Mental health, education, and work in Canada, the Netherlands, and the United States

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Chapter 6. Discussion and Conclusion

In this dissertation, I explored the impact that institutional differences between contexts—including differences in the social safety net, education systems, and labour market institutions—have on adolescent mental health, its changes over adolescence, and its socioeconomic consequences for young adulthood. This was accomplished via the following objectives:

1. Identify longitudinal patterns in the severity and frequency of mental health problems between adolescence and young adulthood, and examine the extent to which they are similar between comparable contexts.
2. Examine the extent to which longitudinal patterns of adolescent mental health are unequally distributed by childhood socioeconomic conditions in comparable contexts.
3. Examine whether and to what extent the relationship between adolescent mental health and young adult education and work are similar between comparable contexts.
4. Examine whether and to what extent educational attainment may be intervened upon to mitigate the pathway from adolescent mental health to NEET in young adulthood in comparable contexts.

In this concluding chapter, I summarize of the main study findings and discuss how these findings are interpreted via my conceptual framework and how they correspond to other research evidence. Finally, I discuss the strengths and limitations of the dissertation and conclude with implications for future research and policy and practice.

6.1. Synthesis of main findings

To achieve objectives 1 and 2, I conducted a cross-national comparative study of depressive symptoms trajectories between adolescence and young adulthood (age 15-25) in Canada and the USA (Chapter 2). Using data from national population-level surveys of young people, growth mixture models in the cohorts from both countries converged on a four-group solution,

each with trajectories characterized by low-stable symptoms, increasing symptoms, decreasing symptoms, and a trajectory of increasing then decreasing symptoms. However, the relevance of childhood socioeconomic circumstances to the course of young peoples' symptoms differed between the two countries. In the USA, lower parental income was related to higher odds of having an increasing trajectory, and lower parental education was associated with higher odds of a decreasing trajectory, but there was less support for this association in Canada.

To achieve objective 3, I conducted a cross-national comparative study of the relationship between depressive symptom trajectories during adolescence and young adults' position in the labour market in Canada and the USA (Chapter 3). In this study, the outcome was defined by the intersection of their educational attainment and working status (working with a post-secondary degree, working with a high school degree, working with no degree, still in school and not working, not working and neither in school). Using a subset of the above cohorts, this study found that trajectories characterized by higher depressive symptoms were more likely to be associated with worse outcomes in both countries. The increasing trajectory had a particularly strong association with working with low education and NEET. Americans with higher-symptom trajectories, however, were most likely to be working with only a high-school degree in young adulthood while their Canadian counterparts were most likely to be working with a post-secondary degree or to be in school in young adulthood.

To achieve objective 4, I conducted two studies of educational attainment as a pathway between internalizing and externalizing problems in adolescence to labour market exclusion in young adulthood. The first study was set in the Netherlands (Chapter 4). Educational attainment was defined as the achievement of a basic qualification certificate (defined roughly as one of several upper secondary school certifications), a construct relevant to the policy context of the Netherlands. Labour market exclusion was defined by the indicator, NEET (not in employment, education, or training). Using longitudinal cohort data from young people in the northern

regions of the Netherlands, this study estimated that internalizing problems and externalizing problems contributed to higher risk of NEET in young adulthood, respectively. Educational attainment mediated the effect of externalizing problems but not internalizing problems, accounting for 15% of the direct effect. In a counterfactual analysis in which the entire sample had a basic qualification certificate, internalizing and externalizing problems were still found to increase the risk of NEET.

The second study was set across two cohorts of young people in the USA born ten years apart (1970-1980 vs. 1981-1990) who experienced different labour market circumstances as young adults (Chapter 5). Educational attainment in this study was defined as secondary school completion. Labour market exclusion in this study was also defined by NEET. Educational attainment mediated the effect of internalizing problems and externalizing problems on NEET in both groups. The indirect effect of adolescent internalizing and externalizing problems on NEET through failure to complete secondary school was similar across the two cohorts, accounting for between 4.3% and 6.4% of the total effect. Externalizing problems had a similar direct effect on NEET across the two cohorts. However, a direct effect of internalizing problems on NEET was only observed in the 1981-1990 cohort. In a counterfactual analysis in which the entire sample had completed secondary school, externalizing problems were still found to increase the risk of NEET in both cohorts, and internalizing problems found to increase the risk of NEET in the 1981-1990 cohort, though the effect was substantially reduced.

6.2. Explaining the research findings from an integrated life course and comparative perspective

Together, the above findings advance research on adolescent mental health from a life course perspective. Prior research in this literature has established the importance of examining adolescent mental health complications in relation to the timing of risks and outcomes.

However, much of the existing literature has focused on risks and outcomes at the individual-level, sidelining the central role of institutions in shaping adolescent mental health inequalities and their relationship to young adult education and work outcome. In the sections below, I discuss how the findings from this dissertation extend the life course understanding of adolescent mental health, particularly with regards to the life course principles of *agency bounded by structure*, and *historical time and place*. The findings not only reinforce previous evidence in this literature showing the importance of childhood and life course models, such as the *sensitive-period model* and the *recency model* for understanding adolescent mental health and its consequences. By comparing across contexts that differ in their social safety net, education system, and labour market institutions, the findings also reveal some aspects of adolescent mental health and its consequences for education and work that may be affected by the institutional context and others that may not be.

6.2.1. The course of depressive symptoms and its distribution by childhood SES

The findings reported in Chapter 2, which compared the number and shape of adolescent depressive symptom trajectories in Canada and the USA, suggest that institutional differences between these countries may not make a difference to the patterns of onset and change in depressive symptoms in adolescence. In both countries, the same number of depressive symptom trajectories were identified; depressive symptom trajectories looked similar across countries. Moreover, these trajectories are qualitatively similar to those observed in other studies.[45 143] A UK study of adolescent depressive symptoms measured with the Short Mood Feelings Questionnaire, for example, identified five trajectories from age 11 to 24, four of which were similar to those identified in Chapter 2.[143] Depressive symptoms may therefore take normative developmental courses across adolescence in similar countries, in spite of institutional differences.

The findings reported in Chapter 2 also reinforce the importance of childhood as an individual-level risk factor that predict the development of depressive symptoms throughout adolescence, the. Low childhood SES in the USA was associated with a higher probability of both a decreasing and increasing trajectory in the USA, suggesting that childhood SES likely has both proximal and cumulative effects on adolescent mental health.[26 119] While some young people may experience the mental health effects of low childhood SES early in adolescence, complications may not arise for others until later in the transition to adulthood. This evidence is supported by prior studies of depressive symptom trajectories which show that that lower childhood SES predicts trajectories marked by higher symptom levels both early in adolescence and later in the transition to adulthood.[45 59]

The toxic stress model can help to explain why childhood SES has both proximal and cumulative effects on mental health.[206] It posits that early exposure to chronic and acute stressors associated with the adverse circumstances of low-childhood SES, lead to acute, frequent, or sustained activation of the biological stress system.[206] If social support systems are weak, and if neural circuits involved in self-regulation of emotions and behaviour have been impaired during key stages of development, the biological stress system is more likely to be maladaptively activated when adolescents encounter social challenges to negatively impact mental health.[207] The social challenges that young people encounter between adolescence and young adulthood include changing social roles and relationships, growing independence, and the transition to higher education and labour market.[3] The relationship between low-SES and decreasing as well as increasing trajectories of adolescent mental health may reflect the capacity for adolescents' social support systems and their biological stress responses to help them navigate emotions and behaviours as social challenges arise. To best support mental health during adolescence, it may therefore be important to address both the cumulative exposure to the circumstances of low-SES which lead to frequent or sustained activation of

adolescents' biological stress systems, and the availability of social resources throughout adolescence and young adulthood to prevent mental health complications as they emerge.

The findings suggest, however, that institutional differences between countries may impact the extent that a low-SES background puts adolescents at risk of poorer mental health patterns, because a negative association between low-SES on adolescent depressive symptoms was observed in the USA but not observed in Canada (Chapter 2). Compositional differences between the American and Canadian cohorts in Chapter 2 may contribute to the observed cross-national differences (e.g., the American cohort had come from lower SES backgrounds on average). Still, these findings are consistent with a large body of evidence showing that the USA performs worse than Canada on measures of social inequality, social mobility, and child-well-being.[79 117] The social safety nets in these two countries differ in their capacity to mitigate the social and health risks associated with low-SES, and may therefore play a role in mitigating the impact of low childhood SES and adolescent mental health. While Canada lags behind other high-income countries in addressing child poverty,[208] rates of child poverty in the USA exceed Canada's and the USA has done less to address the issue.[208] The USA provides smaller social transfers, lacks universal benefits, spends less on cash and in-kind benefits for families and children, which have long-term implications for health.[79 208] The findings from this dissertation suggest that compared with the Canadians, adolescents from low-SES families in the USA may have fewer social protections to mitigate the risk of developing mental health problems throughout adolescence. Given the potential for low childhood SES to have short as well as long-term effects on mental health, there is a need to examine how institutions facilitate or hinder access to treatment and preventative care from adolescence into young adulthood.

6.2.2. Education and work outcomes of adolescent mental health

Findings from the study reported in Chapter 3, which examined the association between adolescent depressive symptoms trajectories and young adult education and work in Canada and the USA, indicate that institutional differences may not make a relative difference in risk of poor education and work outcomes due to adolescent mental health complications. In both countries, all trajectories characterized by higher levels of depressive symptoms, whether occurring earlier (i.e., decreasing trajectory) or later in adolescence (i.e., increasing trajectory), were associated with a worse position in the labour market (i.e., becoming a low-educated worker, or NEET) in both Canada and the USA. The results of Chapters 4 and 5 similarly show that both internalizing and externalizing problems at any point in adolescence confer a higher risk of NEET in the Netherlands and in the USA, respectively. These findings are also supported by other studies in the literature. A Dutch study showed that mental health problems both earlier and later in the transition between adolescence and young adulthood (between the ages 11-22) were associated with an increased risk of not having a paid job at age 26.[209] A UK study of depression trajectories between ages 11-24 showed that those with early adult onset (i.e., increasing) depressive symptoms, childhood-limited symptoms (i.e. decreasing), and persistent symptoms were less likely to have a university education and more likely to be NEET.[143]

That there was an association found between both trajectories characterized by higher symptom levels earlier in adolescence, and those characterized by higher symptoms later in adolescence with education and work outcomes in Chapter 3, supports both sensitive-period and recency models of the relationship between adolescent mental health and young adult education and work. The sensitive period model suggests that earlier complications in adolescent mental health may have latent impacts on educational and labour market outcomes in young adulthood,

even if symptoms decrease over time, because they occurred during developmentally important periods. Adolescents with mental health complications during their school years, for example, have been found to face social exclusion, school behaviour, truancy, and higher rates of substance use, leading to lower educational attainment and higher risk of NEET status at age 16 and 19.[180] The findings reported in Chapters 4 and 5, which show that educational attainment mediates the path from adolescent mental health to labour market exclusion (though only to a small degree), further supports the idea that school difficulties may place young people at disadvantage in the labour market in young adulthood. Meanwhile, the recency model suggests that later complications in adolescent mental health negatively affects education and work in young adulthood because they are temporally proximal to the outcome. Adolescents who experience mental health problems later in adolescence, may search for work less intensely, have problems with job-performance and social stigma, require for workplace accommodations.[37-39] Across different contexts, mental health problems appear to come with a complex set of needs and barriers throughout the transition from adolescence to young adulthood that if left unaddressed, may disadvantage young people in education and work.

However, the comparison of education and work outcomes in Canada and the USA in Chapter 3, suggests that institutional differences between contexts may determine the overall distribution of education and work outcomes of young people with depressive symptoms. American young people with higher symptom trajectories were most likely to be a low-educated worker, whereas their Canadian counterparts were most likely to be working with a post-secondary degree or in school (Chapter 3). These findings are consistent with cross-sectional studies which show a steeper gradient in self-rated health by education and socioeconomic status in the USA than in Canada.[159 210] Institutional differences between Canada and the USA, such as differences in the accessibility to higher education, may drive country-level differences in the overall distribution of education and work in young adulthood.

For example, young people in the USA face higher tuition than their peers in Canada, a greater presence of private universities, fewer public institutions in close proximity to disadvantaged areas, and fewer options for non-university post-secondary education.[146 160] Considering that post-secondary education leads to higher lifetime earnings and a lower risk of unemployment,[161] American young people with mental health problems may be at a greater socioeconomic disadvantage than their Canadian counterparts throughout their working lives.

6.2.3. The (in)significance of educational attainment as a mediator of adolescent mental health and NEET

The findings from Chapters 4 and 5 provide some support for educational attainment as an intervention for preventing the risk of NEET amongst adolescents experiencing mental health problems. Educational attainment accounted for between 4.3% (Chapter 5) to 15.0% (Chapter 4) of the total effect of adolescent mental health problems on NEET in the USA and the Netherlands. The probability of NEET was estimated to decrease if everyone were to attain basic educational qualifications. These findings are also consistent with existing evidence that lower educational attainment mediates the relationship between poor child health and labour market outcomes in adulthood.[174 194 195] An American study found that educational attainment partially mediates the relationship between adolescent depression and wages earned.[174] Policies aimed at educational retention and re-engagement to continue to be important interventions to prevent later labour market exclusion for adolescents who experience mental health challenges.

The stronger mediation effect of educational attainment for the association of adolescent mental health problems with NEET in the Netherlands (Chapter 4) than in the USA (Chapter 5) was surprising. Methodological differences between studies are a reason for this difference. These considerations are discussed in section 6.3.3. However, this finding points to the potential role of vocational specificity, as far as these country-level differences reflect real

differences in the education systems between the Netherlands and the USA. The education system in the USA is characterized by generalized training and the Dutch education system by stronger integration of vocational training. In previous studies, young adults in systems with greater vocational specificity have been shown to have more favourable labour market outcomes, suggesting a stronger link between education and the labour market in vocationally specific systems.[72-75] But while such systems may facilitate labour market opportunities for those who are able to achieve basic educational qualifications, the risk of low labour market exclusion through lower educational attainment in these contexts may be particularly strong among adolescents with mental health problems.

This finding may also reflect the comparative importance of adolescents' educational attainment when compared to other variables that stratify young people within the labour market, such as childhood SES. Childhood SES is a determinant of young adult labour market outcomes, such that those from higher SES backgrounds have a lower risk of labour market exclusion than those from lower SES backgrounds.[211] Given that household income inequality is lower in the Netherlands than in the USA, the direct effect of childhood SES on labour market exclusion should be smaller than in the USA.[212] Compared with the USA, Dutch adolescents' educational attainment may therefore play a comparatively greater role in determining their labour market outcomes than childhood SES.

It is worth noting that the majority of the effect of adolescent mental health was not found to be mediated by educational attainment in either the Netherlands (Chapter 4) or the USA (Chapter 5). These findings suggest that educational attainment, as measured in these studies, is one mechanism of many linking adolescent mental health problems to labour market exclusion in young adulthood. Persistent mental health problems that continue into young adulthood, and poor self-concept are potential psychosocial mechanisms linking adolescent mental health problems to NEET, requiring intervention through mental health care systems.[185]

Structural features of the school to work transition, defined as those that arise from institutions and processes that create inequality in the broader social and political context,[213] may also link adolescent mental health problems to later labour market exclusion. A lack of early employment support for young people with mental health problems, for example, and the failure of existing services to provide sustained support over the career trajectory, may make it challenging for young people with mental health problems to obtain and sustain employment.[184] As well, other mechanisms through which educational institutions affect the transition to adulthood may be important contributors to the relationship. In the US, for example, institutions of higher education are highly stratified with regards to resources and prestige, which may have a stronger impact on future labour market outcomes than the completion of secondary school by itself.[147] The findings from this dissertation point to a need to identify the most prominent individual and structural pathways linking adolescent mental health to labour market exclusion in young adulthood to inform best practices for policy and interventions.

6.2.4. Adolescent mental health and NEET in young adulthood in historical time

Findings from the study in Chapter 5, which examined the effect of adolescent mental health problems on NEET in two cohorts born ten years apart, suggest that the labour market context may influence the risk that adolescent mental health problems pose to NEET. Internalizing problems increased the risk of NEET in those born between 1981-1990, but not those born between 1970-1980 (Chapter 5). While these findings may reflect compositional differences between cohorts, these findings may also reflect the impact that differing economic circumstances during which these cohorts became young adults had on the risk of NEET for those with internalizing problems. For example, more young people in the 1970-1980 cohort were parents; those without internalizing problems but who are parents may have formed a

greater proportion of the NEET category than in the 1981-1990 cohort. However, as young adults, those born between 1970-1980 experienced comparatively low rates of youth unemployment that did not exceed 13%.[83] By contrast, those born between 1981-1990 faced the Great Recession of 2007/2009 and its aftermath as young adults, during which youth unemployment remained over 13% for almost 6 years.[83 214] The high rates of unemployment experienced by the 1981-1990 cohort may have exacerbated the labour market exclusion of those with internalizing problems as they became young adults, an constraint not experienced by the 1970-1980 cohort as young adults.

The findings contrast with evidence from working-age populations which showed no differences in unemployment for those who do and do not have mental health problems after the Great Recession.[196] However, these findings are consistent with previous studies of youth populations showing that the Great Recession constrained the employment prospects of those with mental health problems compared to more favourable economic conditions.[50 51] For example, using sibling fixed-effects, Egan *et al.* found that compared with low-distress young people, those with high-distress were more likely to be unemployed or out the labour market. This effect was intensified in the years following the Great Recession.

Previous research has suggested that weakening employment protections and declining collective bargaining structures since the 1970's created the circumstances for the halting and prolonged labour market recovery that young adults born between 1981-1990 faced in the years following the Great Recession.[214 215] The absence of institutional protections for workers were barriers to the maintenance and creation of high-quality jobs after the Great Recession, leading to prolonged long-term unemployment.[214 215] Those with fewer economic or psychosocial resources including those who may have mental health challenges face greater rates of unemployment during poor labour market conditions.[197] By contrast, those born between 1970-1990 experienced recessions in the 1990s and 2000s that were followed by recovery periods

with record-high rates of employment.[49] [202] Stronger employment protections as well as policies that redress the absence of employment protections, such as robust welfare benefits and guaranteed minimum income, may ensure that young people who experience mental health problems are not disproportionately affected by job loss or economic insecurity during and after future economic downturns.[216]

6.3. Methodological strengths and limitations

6.3.1. Strengths

This dissertation has some methodological strengths that provide credence to the studies' findings. First, the studies used data from the largest population-level prospective cohort studies of young people available in these three countries. The prospective study data minimizes recall bias associated with retrospective studies; and, along with the long follow-up periods for each study, allow for the correct temporal ordering when observing relationships between adolescent social circumstances, mental health, and young adult education and work outcomes.

Second, the studies used a number of validated multi-item mental health measures, which minimizes measurement error and reduces vulnerability to response bias due to potential differences in interpretation by different respondent groups. Relatedly, the studies use longitudinal and repeated assessments of mental health. Unlike assessments at any one time point, longitudinal and repeated assessment minimizes the misclassification of individuals.

Third, the rich survey data provide information on a number of socioeconomic, demographic, and health variables, which allowed me to statistically control for a range of covariates. Doing so reduces bias due to potential confounding.

Finally, by using a comparative approach, many of the substantive analyses were replicated across different contexts. Consistencies in the estimates across different contexts support the robustness of study findings.

6.3.2. Limitations

This research also had some key limitations. First, selection bias may result from differential attrition in the longitudinal samples used. In the TRAILS cohort, for example, attrition was more common amongst young people who had more parent-reported externalizing problems at baseline. Attrition was also more common amongst young people who came from low-SES families, suggesting that low-educated young people and young people at greater risk of being excluded from the labour market selected out of the analytic sample. Given the relatively high response rates in the American and Dutch datasets, estimates may not be substantially biased by differential attrition. According to the NLSY79 Child/Young Adult user's guide, over 70% of those youth who were eligible for 6 or more interviews using the Young Adult survey completed every interview for which they were eligible.[84] With regards to the TRAILS dataset, 71% of the original sample participated in all five waves of data collection.[86 87] In the Canadian dataset, however, only 52.7% of the original sample remained in the final wave of data collection.[85] Estimates in this dissertation, particularly those generated from the Canadian data, may therefore be biased towards the null.

Second, as with most large population-level surveys, the findings in this dissertation are generated from samples that either exclude or under-represent young people who are institutionalized, including young people in prisons and Indigenous peoples living on reserves in Canada.[217] Between 138 to 356 out of every 100,000 young people in the USA under the age of 18 were incarcerated on any given day during the study period;[218] in 2006, 1 in 53 young people between ages 20-24 were incarcerated.[219] Indigenous peoples in Canada constituted

approximately 4% of the Canadian population during the study period, over half of whom were under the age of 25, and more than 40% of whom lived on reserve. These groups represent those who frequently experience discrimination, stigma, and racism, which may be related to higher rates of mood, conduct or behavioral problems in adolescence,[220-222] and disconnection from both educational and labour market institutions and opportunities as young adults.[223 224] The absence of these groups from the data is a potential source of selection bias that affects estimates of socioeconomic inequalities in adolescent mental health, and of the relationships between mental health, educational attainment, and employment. The NLSY79 Child/YA attempts to survey incarcerated young people but permission to access this group has become increasingly difficult over time. The estimates obtained in this dissertation are therefore likely to be more conservative than their true population values.

Third, there is unexamined heterogeneity by gender, race, ethnicity, and other potentially important modifiers of the relationships examined that may affect the estimates in this dissertation as well as their interpretation. Gender, race, and ethnicity for example, have been related to differences in both the number and shape of depressive symptom trajectories among children and adolescents.[45 225] As well, structural forms of gender-based discrimination and racism have led to differences in educational attainment, and labour market engagement across population groups.[226-229] Because estimates in this dissertation do not account for differences by gender and other potential modifiers, they may mask important relationships between the concepts of interest.

6.3.3. Methodological strengths and limitations of comparative analyses

The chief concerns of comparative analyses are threats to equivalence within the studies' constructs, methods, or items.[230 231] The research in this dissertation was designed to be comparable across many aspects of study design and methodology. From the different datasets

used, I created comparable dynamic cohorts of young people, examined over similar study periods, and assessed on equivalent constructs with comparable measures. The data for all surveys were collected using a combination of computer assisted telephone or personal interviews and self-reported questionnaires. In addition, I attempted to minimize bias due to differences in sampling strategies between surveys used in the comparative studies (Chapters 2 and 3) by using multivariable regression to control for a number of variables that were used in the sampling procedure for the surveys under investigation (e.g., race, region of residence).

There are, however, several sources of non-equivalence to discuss. In Chapters 2 and 3, the lower longitudinal response rate in Canadian survey data compared to the American data may have led to more conservative estimates for depressive symptom severity and a lower prevalence of education and work outcomes in the Canadian data. These sources of non-equivalence may have led differences between Canada and the USA that were overestimated.

In Chapters 4 and 5, there were differences across both observation periods and measurement. Chapter 4 examined internalizing and externalizing problems from ages 11 to 19, while Chapter 5 examined the same constructs between ages 9 and 14. The stronger associations found in Chapter 4 may reflect how mental health problems were assessed more proximally to the outcome of interest (assessed at approximately age 25). In addition, Chapter 4 assessed the prevalence of mental health problems using 98 items from Achenbach's Youth Self Report (YSR) and the Adult Self Report (ASR), [90] [91] while Chapter 5 did so with the Behaviour Problems Index (BPI), a subset of 28 items from the YSR and ASR.[92] The relatively smaller number of items in Chapter 5 likely limits variability in the distribution of scores for assessing mental health relative to the Chapter 4, and may be more likely to misclassify individuals. That said, the bias associated with this difference may be small considering that both scales are validated multi-item measures of the same underlying constructs, and that the same relative cut-off (of the top decile of scores) was used to define mental health problems in both studies.

The comparative findings from this research should not be interpreted as providing causal evidence that institutional differences between contexts impact adolescent mental health inequalities. Unmeasured confounding, or alternative explanations, may also account for the observed cross-national differences. In this dissertation, compositional differences between contexts that may bias the observed relationship were addressed by controlling for a number of key demographic and socioeconomic variables. However, it is not possible to rule out the influence of unobserved cultural differences and unmeasured events relevant to the observation period in question. Rather than provide evidence of a causal association, the findings in this research thus forward theoretical explanations to generate hypotheses for further testing.

Finally, the studies in this dissertation did not directly examine indicators of institutional difference between countries. Past studies that use data from a large number of countries have been able to estimate both individual-level effects as well as context- or country-level effects using multi-level models.[61] [62] In the research in this dissertation, however, as in other 'small-n' comparative studies which revolve around only a small number of countries or contexts,[232] [233] the effect of any one particular institutional variable at the contextual level could not be isolated. Further, working with only a small number of contexts for comparison makes it difficult to know how generalizable the research findings are. Future research should examine the research questions from this dissertation in other contexts, across larger samples of countries and contexts, and using methods that allow for the precise analysis of institutional and policy mechanisms.

6.4. Implications for policy and practice

The different risk of poor mental health trajectories for low-SES children in the USA and Canada suggest key areas for institutional intervention. Traditionally, the American welfare state equitably redistributes fewer resources to American families compared to its Canadian

counterpart and that of other wealthy countries.[79 208] The findings in this dissertation suggest that left unaddressed, this less equitable redistribution may have long-term impacts on the emergence of mental health inequalities both early in adolescence and into the transition to young adulthood. Some countries provide examples of transfer and taxation mechanisms, and well-designed in-kind services such public childcare, that can have economic benefits for both parents and their children from low- and middle-income families when they become adults.[208 234 235] In Sweden, for example, family policy reforms have included generous parental leave, flexible employment choices, and universal programs for childcare, health care, dental care, mental health services, and a generous welfare system.[234] These examples show that there is room for equitable reform child and family policy in Canada, and particularly in the USA, to reduce social inequalities in adolescence and young adulthood.

Evidence of substantial differences in the socioeconomic position of young adults by educational attainment in the USA and Canada, suggests that policy makers need to address the way that socioeconomic opportunities lead to more unequal outcomes for young people in the USA. For example, greater public investment in tertiary education could reduce the cost borne by private households in the USA.[81] Entry to private American post-secondary schools, which account for 40% of American degree-granting post-secondary institutions, could be less cost-prohibitive with expanded financial aid mechanisms.[236] Although the USA already provides comparatively more financial aid per individual to young people at the bottom of the income distribution than Canada, relatively more is needed to account for the greater gap between incomes and the cost of education in the U.S.[236] There are also many young adults in the middle portion of the income spectrum that are not currently eligible for financial aid who stand to benefit from expanded investment in this area.[236] Finally, policymakers may aim to address the structural conditions that limit the educational and work opportunities that adolescents and young people are exposed to. For example, public policies may aim to decrease

geographic disparities in primary and secondary school quality, and income disparities between neighbourhoods.[79 237 238] While public education is universally available in the USA, there are vast disparities between schools with regards to quality, due in part to a greater reliance on local tax financing and more recently on regressive state-wise funding allocation between school districts.[239 240] The gap between schools in areas with more and less resources indicates a need to redistribute educational investment and interventions to be proportionate to the needs of marginalized communities and low-SES families, wherein adolescents may be most vulnerable to poor mental health.[239 241]

This research also suggests that, compared with general education contexts like the USA, educational attainment may be a stronger mechanism for preventing labour market exclusion in an educational system with greater vocational specificity, such as the Netherlands. For contexts with general education systems such as Canada and the USA, this finding suggests that there may be opportunities to better coordinate the demand for skills in the labour market with education to facilitate the transition from school to work for adolescents with mental health problems. Wheelahan and Moodie argue that the weak link between education/training and the labour market in these contexts is. not simply due to the nature of vocational education or the qualifications it provides, but rather the structure of the labour market and the way employers select employees on the basis of their qualifications.[242] Rather than try to match education and training to employer demand, they therefore suggest strengthening connections through stronger organizational partnerships between employers, unions, educational institutions, and governments; and, establishing regulated occupations with defined qualification requirements. For contexts with vocationally specific systems such as the Netherlands, this finding has implications for the programs that aim to prevent NEET via educational retention and reengagement. The research in this dissertation suggests that adolescents in the Netherlands with externalizing problems are at higher risk of NEET if they

fail to achieve basic qualifications. Educational retention and re-engagement programs in the Netherlands should target the needs of adolescents who experience mental health problems.

Mental health problems may present higher risks for labour market exclusion in the aftermath of economic recession. The recent COVID-19 pandemic has created a multi-dimensional crisis for young people, with the highest levels of unemployment unseen since the Great Recession,[243-245] and growing mental health concerns among young people.[246 247] Amidst unprecedented closures of businesses,[248] prolonged social isolation,[249] and acute unemployment which has exacerbated the decades long trend of growing work precarity,[250] interest in universal mental health care, universal income support policies, and better disability support has been renewed.[251] Universal mental health coverage care would fill crucial gaps in access to care. Access issues are especially acute in Canada and the USA, where an estimated 11% and 15% of individuals are unable to get or afford professional help when in distress, compared to only 3% in the Netherlands.[252] Even in the Netherlands, however, long wait-times persist in the mental health care system, suggesting a need to improve the capacity of the system for handling the increased demand.[253 254] Universal policies such as a job guarantee or universal basic income benefit provide economic resources to young people who experience mental health problems in times when they may be more vulnerable to labour market exclusion. Ensuring that such universal programs are proportionate to the needs of young adults with a history of mental health problems (e.g., by redesigning complex eligibility and application processes, establishing higher needs categories of benefits, and increasing support personnel)[255] may therefore be important for counterbalancing the risks that young people with mental health challenges face in the labour market during economic downturn.

Finally, the findings in this research collectively point to the need for social and mental health supports during adolescence as well as young adulthood. My research suggests that some adolescents from low-SES backgrounds are at higher risk of a trajectory with heightened

symptoms later in young adulthood than earlier in adolescence. These trajectories have consequences for their education and work. However, educational interventions may only address a small portion of the risk of labour market exclusion, suggesting a role for intervention beyond the school setting. Social workers specializing in family and child care, for example, are important points of access to mental health care for adolescents who are dealing with mental health complications that occur alongside other challenges, such as the absence of parental supervision, or issues with family functioning.[256] There is also a role for intervention beyond the school years. Yet compared with adolescents, young adults are relatively disconnected from public institutions and services. For example, almost all adolescents are enrolled in school, while no single institution serves such a large proportion of young adults.[257] At the same time that young adults age out of education, social services, and programs that are available to adolescents, they must take on more financial and social independence. Policy makers need to change the assumption that the age of majority is an appropriate point to cut off eligibility for an array of governmental services offered to children. Further, policy makers may examine gaps in the provision of care in the workplace, looking to integrate systems of primary health care, mental health care, and occupational health care, to meet the mental health needs of young people as they transition into the labour market.[258] [259]

6.5. Future directions in research

The findings and limitations of this dissertation point to a number of promising directions for future research. First, this dissertation points to a number of institutional determinants of the relationship between childhood SES, adolescent mental health, and education and work in young adulthood. Namely, institutions that alleviate child poverty, policies that promote equitable opportunities in education and employment, and vocational training systems are promising directions for research in the field of adolescent mental health. Future studies may

build on my findings to inform hypotheses about the types of structural determinants at work. Future studies may also make use of administrative data on adolescent mental health service use or pharmaceutical claims data to study such determinants.[260] [261] These data have the advantage of being population-representative, and contain repeated measures spanning longer periods before and after institutional and policy change.[260] [261] While these data come with their own challenges, they provide unique opportunities to assess policy changes and societal intervention that are often not possible with social surveys. See Connelly *et al.*,[262] Penner and Dodge,[263] and Gavriolev and Friger,[264] for discussions of the potential opportunities and pitfalls of administrative data in the social sciences, public policy, and population health.

Second, this dissertation poses a question about which mechanisms are most prominent in linking adolescent mental health problems with labour market exclusion in young adulthood. There is evidence that a number of intrapersonal and interpersonal mechanisms mediate the relationship between adolescent health and young adult labour market outcomes. Notably the persistence of mental health problems into adulthood, low self-esteem, truancy, behaviour, substance use, and social exclusion.[180] [185] By comparison, the structural barriers to labour market participation for young people with mental health problems—including the role of education quality, sustained employment support, workplace accommodations, and stigma—are relatively less studied. Research on these mechanisms therefore will fill crucial knowledge gaps and represents promising areas to inform policy and practice.

Finally, future research could critically examine the conclusions from this dissertation using an intersectional feminist lens [265] [266] and more explicitly consider differences across gender, race, and other axes of social position that have demonstrated impacts on adolescent mental health and education and work in young adulthood.[267] [268] Starting with gender as an example, at the symptom level, young women have been more commonly described experiencing ‘sad mood’, ‘sleep disturbance’ and ‘low self-esteem/guilt’, whereas young men more commonly

report ‘difficulties concentrating/making decisions’.[269] Such differences may be attributed to biological differences related to pubertal hormonal changes in puberty, as well as gendered social roles during adolescence and young adulthood which situate young men and women differently with regard to their exposure to stressful events. How institutions and structures shape the gendered dynamics of work are also important to understanding its relationship with mental health over historical time and place.[270] In a study of different cohorts of women in Germany studies show newer cohorts were less likely to be full-time housewives, and more likely to work part-time while full-time work became less common.[271] Further, how gender intersects with race/ethnicity is relevant to understanding patterns of risk. For example, immigrant girls in the USA who wear hijabs are more visible targets for discrimination than immigrant boys, which has been found to be related to a greater risk for depression.[272]

Further research could expand on my findings to account for how various processes and experiences of oppression (racism, sexism, ableism, etc.) shape the socioeconomic and mental health opportunities that are available to adolescents and young adults. Methodological developments from the last 15 years, including multilevel modeling and latent class analysis, provide a promising means for examining the interactions between power, institutions, and personal experience that colour the relationships between adolescent mental health, education, and work.[273] [274] Agénor further suggests that quantitative researchers acknowledge the extent to which their research engages with critical theories and existing qualitative evidence, and/or engages with communities and critical mixed-methods approaches to understand structural dimensions of discrimination, power, and social justice.[273] By incorporating an intersectional lens, future research may produce new insights about the institutions and systems that shape inequality in adolescent mental health in the transition to adulthood.

6.6. Conclusion

This dissertation began by positing that socioeconomic inequalities in adolescent mental health start with the institutional causes of inequality, including the lack of mental health-supporting resources that individuals themselves have, as well as systematic under-investment across multiple areas of public infrastructure. It brought together: (1) a comparative study of the effect of childhood SES on adolescent mental health trajectories across two cohorts in the USA and Canada; (2) a comparative study of the relationship between adolescent mental health trajectories in the USA and Canada; (3) a study of educational attainment as a mediator of the relationship between adolescent mental health and NEET in the Netherlands; and, (4) a study of education as a mediator of adolescent mental health and NEET across two generational cohorts in the USA. Together, these studies showed that the inequalities in mental health problems, and the path that they take over time, have their origin in the institutional and social policy environment in which adolescents grow up. Moreover, inequalities in adolescent mental health have consequences for education and work outcomes in young adulthood that are similarly shaped by the social context. This evidence has implications for policy and practice, and points to promising new directions for research. Collectively, this work points to the central role of economic processes and political decisions in defining the availability of resources for adolescents and their families, shaping the nature of education and the labour market, and forming the contours of the transition from adolescence to young adulthood.