationship between youth labour force participation and mental health. Research that takes a comparative approach to studying the youth labour force participation and mental health relationship might be useful for uncovering the importance of some of these societal influences.
- SES, economic recession, and OLFS may have long-term impacts on mental health. They are also important components to a life course framework of health. Future research longitudinal designs could be used to study the long-term effects of recession i.e. lag-effects, labour scarring and mental health, the contribution of childhood economic adversity, and the potential for labour force trajectories to shape mental health over the life course.

5.6 Concluding remarks

While the literature has suggested that not working may negatively impact mental health, this thesis argues that this relationship may not be so simple for youth. Depending on whether youth are unemployed or whether they are OLFS; and conditional on youths' social and economic circumstances, not working may have different implications for mental health. The research findings presented above support this argument; they suggest that OLFS has a less straightforward relationship with mental health than unemployment. While unemployment is negatively associated with mental health, with an additional negative impact for youth from low-SES background, and less of negative impact during recession; OLFS has a relationship with mental health that is socially contingent, dependent on social background, and not much altered by the broader economic environment. The experience of not working might therefore be described, at least during youth, as nuanced, heterogeneous, and specific. Such specificity helps to undo assumptions about not working, and may aid researchers

to better understand and redress the mental health inequalities that are associated with labour force participation in youth.

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APPENDIX

Table 5 List of confounders and definitions

Covariates	Definition
Age	Age was defined as a three-level categorical variable, representing the age of respondents at the time of survey. Three groups were defined: ages 15-18, 19-24, and 25-29 with persons ages 15-18 as the reference category, since the prevalence of poor mental health was hypothesized as being higher in older age groups.
Gender	Gender was defined as a dichotomous variable with males as the reference category, since females were hypothesized to have a higher risk of poor mental health.
Immigration history	Immigration history was defined as a binary categorical variable, distinguishing between whether the respondent was born in Canada or born in a country other than Canada. Persons <i>born outside of Canada</i> were used as the reference category since immigrants were hypothesized to be at a lower risk of poor mental health.
Visible minority status	Visible minority status was defined as a binary categorical variable, representing the respondent's self-reported culture or race. Respondents were grouped into <i>Caucasian</i> or <i>visible minority</i> , a category that included persons of aboriginal descent. The <i>Caucasian</i> category was used as the reference group, since visible minorities were hypothesized to experience poorer mental health.
Living Arrangement	Respondents were asked about their living arrangements within their households, from which five categories were derived: (1) unattached individuals, (2) living with spouse/partner, (3) child living with single parent, (4) child living with two parents, and (5) other. Child living with two parents was used as the reference category.
Household income	<p>Two operationalizations of household income were used in this thesis. In Chapter 3, information about respondents' household income represents the income decile that respondents fall into within their province of residence. Its derivation by Statistics Canada accounts for the low-income cut-off that represents the income threshold where a family would spend 20% more of its income on basic necessities such as food, shelter and clothing than that of the average family, calculated for households and communities of different sizes. Household income was subsequently defined as a continuous variable for this study with higher values indicating households in the lowest income deciles.</p> <p>In Chapter 4, Household income deciles were created, first equalized by dividing the respondent's household income by the square root of the number of people in the respondent's household (B. Murphy, Zhang, & Dionne, 2010), and then converted into deciles within each survey year. Household income was again defined as a continuous variable with higher values indicating households in the lowest income deciles.</p>
Household education	Education was defined as a four-level categorical variable demarcating the highest level of educational achievement within a respondent's household: (1) less than secondary school graduation, (2) secondary school graduation, (3) some post-secondary school, (4) post-secondary graduation. Post-secondary graduation was used as the reference category
Urbanicity	Urbanicity was defined as a binary variable describing whether the respondent's place of residence falls into an urban or rural area. Urban was used as reference category.

Table 6 Regression results for depression, distress, and life satisfaction in youth ages 15-29 from the CCHS-MH 2012

	Depression						Distress						Satisfaction with Life					
	Unadjusted			Adjusted			Unadjusted			Adjusted			Unadjusted			Adjusted		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Labour force participation (ref = employed non-students)																		
Employed students	0.95	0.61	1.47	0.90	0.55	1.47	1.31	1.08	1.59	1.19	0.96	1.47	0.83	0.69	1.01	0.92	0.74	1.13
Unemployed	2.35	1.25	4.42	2.25	1.16	4.36	2.43	1.64	3.60	2.22	1.47	3.37	2.54	1.51	4.29	2.40	1.37	4.20
OLFS	1.83	0.79	4.25	1.51	0.77	2.96	1.08	0.47	2.51	0.95	0.46	2.00	1.15	0.66	2.00	0.84	0.48	1.49
Student	0.84	0.54	1.31	0.82	0.49	1.38	1.23	1.01	1.50	1.09	0.86	1.37	0.65	0.53	0.80	0.70	0.56	0.89
Female (ref = male)				1.95	1.36	2.79				1.28	1.09	1.51				0.99	0.85	1.17
Age (years, ref = 25-29)																		
15-18				1.22	0.66	2.25				1.27	0.92	1.75				0.55	0.40	0.75
19-24				1.33	0.83	2.13				1.22	0.94	1.58				0.79	0.62	1.01
Living arrangement (ref = with 2 parents)																		
With single parent				1.24	0.73	2.10				1.24	0.95	1.62				1.39	1.09	1.77
With spouse/partner				1.04	0.54	2.00				0.84	0.61	1.16				0.57	0.41	0.80
Unattached				1.59	0.86	2.94				1.21	0.92	1.58				0.97	0.74	1.27
Other				1.70	0.98	2.94				1.06	0.78	1.44				1.32	0.95	1.83
Canadian-born (ref = born outside Canada)				1.26	0.74	2.16				1.06	0.81	1.39				0.95	0.73	1.22
Visible minority (ref = White)																		
Yes				1.53	0.94	2.49				1.44	1.12	1.84				1.01	0.80	1.27
Missing				2.06	0.97	4.37				2.10	1.42	3.11				1.34	0.92	1.96
Household income decile (higher = lower income)				1.05	0.98	1.13				1.02	0.99	1.06				1.07	1.03	1.11
Household education (ref = PS grad)																		
HS grad				1.09	0.62	1.94				1.00	0.73	1.36				1.30	1.01	1.68
Less than HS				1.19	0.42	3.34				1.33	0.75	2.36				0.89	0.54	1.48
Missing				0.81	0.42	1.55				0.84	0.65	1.08				0.83	0.65	1.07
Rural (ref = Urban)				0.75	0.47	1.21				0.99	0.80	1.21				0.92	0.72	1.18

Note: Depression was modeled using logistic regression. Distress and life satisfaction were modeled using ordered logistic regression. OLFS = out of the labour force and out of school, OR = odds ratio, LCI, UCI = lower, upper 95% confidence interval. An OR > 1.00 indicate worse mental health

Table 7 The odds ratio of depression, distress, and life satisfaction in youth ages 15-29 from the CCHS-MH 2012 with household income, by SES

	Depression						Distress						Satisfaction with Life (reverse-scored)					
	Low SES			High SES			Low SES			High SES			Low SES			High SES		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI
Labour force participation (ref = employed non-students)																		
Employed students	0.85	0.41	1.79	0.85	0.43	1.68	1.12	0.82	1.55	1.27	0.97	1.68	0.98	0.73	1.31	0.83	0.63	1.11
Unemployed	1.72	0.74	3.99	2.72	0.96	7.73	2.48	1.43	4.32	1.82	0.94	3.53	2.02	0.91	4.49	3.13	1.48	6.59
OLFS	1.38	0.64	2.98	0.89	0.28	2.87	0.94	0.37	2.40	0.95	0.48	1.86	1.13	0.59	2.16	0.39	0.14	1.10
Student	0.75	0.38	1.46	0.74	0.35	1.55	0.87	0.63	1.20	1.34	0.96	1.87	0.72	0.53	0.98	0.66	0.45	0.95
Female (ref = male)	1.15	0.69	1.91	3.58	2.24	5.73	1.40	1.08	1.82	1.18	0.96	1.45	1.05	0.83	1.33	0.99	0.80	1.23
Age (years, ref = 15-18)																		
19-24	1.95	1.00	3.79	0.60	0.34	1.06	1.01	0.75	1.34	0.92	0.71	1.20	1.56	1.15	2.10	1.26	0.94	1.70
25-29	1.88	0.85	4.15	0.28	0.11	0.71	0.58	0.35	0.97	1.04	0.73	1.49	1.83	1.15	2.92	1.71	1.13	2.61
Living arrangement (ref = with 2 parents)																		
With single parent	1.28	0.56	2.93	1.51	0.79	2.89	1.49	1.02	2.17	1.15	0.84	1.58	1.83	1.29	2.58	1.16	0.85	1.59
With spouse/partner	1.22	0.46	3.24	1.26	0.44	3.57	1.08	0.60	1.93	0.66	0.46	0.95	1.15	0.64	2.06	0.40	0.27	0.60
Unattached	1.48	0.66	3.35	1.26	0.71	4.95	1.64	1.11	2.42	0.88	0.62	1.24	1.32	0.89	1.95	0.77	0.54	1.11
Other	2.39	1.08	5.28	1.10	0.42	2.86	1.81	1.22	2.69	0.62	0.41	0.94	1.64	1.05	2.56	1.15	0.72	1.84
Immigrant (ref = Canadian-born)	0.66	0.33	1.30	0.98	0.45	2.14	0.85	0.61	1.19	1.15	0.78	1.68	1.06	0.77	1.45	1.02	0.67	1.54
Visible minority (ref = White)																		
Yes	0.68	0.37	1.26	0.70	0.32	1.53	0.85	0.62	1.16	0.57	0.41	0.80	0.99	0.74	1.34	1.06	0.75	1.49
Missing	1.74	0.85	3.57	0.67	0.29	1.56	1.71	1.13	2.60	1.10	0.70	1.71	1.32	0.84	2.07	1.36	0.89	2.08
Household education (ref = PS grad)																		
HS grad	1.31	0.61	2.80	0.75	0.36	1.56	0.97	0.67	1.41	0.92	0.57	1.48	1.36	0.97	1.91	1.25	0.83	1.87
Less than HS	1.12	0.41	3.09	0.80	0.10	6.74	1.21	0.66	2.23	1.20	0.48	3.02	1.01	0.57	1.79	0.41	0.16	1.09
Missing	0.85	0.41	1.76	0.76	0.27	2.13	0.84	0.59	1.19	0.81	0.58	1.12	1.00	0.73	1.38	0.73	0.50	1.06
Rural (ref = Urban)	0.28	0.13	0.60	1.02	0.58	1.79	0.75	0.52	1.07	1.08	0.84	1.40	0.76	0.54	1.06	0.99	0.73	1.34

Note: SES = socioeconomic status, OR = odds ratio, LCI/UCI = lower/upper 95% confidence intervals, ref = reference category. OLFS = out of the labour force and out of school, PS = post-secondary, HS = high school. Logistic regression was used to model depression. Ordered logistic regression was used to model distress and life satisfaction. An estimate greater than 1.00 = worse mental health.

Table 8 Percent poor/fair self-rated mental health for youth ages 15-29 by youth labour force participation, CCHS 2003-2012

	2003		2005		2008		2009		2010		2011		2012	
	Total	Fair/ Poor												
	% (n)	%												
Employed non-students	41.2 (2,161.0)	35.4	41.2 (2,186.4)	42.7	42.4 (2,430.1)	41.3	42.4 (2,418.2)	36.6	41.4 (2,364.7)	36.8	39.8 (2,300.8)	35.5	40.6 (2,400.6)	36.4
Employed students	28.4 (1,486.0)	18.3	28.8 (1,528.8)	18.1	26.9 (1,506.4)	23.1	26.1 (1,287.1)	22.1	25.3 (1,448.0)	22.4	26.5 (1,529.7)	17.3	26.2 (1,550.8)	25.4
Unemployed	3.8 (200.0)	7.0	3.4 (181.6)	8.1	3.5 (196.7)	5.4	3.4 (192.6)	6.2	4.8 (271.9)	6.9	4.4 (257.1)	10.9	3.5 (209.3)	5.5
OLFS	23.5 (164.0)	9.2	3.0 (157.8)	6.4	3.8 (210.4)	11.1	4.3 (252.6)	12.0	3.9 (223.7)	8.1	3.7 (214.0)	10.3	4.4 (262.5)	8.2
Student	23.5 (1,229.0)	30.1	23.5 (1,246.5)	24.7	22.4 (1,254.2)	19.0	23.9 (1,363.4)	23.0	24.7 (1,409.6)	25.8	25.6 (1,478.0)	26.0	25.2 (1,488.6)	24.5

Note: n is reported in 1000s (e.g., n~2,161.0 is equivalent to about 2,161,000 individuals), OLFS = out of the labour force and out of school

Table 9 Logistic regression for poor/fair self-rated mental health (vs. good/very good/excellent) in youth ages 15-29 from the CCHS 2003-2012

	2003			2005			2008			2009			2010			2011 [†]			2012 [†]		
	OR	LCI	UCI	OR	LCI	UCI	OR	LCI	UCI												
Labour force participation (ref = Employed non-students)																					
Employed students	0.75	0.56	1.02	0.60	0.52	3.13	0.97	0.65	1.46	1.06	0.64	1.76	1.15	0.74	1.77	0.73	0.47	1.13	1.23	0.80	1.89
Unemployed	1.96	1.35	2.85	2.18	1.33	2.76	1.43	0.69	2.95	2.09	1.16	3.77	1.47	0.79	2.74	2.83	1.66	4.84	1.81	0.93	3.53
OLFS	3.15	2.06	4.80	1.91	0.79	1.45	3.23	1.60	6.52	3.45	1.91	6.23	2.03	1.22	3.40	3.10	1.60	5.96	2.26	1.19	4.27
Student	1.48	1.07	2.04	1.07	1.17	1.69	0.96	0.64	1.45	1.32	0.83	2.09	1.39	0.90	2.15	1.26	0.77	2.06	1.34	0.84	2.14
Female (ref = male)	1.22	0.99	1.50	1.40	1.17	1.69	1.12	0.83	1.53	1.08	0.77	1.50	1.23	0.89	1.70	1.37	1.00	1.87	1.29	0.94	1.76
Age (years, ref = 25-29)																					
15-18	0.85	0.58	1.26	0.68	0.48	0.96	0.66	0.39	1.10	0.61	0.35	1.09	0.44	0.27	0.72	0.69	0.41	1.16	0.59	0.35	0.99
19-24	0.98	0.72	1.33	1.00	0.78	1.28	0.87	0.58	1.32	0.83	0.53	1.31	0.50	0.35	0.73	0.92	0.60	1.41	0.93	0.62	1.40
Living arrangement (ref = with 2 parents)																					
With single parent	1.46	1.07	1.99	1.46	1.12	1.90	1.47	0.96	2.24	1.69	1.12	2.55	1.61	0.99	2.61	1.10	0.69	1.75	1.95	1.15	3.31
With spouse/partner	0.89	0.57	1.37	0.67	0.46	0.98	0.83	0.47	1.48	1.01	0.54	1.88	0.84	0.47	1.49	0.62	0.35	1.11	1.41	0.75	2.63
Unattached	1.33	0.95	1.88	1.19	0.90	1.57	1.27	0.77	2.09	1.19	0.72	1.98	1.01	0.63	1.62	1.12	0.72	1.75	1.77	1.18	2.66
Other	1.05	0.72	1.54	1.01	0.68	1.51	1.17	0.65	2.09	0.78	0.44	1.39	0.83	0.50	1.38	0.76	0.46	1.28	0.84	0.45	1.57
Canadian-born (ref = born outside Canada)	0.72	0.48	1.08	0.70	0.45	1.10	0.56	0.31	1.01	0.80	0.43	1.48	0.65	0.35	1.19	0.57	0.32	1.03	0.43	0.21	0.86
Visible minority (ref = White)																					
Yes	0.95	0.65	1.39	1.00	0.71	1.42	1.03	0.58	1.82	1.28	0.71	2.30	1.26	0.78	2.06	1.11	0.67	1.85	0.74	0.38	1.40
Missing	1.03	0.58	1.83	1.44	0.87	2.36	1.15	0.55	2.42	2.18	1.10	4.29	1.97	0.88	4.42	1.28	0.62	2.65	0.97	0.42	2.22
Household education (ref = PS grad)																					
HS grad	1.27	0.97	1.67	0.99	0.75	1.31	1.03	0.65	1.61	0.82	0.53	1.27	1.05	0.62	1.77	1.11	0.69	1.80	1.16	0.64	2.12
Less than HS	1.18	0.81	1.72	1.41	0.93	2.14	1.38	0.75	2.57	1.01	0.51	1.99	3.15	1.54	6.46	1.75	0.78	3.90	1.24	0.65	2.38
Missing	1.17	0.74	1.86	1.23	0.94	1.60	0.93	0.55	1.56	1.24	0.77	1.99	1.26	0.78	2.04	1.15	0.78	1.70	0.72	0.45	1.15
Household income quintile (ref = Highest income quintile)																					
2nd quintile	1.00	0.64	1.56	1.19	0.78	1.81	0.82	0.40	1.68	1.74	0.85	3.57	0.75	0.36	1.56	1.17	0.73	1.89	1.09	0.63	1.87
3rd quintile	1.33	0.88	2.03	1.49	1.02	2.18	1.37	0.77	2.44	3.14	1.55	6.36	1.02	0.50	2.07	1.06	0.65	1.73	0.88	0.52	1.49
4th quintile	1.81	1.13	2.92	1.53	1.05	2.22	1.64	0.89	3.01	3.17	1.37	7.35	1.16	0.58	2.32	1.27	0.79	2.04	1.09	0.64	1.86
Lowest income quintile	2.42	1.58	3.71	2.09	1.40	3.12	2.27	1.21	4.29	3.22	1.64	6.32	1.74	0.86	3.51	1.29	0.77	2.14	1.85	1.09	3.14
Missing	1.50	1.05	2.14	1.35	0.96	1.90	1.56	0.94	2.60	2.29	1.25	4.21	1.75	0.98	3.12	--	--	--	--	--	--

Note: OR = odds ratio, LCI/UCI = lower/upper 95% confidence interval, OLFS = out of the labour force and out of school, PS = post-secondary, HS = high school. An estimate greater than 1.00 = worse mental health. † Missing income data were imputed starting in the CCHS beginning in 2011