Higher Education Quality Council of Ontario

An agency of the Government of Ontario

Postsecondary Credential Attainment and Labour Market Outcomes for Ontario Students with Disabilities

Ken Chatoor

Published by:

The Higher Education Quality Council of Ontario

2500 – 88 Queens Quay West
Toronto, Ontario
M5J 0B6

Phone: (416) 212-3893
Fax: (416) 212-3899
Web: www.heqco.ca

E-mail: info@heqco.ca

Cite this publication in the following format:

Chatoor, K. (2021) *Postsecondary Credential Attainment and Labour Market Outcomes for Ontario Students with Disabilities.* Toronto: Higher Education Quality Council of Ontario.

Higher Education Quality Council of Ontario

An agency of the Government of Ontario

Acknowledgements

The author would like to acknowledge Rosanna Tamburri for her invaluable contributions in initiating and framing this project.

Table of Contents

List of Figures

List of Tables

Executive Summary

Millions of people with disabilities live, work and go to school in Ontario. In this report, the Higher Education Quality Council of Ontario (HEQCO) examines the experiences and outcomes of Ontarians with disabilities in the context of the education system, with a focus on postsecondary education (PSE). The report includes a review of provincial policies and processes that provide support for students with disabilities from K-12 through postsecondary and presents findings from analysis of the National Graduate Survey and the General Social Survey to assess the PSE participation and labor market outcomes of individuals with disabilities in Ontario.

There are crucial differences between the ways the K-12 and PSE systems identify and allocate supports for students with disabilities. In K-12, supports are typically organized through the school and facilitated and informed by experts within the school system, such as teachers, principals and specialists. In postsecondary, due in part to confidentiality and disclosure rules for adults, students with disabilities must seek out and activate supports on their own. In the transition from high school to postsecondary, students with disabilities shift from a system of support driven by the institution to a system of support driven by the individual. This shifting policy context serves as a backdrop for students with disabilities as they make decisions about postsecondary education.

HEQCO's analysis reveals that individuals with disabilities do not participate in PSE at a rate comparable to those without disabilities. One of the most salient findings is that disability type matters — a lot. Students with learning disabilities, mental health disabilities and physical disabilities are the least likely to participate in any type of postsecondary program, especially programs at or beyond the bachelor's level. Postsecondary graduates with learning, physical and mental health disabilities also report significantly worse labor market outcomes compared to those without a disability across several metrics. The negative outcomes extend to issues of well-being, as individuals with disabilities report greater stress and experience a greater impact of health on their well-being and career decisions. Perhaps our most troubling finding was that labor market gaps for individuals with disabilities manifest immediately after graduation.

HEQCO offers a series of recommendations for the postsecondary sector to consider when designing programs and systems of support for students with disabilities:

- PSE institutions should incorporate Universal Design in Learning (UDL) in the development of course materials; general principles of accessibility and equity in teaching and learning will benefit all students.

- Government and partners should evaluate perceptions of postsecondary among K-12 students with disabilities. To improve access to postsecondary, we must understand why students with disabilities are far less likely to participate.

- Institutions and employers should work together to develop programs to support the school-to-work transition for PSE grads with disabilities. This programming should

consider the health needs of these individuals, particularly students with learning, physical and mental health disabilities.

- Institutions should continue to improve and build upon proactive supports for students with disabilities — particularly those with mental health disabilities, which often present at an age when individuals are in postsecondary.

- Finally, data should reflect the lived experiences of individuals with disabilities and all stakeholders must work together to improve the consistency and quality of data to inform policy. Our analysis indicates that institutions and government should discern disability type whenever possible.

Introduction

Having a disability can profoundly impact an individual's experiences and interactions with postsecondary education (PSE). Youth with disabilities are more likely to be unemployed or not in school and more likely to be living in poverty than those without disabilities (Morris et al., 2018). Understanding how disability affects both the postsecondary experience of students and the labour market outcomes of graduates can inform the development of helpful policies and practices.

Many individuals working and going to school in Ontario are doing so while living with disabilities. According to the Canadian Survey on Disability (Morris et al., 2018), 6.2 million Canadians, or 22.3% of the population report having one or more disabilities. In Ontario, the numbers are similar; 24% of the population aged 15 or over report having one or more disabilities. Of particular interest to us is the province's youth population (i.e., those aged 15 to 24) as it covers the span when most people attend PSE. Within this group, 13.6% live with disabilities. The most prevalent disability types among youth are mental health disabilities and learning disabilities and nearly one-quarter report having both.

In the 2020/21 academic year, the COVID-19 pandemic accelerated changes to course and program delivery. The shift from in-person to online learning required students to navigate courses, services (such as in-class support) and programs (such as peer groups and school-to-work transition programs) entirely online. The Higher Education Quality Council of Ontario's (HEQCO) recent report, *Improving the Accessibility of Remote Higher Education: Lessons from the pandemic and recommendations* (Pichette et al., 2020) showed that students with disabilities were more likely to encounter challenges when attempting to access support services, and that this issue worsened during the COVID-19 pandemic. Students indicated that the pandemic amplified pre-existing access issues, further complicating their experience at and access to PSE institutions.

Part of HEQCO's mandate includes providing evidence-based recommendations on the best ways to build a PSE system that provides equal opportunity for all Ontario students. This report provides an overview of the journey to and through PSE and into the labour market for Ontarians with disabilities. In this report we strive to better understand the experiences and outcomes of youth with disabilities during and after PSE. As the benefits of attending PSE are well established (DeClou, 2014), this report focuses on the opportunity gaps for students with disabilities who access PSE and explores possible approaches to close these gaps.

To provide context for our findings and recommendations, we review Ontario policy on support for students with disabilities in the K-12 system, explain the process for identifying students with disabilities, and outline the policies and services that students and their families navigate on their journey through the public education system. These policy contexts serve as a backdrop for students with disabilities as they make decisions about their educational and career pathways.

Policy Frameworks for Ontario Students with Disabilities

There are significant differences between how the K-12 and PSE systems identify and allocate supports for students with disabilities. In K-12 this happens largely through an individual's school. Ontario's *Education Act* (Government of Ontario, 1990) requires the minister of

education to ensure that special education programs and services are provided to students with learning disabilities and that school boards implement procedures for identifying these students. The identification process is conducted by an Identification, Placement and Review Committee (IPRC) established by the school board (Ministry of Education, 2017a).

Identifications are based on psychoeducational assessments conducted through the school and/or by external professionals such as speech pathologists, psychologists or other health care professionals qualified to provide a diagnosis. Based on the individual educational assessment, the IPRC decides whether the identified student should be placed in a special education class or in a regular classroom with supports. Schools are required to develop an Individual Education Plan (IEP) for identified students which specifies the supports a student will receive (Ministry of Education, 2017b). Supports can include modified curricular expectations and/or learning accommodations (e.g., use of assistive technologies or extra time to complete tests).

In the K-12 system, the exceptionalities that qualify a student for special education include learning disabilities, mild intellectual disabilities, behavioural disabilities, developmental disabilities, multiple exceptionalities, autism, physical disabilities, deafness or hard of hearing, blindness or low vision, speech impairments, language impairments and giftedness (Ministry of Education, 2011). In the 2014/15 school year, about 178,000 students in Ontario were formally identified by an IPRC as having additional learning needs; an additional 162,000 students were not formally identified but were provided with special education programs and services (Ministry of Education, 2017c).

Even with these structures in place, obtaining an assessment in the K-12 system can be a difficult and lengthy process. Some school boards may only provide accommodation based on a professional assessment. In cases where the costs are not covered by the school, and families cannot afford to cover the costs themselves, learners can go years without disability-related supports. In some cases, the school may prepare an IEP based on a suspected disability before or without obtaining a specific diagnosis and without being identified as exceptional by an IRPC. What this means is that while there are some structures in place, students' access to certain services may be shaped by local practices as well as the discretion of parents, teachers, schools, school boards and IEPs.

The process for identifying students with disabilities and providing them with supports at the postsecondary level is not subject to the same legislative structures described above. This is due, in part, to confidentiality and disclosure rules for adults. In the 2005 Accessibility for Ontarians with Disabilities Act (AODA), the definition of disability includes physical, sensory, mental health, developmental, learning disabilities, and injury resulting in impairment (Government of Ontario, 2005). The AODA requires the creation of inclusive and accessible environments in PSE and articulates standards for making the design of spaces accessible and removing barriers to the distribution of information. The act also requires PSE institutions to train educators on accessible course design and delivery (Marquis et al., 2016).

The Ministry of Colleges and Universities provides funding to help Ontario's publicly assisted postsecondary institutions meet their legal obligations to students with disabilities. Much of this funding comes from the Accessibility Fund for Students with Disabilities (AFSD) which was established in 1988 to satisfy government obligations under the Ontario Human Rights Code. The AFSD provides funds for a campus' Office for Students with Disabilities (OSD), which

provides a range of services and accommodations to students such as individual academic accommodations, transition support, and advocacy and social support (Transition Resource Guide, 2020). An OSD may also provide consulting and diagnostic services, cover the cost of summer transition programs and provide support services to students with disabilities, such as tutors, note-takers and sign-language interpreters (Ontario Human Rights Commission, no date).

To receive academic accommodations and services, students must self-identify as having a disability, register with their institutional OSD and meet with a disability counsellor who determines the appropriate accommodations. Students are required to follow this process for each PSE institution they attend. Institutions refer to their OSD under different names, such as Disability Services or Accessibility Services, and not all OSDs offer transition support for students moving to another institution.

In addition to funds available through the Ontario Student Assistance Program (OSAP), students with permanent disabilities can receive funding to help pay for disability-related services and equipment, such as note-takers, interpreters and tutors (OSAP, 2020). This funding has two components: The federal portion, the Canada Student Grant for Services and Equipment for Persons with Permanent Disabilities, provides up to $20,000 a year to eligible applicants (Government of Canada, 2021). The provincial portion, the Bursary for Students with Disabilities (BSWD), provides up to $2,000 per year to eligible applicants. Students with temporary disabilities are eligible only for the BSWD (National Educational Association of Disabled Students, 20219. The amount received depends on the cost of the required services and equipment. Since access to some of these bursary funds is dependent on OSAP eligibility, international students have limited or no access to this financial support.

The Ontario Disability Support Program provides support for living expenses during PSE (Ministry of Children, Community and Social Services, 2018). After graduating from PSE, those with disabilities can obtain financial relief on outstanding student loans though a federal government program called the Severe Permanent Disability Benefit. Meeting the eligibility criteria for these supports may or may not be dependent on providing documentation to prove the existence of a disability. The specific requirements are, in part, dependent on the discretion of the institutions providing these supports.

The requirement that PSE students with disabilities must proactively self-identify and find and register with an OSD to access in-school supports and grants is a change from their experience in the K-12 system. It would be helpful if institutions at both the K-12 and PSE level developed outreach strategies to assist students with disabilities as they transition to PSE. Proactive systems of outreach and awareness are essential in both K-12 and PSE institutions because we know that some mental and psychological disabilities may not appear until an individual is attending PSE (Kessler et al., 2007).

Methods

The analyses in this paper are based on two data sets, the National Graduate Survey (2013) and the General Social Survey (2016). Microdata files were accessed through the University of Toronto Library System. Descriptive statistics and logistic regression analyses carried out on

both data sets were reflective of the weighting and bootstrap procedures indicated in the Statistics Canada User Guide.

National Graduate Survey (2013)

The National Graduate Survey (NGS) is a cross-sectional data set developed by Statistics Canada which samples a cohort of PSE graduates and includes information on their labour market outcomes shortly after graduating. Those who did not attend PSE in Canada are therefore excluded from this survey. The stated purpose of this survey is to provide information on the experiences of new graduates entering the labour market. It includes students' self-reported experiences and attitudes toward their education programs, as well as administrative data regarding their programs and labour market outcomes. The NGS derives program type information from the Postsecondary Information System, which includes individuals in universities, colleges and trade/vocational schools in Canada.

General Social Survey Cycle 30: Canadians at Work and Home (2016)

The General Social Survey (GSS) is a cross-sectional survey developed by Statistics Canada in 1985 to identify trends related to the social well-being of Canadians. Each cycle of the GSS includes a set of core questions on demographics; education and household characteristics; and labour market activities, with additional questions depending on the theme of the cycle. The 2016 cycle of the GSS, Canadians at Work and Home, was designed to allow researchers to assess the relationship between work, lifestyle and well-being. This cycle was particularly focused on life at home, life at work, work-life balance, health, well-being and resilience. The GSS is a representative population survey which samples Canadians over the age of 15.

Important Note Regarding Data on Individuals with Disabilities

In this report we include as much detail as possible but acknowledge that the language and methods used to conduct these surveys may not fully capture the experiences of all individuals with disabilities. The appendix includes a discussion of the limitations of our study.

Results

All results in this report are for Ontario only.

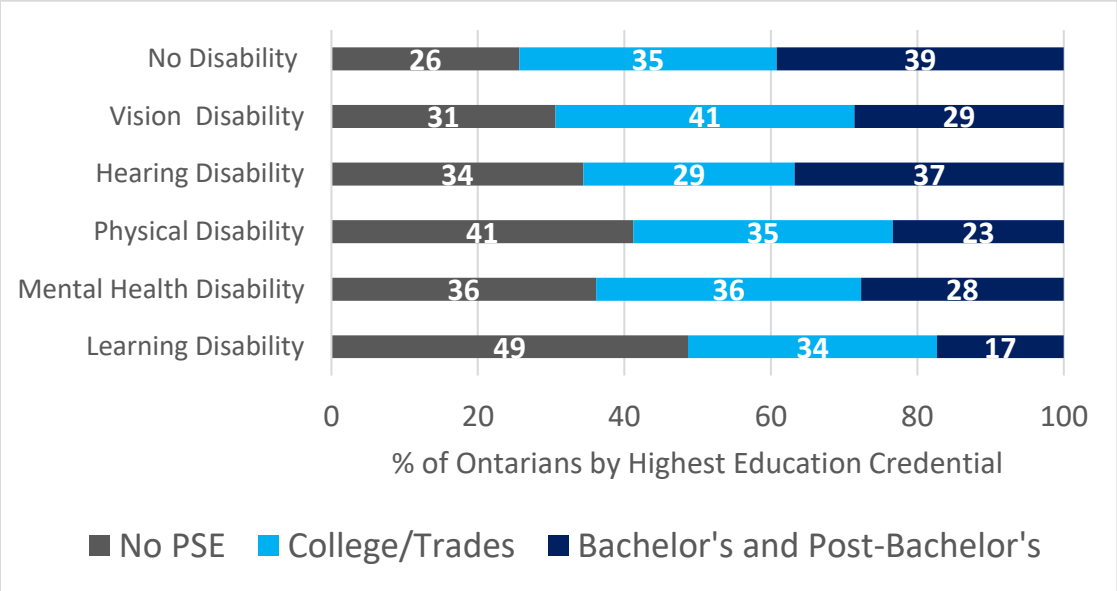
Section 1: Overall PSE Attainment for Ontarians

In this section, we use the GSS to look at PSE credential attainment by credential type among the Ontario population. Post-bachelor's refers to credentials such as master's degrees, PhDs or professional credentials (such as an LLB or MD) for which a bachelor's degree is a prerequisite.

Figure 1 shows the highest PSE credential attained by Ontarians below the age of 65 who were not enrolled in school at the time of the survey. Individuals with no disability report a higher rate of overall PSE attainment (74% when combining college, bachelor's, and post-bachelor's credentials). Individuals without a disability and those with a hearing disability are most likely to complete a bachelor's or post-bachelor's credential. Individuals with a physical, mental health or learning disability are statistically less likely to have a PSE credential than those without a disability. Individuals with a physical or learning disability are the least likely to have a bachelor's or post-bachelor's credential.

Regression analyses controlling for sociodemographic factors (such as gender, race and age) reveal that those with a learning, mental health or physical disability are statistically less likely to have a PSE credential than individuals without those types of disabilities (Appendix A, Table 1). The differences for those with a hearing or vision disability are not significant.

Figure 1: PSE Credential Attainment by Disability Type in Ontario



Source: GSS, 2016

Section 2: 2009/10 Graduates' PSE Experience

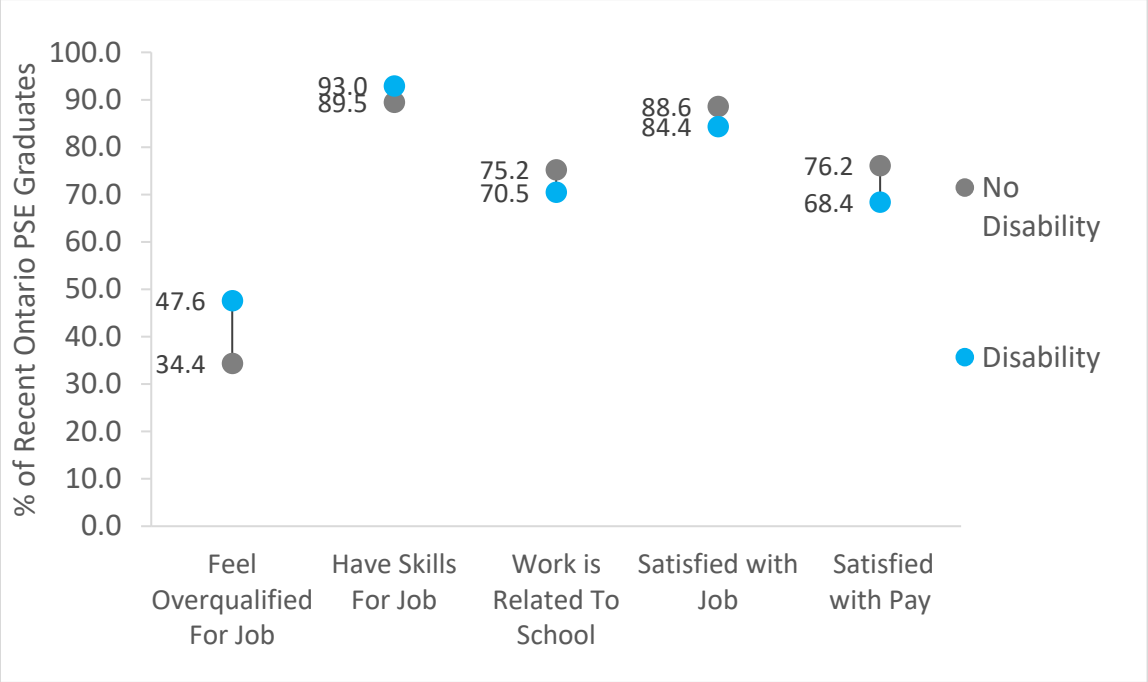
Using the NGS, which followed a cohort of students graduating from PSE from the 2009/10 academic year to the end of 2014, we assess student enrolment status by disability. As a reminder, the NGS does not provide detail on disability type, thus, only a general "disability" variable was available for this analysis. However, the NGS does provide a detailed account of the period immediately after graduation, so the following analysis provides valuable (if somewhat general) context for the experience of students with disabilities when they enter the labour market after PSE.

Students with disabilities (7.9%) are more likely to have taken a leave of absence during their studies than students without a disability (5.5%). Regression analyses (Appendix A, Table 3) accounting for sociodemographic factors as well as credential confirm this finding ($p<0.000$).

Section 3: Labour Market Outcomes for Students Directly after Graduation

Regression analysis shows that recent PSE graduates with disabilities are significantly more likely to say they feel overqualified for their job: 48% of students with disabilities say they feel overqualified compared to 34% of students without a disability. Figure 2 details perceptions of recent PSE graduates about their employment. With regards to satisfaction with their pay, 76% with no disability are satisfied, compared to 68% with disabilities, though this difference is not statistically significant ($p=0.068$). Regression analyses (Appendix A, Table 4) reveal no statistically significant differences between recent PSE graduates with and without a disability in terms of feeling they have the skills required for the job, feeling they are doing work that was related to their education, and general satisfaction with their job.

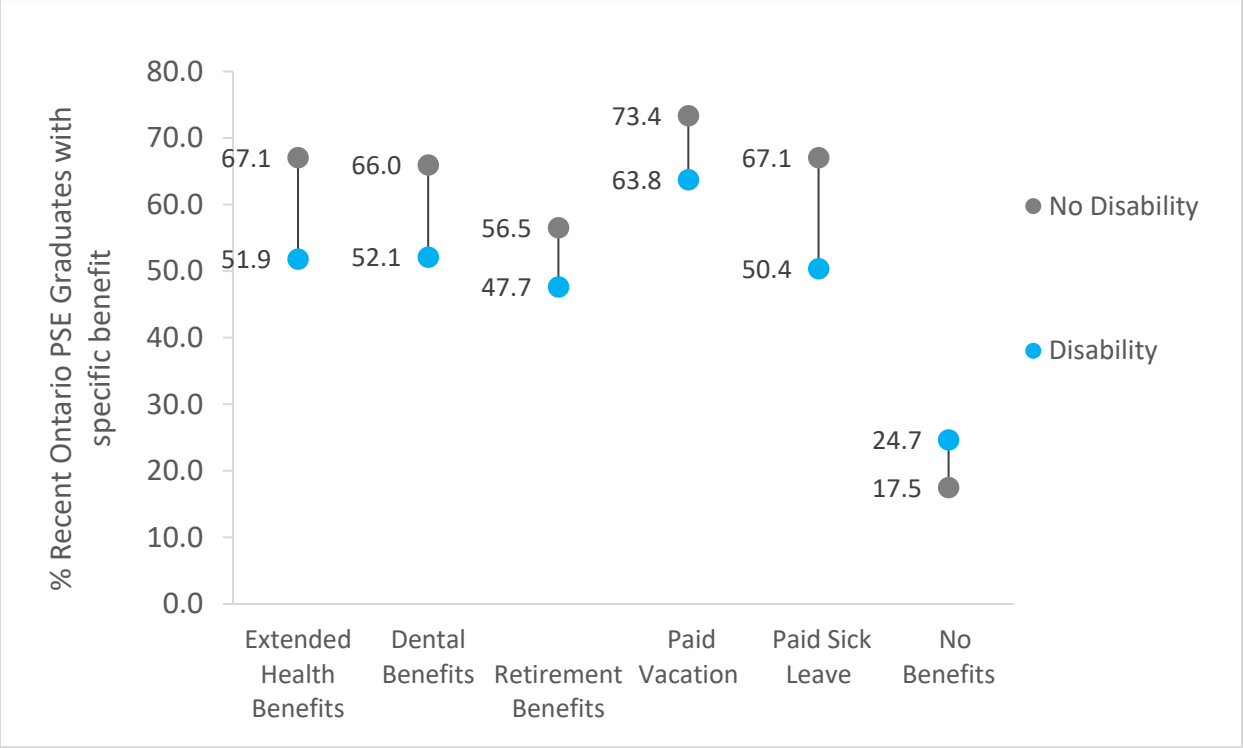
Figure 2: Recent Ontario PSE Graduates' Feelings about Jobs after Graduation by Disability Status



Source: NGS, 2013

Figure 3 shows the presence of work benefits for recent graduates who have a job. For every benefit, a large difference was observed between recent graduates with disabilities and those without. Recent graduates with disabilities are less likely to have employment benefits, and the regression analysis confirmed this finding (Appendix A, Table 5). This includes a 15% difference in the presence of extended work benefits, and a 17% difference in the presence of paid sick leave. Overall, 25% of recent graduates with disabilities have no benefits whatsoever, compared to 18% of recent graduates without disabilities.

Figure 3: Recent Ontario PSE Graduates' Presence of Work Benefits after Graduation by Disability Status



Source: NGS, 2013

Unemployment rates for recent graduates show that 6% without disabilities are unemployed, compared to 16.7% of recent graduates with disabilities. (Appendix A, Table 6).

Not all students go straight into their intended job after graduating from PSE: 42% of recent Ontario graduates said they do not have the job they hoped to have at the time of graduation (NGS, 2013). The NGS asks students why their current job differs from the job they hoped to have at the time of graduation; for some, the answer is health-related. Thirty-six percent of recent PSE graduates with disabilities report that their health is the primary reason they do not have the job they intended at graduation. This is compared to 20% of recent graduates without a disability. (Appendix A, Table 7).

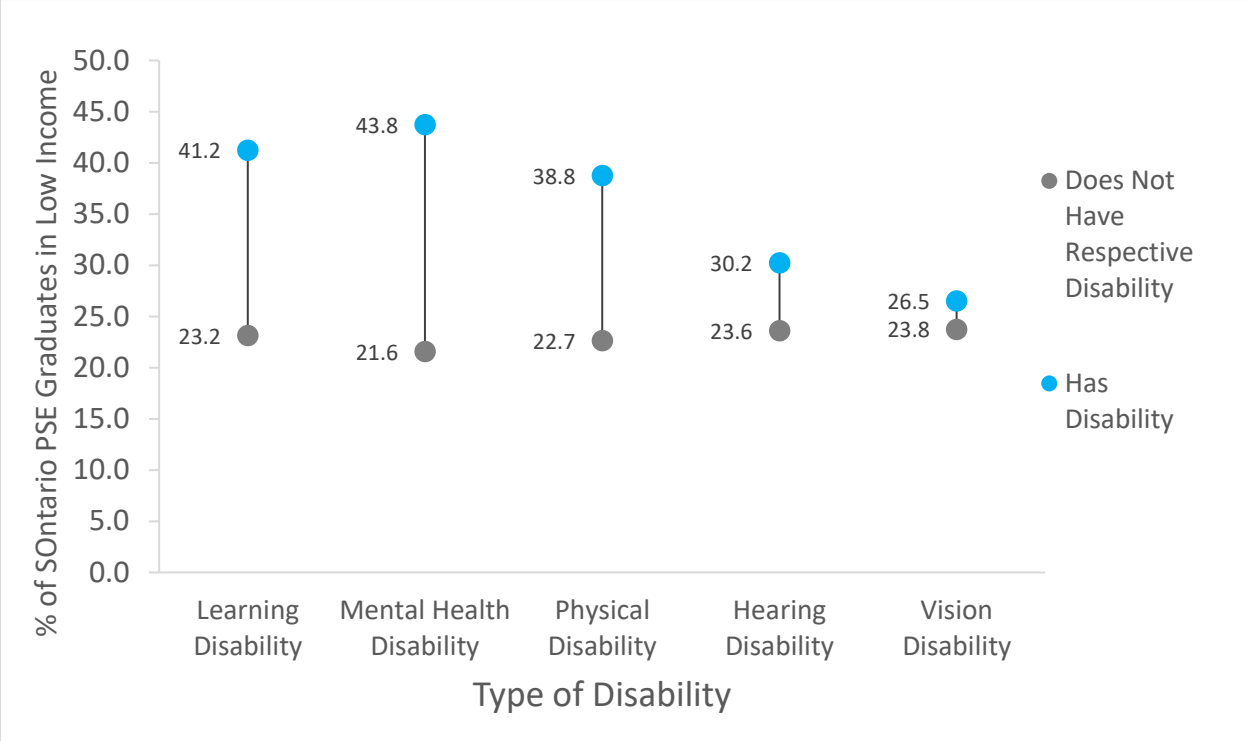
Section 4: Labor Market Outcomes for the Broader Ontario PSE Graduate Population

The previous sections looked at one cohort of Ontarians graduating from PSE to glean information related to the transition from school to work for Ontario students. This section focuses on the labor market differences between PSE graduates with disabilities and those without. We draw from the GSS which, as a reminder, uses the DSQ to allow for a detailed look at different types of disabilities.

PSE graduates with a learning, mental health or physical disabilities are respectively 18%, 22%, and 16% more likely to be low income compared to PSE graduates without these respective disabilities (Figure 4). Individuals with a hearing disability are marginally more likely to be low-income earners compared to those without a hearing disability (7%). Individuals with a vision

disability do not report a statistically significant difference (3%) compared to those without a vision disability. Regression analyses which factored in age, credential type and other sociodemographic factors (Appendix A, Table 8) show these differences are significant for those with a learning, mental health or physical disability.

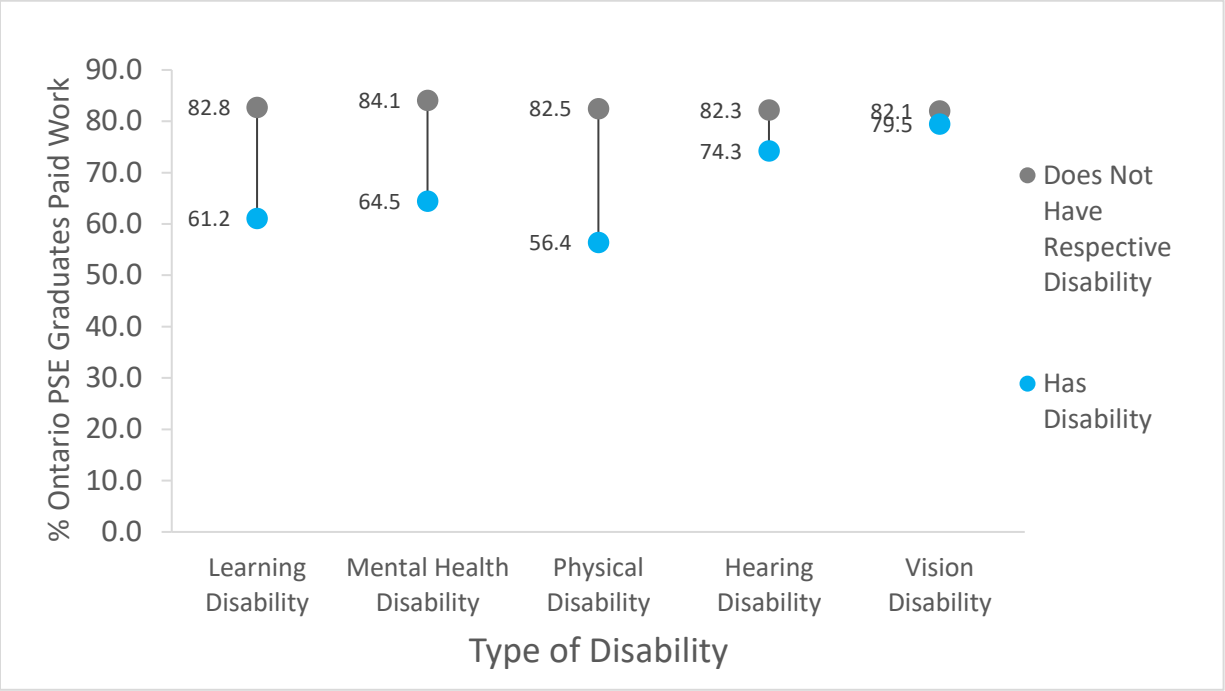
Figure 4: Incidence of Low Income among Ontario PSE Graduates by Disability Type (proxy measure defined as individual income below $25,000 per year)



Source: GSS, 2016

Individuals with a learning, mental health or physical disability are less likely to have paid work (Figure 5). Regression analyses which included factors such as age, credential type and other sociodemographic factors (Appendix A, Table 9) show that differences exist for those with a learning, mental health or physical disability.

Figure 5: Paid Work among Ontario PSE Graduates by Disability Type



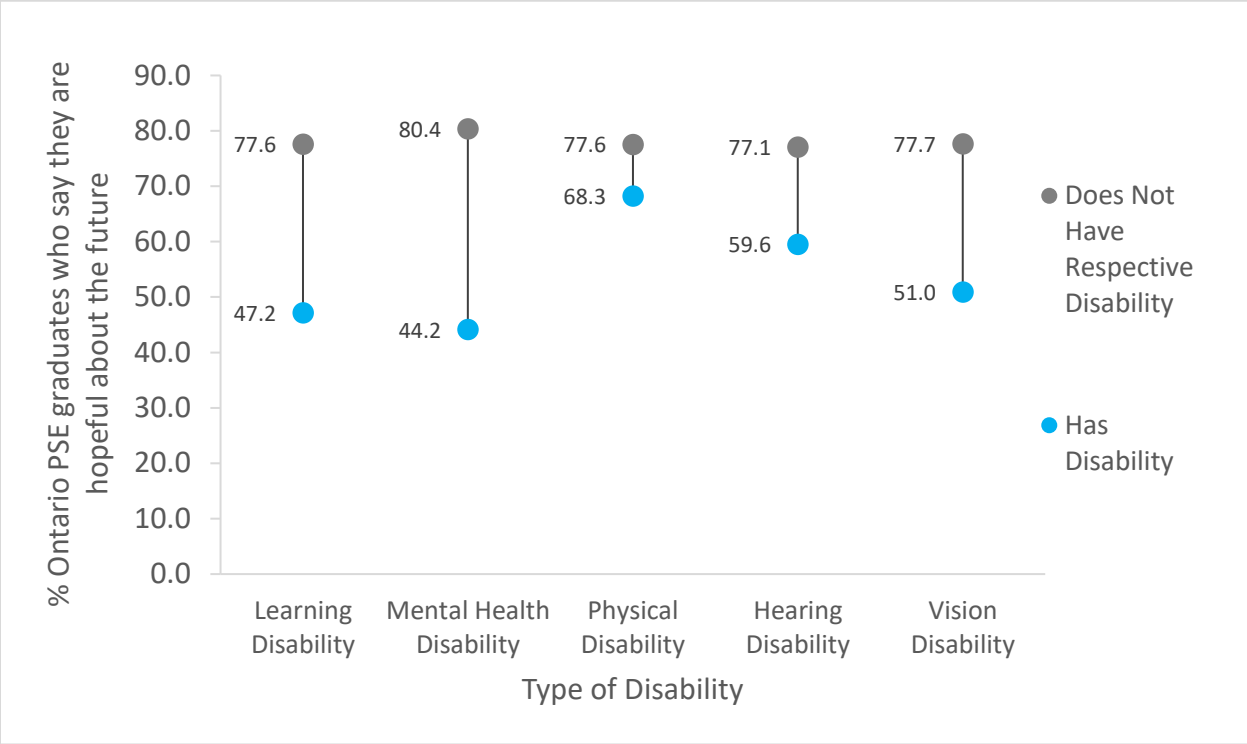
Source: GSS, 2016

Section 5: Perceptions of Hope, Health and Stress of PSE Graduates

This section uses results from the 2016 GSS to look at the perceptions of hope, health and stress of individuals who completed a PSE credential in Ontario.

Individuals with learning (47%) and mental health disabilities (44%) are the least likely to feel hopeful about the future (Figure 6). By contrast, individuals with physical, hearing and vision disabilities (68%, 60% and 51% respectively) say they feel hopeful about the future. Regression analyses (Appendix A, Table 10) confirms these differences for all disability types when compared to those without disabilities.

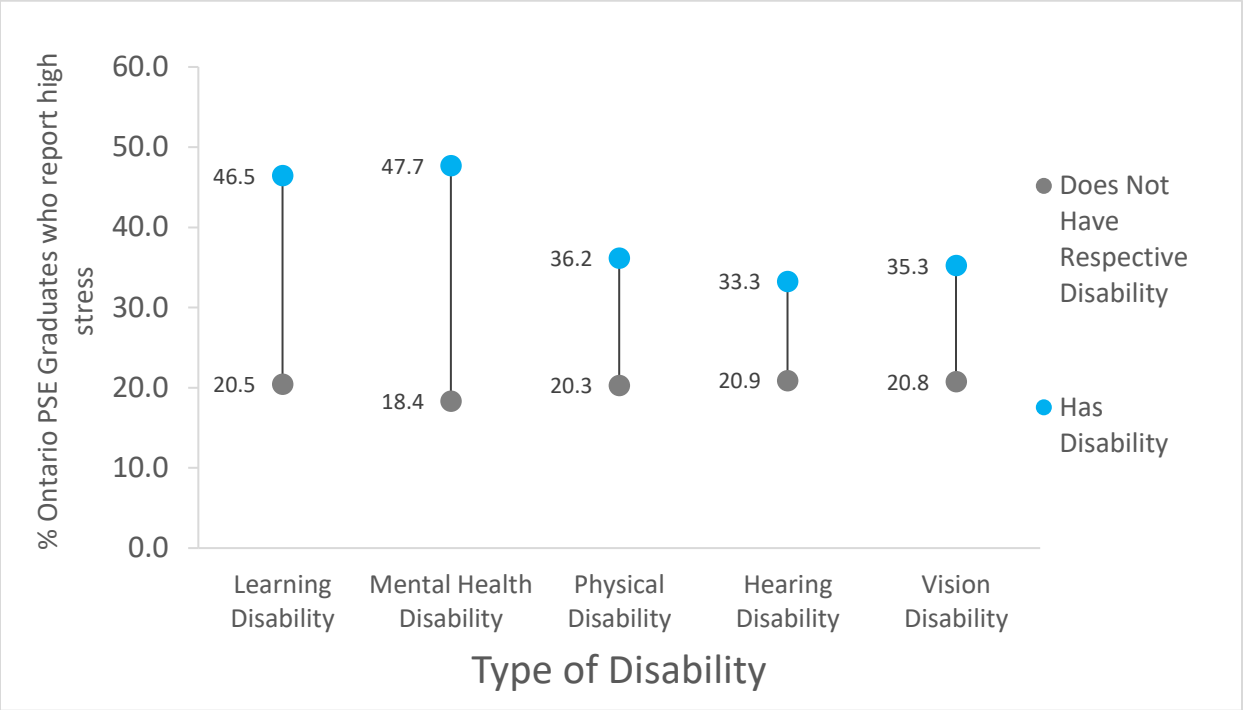
Figure 6: Ontario PSE Graduates Who Feel Hopeful about the Future by Disability Type



GSS, 2016

PSE graduates with all types of disabilities are more likely to report high levels of stress compared to individuals who did not have the respective disability (Figure 7a). PSE graduates with learning (48%) and mental health (47%) disabilities are more likely to have high levels of stress. Regression analyses (Appendix A, Table 11) confirms these differences for all disability types, when compared to those without the disabilities.

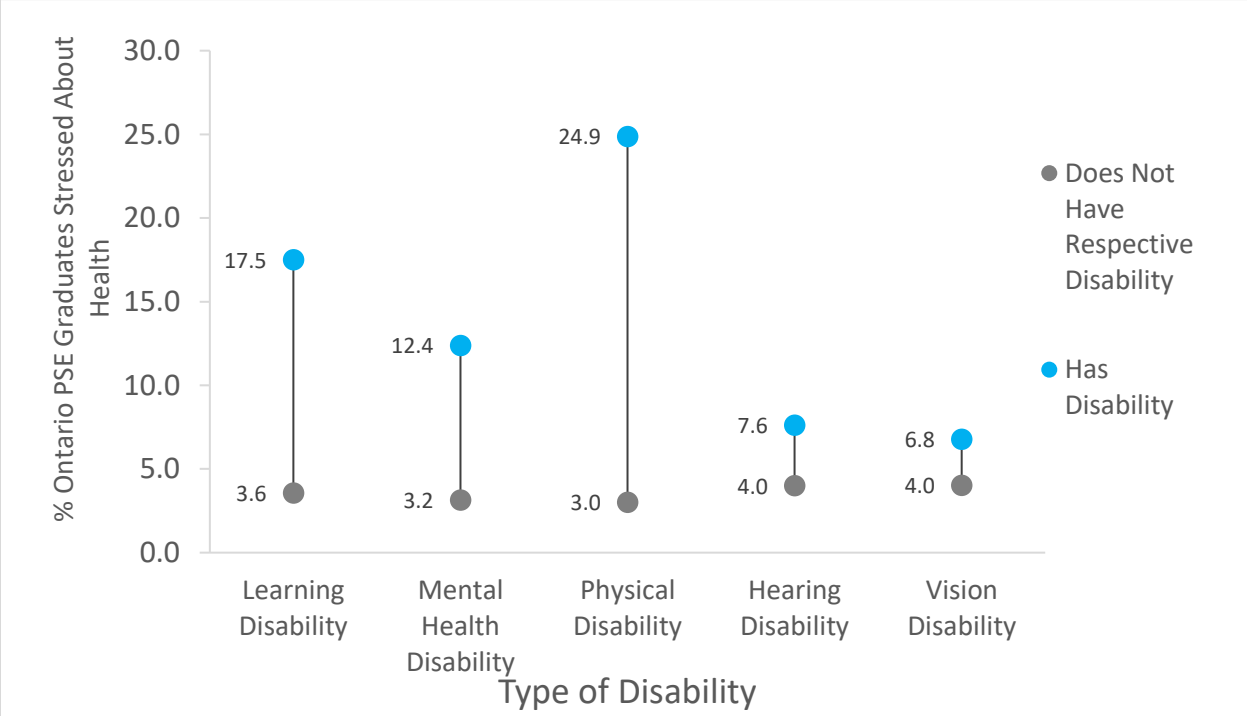
Figure 7a: Ontario PSE Graduates Who Report Presence of High Stress by Disability Type



Source: GSS, 2016

Individuals with all types of disability are more likely to state that their health was the primary source of stress in their life (Figure 7b). This was highest for individuals with a learning (18%) or physical (25%) disability. Regression analyses (Appendix A, Table 12) reveal that for all disability types, except hearing disability, these differences are statistically significant compared to individuals without the disability.

Figure 7b: Ontario PSE Graduates Who Report Health as their Main Source of Stress by Disability Type



Source: GSS, 2016

Key Findings and Recommendations

Our results shed light on the experiences of students with disabilities in Ontario and reveal important areas for improvement. With some variance based on disability type, our findings reveal that students with disabilities are less likely to attain a PSE credential than those without a disability. They are also more likely to attend PSE part time and to take a leave of absence from their studies. Upon entering the labour market, graduates are more likely to say they felt overqualified for their job and less likely to obtain jobs with benefits. PSE graduates with disabilities are also much more likely to experience unemployment and be low-income earners than graduates without disabilities.

Students with Disabilities Pursue Different PSE Credentials

Significantly fewer Ontarians with disabilities access PSE than Ontarians without disabilities and those with disabilities are more likely to pursue a college credential than a university credential. Our analysis, which looked at individuals who have vision, hearing, mental health, learning and physical disabilities, shows that Ontarians with learning or physical disabilities are the least likely to earn a PSE credential or a credential at or above the bachelor's level.

Using the data available for this report, we cannot determine *why* students with some disability types are less likely to attend university compared to college, but this finding raises questions about the perceptions of K-12 students regarding PSE offerings and the barriers they may experience. These perceptions can influence decisions to apply to, and subsequently enrol in, a PSE program. Regardless of differences between college and university, students with learning,

physical or mental health disabilities are significantly less likely to acquire any type of PSE credential. Qualitative and quantitative research on K-12 students' perception of PSE could help explain these differences.

Our policy review shows a significant shift between K-12 and PSE in the systems of support available to students with disabilities. Most students decide whether to apply to PSE during high school, so it is important to better understand the nuances of the transition from high school to PSE for students with disabilities. To do this, it would be useful to evaluate existing transition programs and services at the high school level. An evaluation of this type could highlight the assistance available and indicate which programs are most successful. This would inform program and service development and delivery at both levels. A complementary evaluation of PSE transition programs and reflection on the experience of first-year PSE students navigating a new, self-directed system of support would help PSE institutions identify successful transition programs as well as areas for improvement.

Disability Type Matters

Our analysis reveals, consistently, that disability type affects both access to PSE and labour market outcomes. Individuals with mental health, learning and physical disabilities are less likely to acquire a PSE credential and they experience worse labour market outcomes after PSE than other PSE graduates. The development of programs and policies for students with disabilities needs to acknowledge that different disabilities pose different challenges for students. We reiterate that there are serious gaps in outcomes and experience for students with mental health, learning and physical disabilities, but without better data and more research, we cannot say for certain *why* we observe such stark differences in outcomes for students with these disabilities.

Based on this evidence, PSE institutions should re-examine their processes and supports for students. Universal Design in Learning (UDL) is a promising avenue to explore; it has been demonstrated to improve the experience of all students, including students with disabilities (Dean et al., 2017; Black et al., 2015). Broadly speaking, UDL is a pedagogical approach which views environment as a variable that can be designed to serve all individuals in a positive and beneficial way (CAST, 2018). In this approach, everything from physical spaces to course design is developed with the intent to reduce barriers such that all learners, regardless of ability, can participate successfully and meaningfully. This can improve engagement and lead to an increased sense of belonging, which can influence students' perceptions and subsequent expectations regarding PSE. Several Ontario institutions explicitly cite UDL principles in their approach to teaching and course design.[1] UDL cannot entirely address all student concerns, but it could be part of the broader system of supports and services offered for students with disabilities.

Regarding mental health disabilities, there has been much effort in recent years to normalize conversations around mental health. Ontarians with disabilities are 9% less likely to have a PSE credential and 17% less likely to have paid work. To address the gaps in experience and labour market outcomes for students with mental health disabilities, it is important to evaluate and identify effective support systems for these students. Mental health disabilities often appear first in young adulthood, during the time when many individuals are attending PSE (Kessler et al.,

[1] Examples include Fleming College through their Center for Teaching and Learning; Queen's University, which has a UDL professional development module; and the University of Toronto.

2007). To that end, the Ontario government increased PSE mental health funding to $19.25 million for the 2020/21 academic year, an increase of $3.25 million over the prior academic year. Stated goals for the funding include improving community partnerships and increasing the number of mental health workers and programs at PSE institutions.

Some research suggests that a proactive model of mental health support on campuses, as opposed to a reactive model, would be more effective at reducing anxiety and would provide greater benefit to all students (Versaevel, 2014). A reactive model is a system focused on responding to crises as they happen, whereas a proactive model aims to be preventative and build a culture of education, awareness and support. A proactive model may include system-wide programs to improve mental health awareness and education, improved access to mental health services, and counselling approaches that are culturally relevant for a diverse student population (Ontario College Health Association, 2009; Council of Ontario Universities, 2017). An evaluation of student well-being which includes an analysis of campus support systems and reported student mental health, could help discern best practices of mental health support.

The School to Work Transition Matters: The Opportunity Gap for Students with Disabilities Manifests Immediately for New Graduates

The outcomes gap for students with disabilities begins right after graduation. Recent graduates with disabilities are more likely to be unemployed or out of the workforce.[2] Our analysis showed that new graduates with disabilities are more likely to say they feel overqualified for their job (by 15%) and are more likely to work in a job that does not provide basic benefits (by 10%) than their peers who do not have a disability. They are also more likely to base decisions about accepting a job on their health. This evidence suggests that school-to-work transition programs should take health concerns into account when helping students with disabilities find jobs. Institutions and policy-makers should identify school-to-work transition programs that successfully serve students with disabilities and consider enhancing and expanding these programs to help remedy this equity gap.

The gap in outcomes extends beyond employment and low-income status. Students with disabilities are less likely to have jobs with extended health benefits, paid vacation and paid sick leave. This is concerning because health related benefits may be particularly important for individuals with disabilities, and because individuals with disabilities are already more likely to report making decisions about employment based on their health. Finally, individuals with disabilities are more likely to report health as their primary source of stress. Work benefits are associated with full-time and permanent jobs, and individuals with disabilities are less likely to have either of those (Lamb & Chatoor, 2019). These equity gaps in work characteristics collectively compound issues of health that individuals with disabilities identify as being important in their early career decisions. Work and health are intrinsically linked for many individuals with disabilities as they enter the labour market, and this must be integrated into support systems for the school to work transition.

While undoubtedly a factor, PSE institutions alone cannot remedy these gaps in labour market outcomes. However, because these inequities manifest right out of school, supporting students

[2] Out of the workforce refers to non-retired individuals who are not actively employed or have stopped looking for work.

as they begin their careers is essential if we wish to close these gaps.[3] This is important because earnings early in an individual's career strongly influence lifetime earnings (Chatoor et al., 2019). We acknowledge that the COVID-19 pandemic has created new challenges for institutions in their efforts to support students with disabilities. As Pichette et al. (2020) revealed, the COVID-19 pandemic has made services for students with disabilities more important while simultaneously making them harder to access because of the rapid transition to online systems.

PSE institutions can and should support students with disabilities in transitioning to the workforce during the often rocky first few years after graduation. To do this, they could promote universal systems of learning, increase awareness and participation in existing transition programs, or creating new access-related programs to connect students to employers. With current disruptions to the labor market occurring simultaneously in the form of technological transformation, automation and economic instability, meaningfully addressing this issue with grounded solutions is as pertinent as ever.

Gaps in Labour Market Outcomes for PSE Graduates with Disabilities Remain Across the Broader Ontario Population

Even long after graduation, and if we control for factors such as age, education and sociodemographic factors, Ontario PSE graduates with disabilities experience labour market outcomes that are less favorable across most measures. Notably, the inclusion of demographic and economic factors such as age and credential type in our statistical models did not substantially change the size of the effect of disability on labour market outcomes. In fact, none of the factors we controlled for substantially altered the size of effects observed for the presence of a disability. These measures include likelihood of being a low-income earner, the presence of health benefits, pensions and paid sick leave.

In terms of disability type, our analysis shows that individuals with mental health, learning and physical disabilities experience particularly unfavorable outcomes in many labour market measures. For example, individuals with learning, mental health and physical disabilities are more likely to be low-income earners compared to those without disabilities by about 15% after adjusting for socioeconomic and sociodemographic factors. Interestingly, the differences in outcomes are consistently less pronounced or non-significant for individuals with hearing and vision disabilities: we reiterate, disability type matters. Our analysis shows that major equity gaps exist right after graduation and persist even after decades in the workforce, demonstrating the lifelong impact of this issue.

Gaps in Well-being for Students with Disabilities Remain Across the Broader Ontario Population

We chose to conduct analyses on perceptions and attitudes towards life because many studies — including a 2014 HEQCO report — demonstrate that the value of a PSE credential goes beyond income (DeClou, 2014). A PSE credential is associated with attributes such as higher civic engagement, better health, lower stress, and a greater optimism towards the future and one's own life. Our analysis shows that this is not necessarily the case for students with disabilities even if they complete a PSE credential. PSE graduates of all disability types are less

[3] We note that many PSE institutions have partnerships and programs in place to support graduates' transition to the labour market. One example is the READ Initiative at Carleton University (Research, Education, Accessibility and Design. This initiative at Carleton University involves improving awareness through the #AbleTo initiative, whose stated goal is to "close the employment gap."

likely to feel optimistic or hopeful about the future, with health emerging as a major source of stress. We see gaps in the context of observed labour market outcomes, health-related benefits and paid sick leave. Students with disabilities are not experiencing the same benefits associated with a PSE credential in terms of either concrete measures, like income, or measures of wellness and well-being, such as hopefulness and lower stress. This evidence suggests both PSE institutions and employers can be doing much more to support Ontarians with disabilities.

Data Affects Our Perception of Disability in Canadian Policy

When researching individuals with disabilities in Canada, certain data gaps become apparent. The Canadian Survey of Disability (CSD) addresses the capacity to control for disability severity, and Statistics Canada has worked to modify and improve their Disabilities Screening Questions, but other surveys commonly used for economic and education policy, including the Canadian Census and the NGS, do not provide the level of detail present in the CSD.[4] In addition, access to the CSD is limited compared to other data sets that may be used by non-academic or government organizations. It is worth noting that due to COVID-19, the CSD is not accessible for more complex analyses so we were unable to control for severity of disability. Our constraints in this project highlight how long-term disruptions can affect policy research if data is inaccessible.

The wording of questions related to disability also varies significantly between surveys. This makes it difficult to impose a standardized and replicable approach to assessing issues of equity for individuals with disabilities in Canada. Our report clearly shows that we must be able to differentiate the types of disabilities to meaningfully understand the supports students need. Broad "umbrella" variables that ask for a general self-identification of a disability are insufficient. Statistics Canada has developed a 'short' version of the DSQ, which may make the inclusion of these questions in other surveys more common in the future. We reiterate that making this data accessible is important for continued research on this issue.

Another issue for consideration is socioeconomic barriers to medical diagnosis of disabilities that could have downstream effects on data analyses and subsequent policy development (Sareen et al., 2007). For example, in Ontario, neither assessment nor treatment of disabilities is covered by the Ontario Health Insurance Program. These assessments and subsequent treatments can be costly, which creates an equity issue. Many cognitive or mental health disabilities are more likely to first manifest at an age when individuals traditionally attend PSE, which could complicate analyses of mental health for this population (Kessler et al., 2007).

Access to good and consistent data is an important policy challenge, as well as a possible solution. All of this supports our recommendation that data collection, especially for surveys such as the Census and the Labour Force Survey, should consistently include Statistics Canada's DSQ. Better data would enable researchers to take an intersectional approach and conduct the useful, relevant and replicable analyses necessary to inform development of high-impact policy solutions. There is justified sensitivity around data collection for vulnerable groups, and while there may not be one solution that fully and appropriately addresses all of these issues, we believe addressing this data gap is imperative.

[4] Statistics Canada has shown that severity of disabilities can impact credential attainment, and that individuals who identified as having severe disabilities were less likely than individuals with mild or moderate disabilities to pursue a PSE credential, especially credentials at the bachelor's level or above (Statistics Canada, 2017).

Conclusion

The research findings presented in this report shed light on the experiences of students with disabilities in Ontario and reveal important areas for improvement. Students with disabilities are less likely to attain a PSE credential, more likely to attend PSE part time, and more likely to take a leave of absence from their studies. After graduation, individuals with disabilities are more likely to say they feel overqualified for their job and are less likely to work in jobs with benefits. PSE graduates with disabilities are also more likely to experience unemployment and be low-income earners than graduates without disabilities. These gaps in labour market outcomes emerge immediately after graduation and persist throughout an individual's career.

The data used for this analysis was collected long before the COVID-19 pandemic, which we know has significantly impacted PSE. Early indications from Statistics Canada show that the pandemic has caused widespread and serious disruption to all students' learning (Doreleyers & Knighton, 2020). It remains to be seen how COVID-19 will affect this cohort of students over the long term, particularly those with disabilities, but there is particular urgency to our recommendation about the need for good, consistent data collection to inform impactful policy solutions.

References

Black, D. R., Weinberg, L. A., & Baldwin, M. G. (2015). *Universal Design for Learning and Instruction: Perspectives of Students with Disabilities in Higher Education.* Exceptionality Education International.

CAST (2018). Universal Design for Learning Guidelines version 2.2.http://udlguidelines.cast.org

Chatoor, K., MacKay, E., & Hudak, L. (2019). *Parental Education and Postsecondary Attainment: Does the Apple Fall Far from the Tree?* Toronto: Higher Education Quality Council of Ontario.

Council of Ontario Universities (2017*). In it Together: Taking Action on Student Mental Health*. https://cou.ca/wp-content/uploads/2017/11/In-It-Together-PSE-Mental-Health-Action-Plan.pdf

Dean, T., Lee-Post, A., & Hapke, H. (2017). Universal Design for Learning in Teaching Large Lecture Classes*. Journal of Marketing Education, 39*(1), 5–16*.*

DeClou, L. (2014). *Social Returns: Assessing the Benefits of Higher Education.* Toronto: Higher Education Quality Council of Ontario.

Doreleyers, A. & Knighton, T. (2020). *COVID-19 Pandemic*: *Academic impacts on postsecondary students in Canada.* Statistics Canada Catalogue no. 45280001. Version 14 May 2020. Ottawa. https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00015-eng.htm

Government of Canada (2021). *Canada Student Grant for Services and Equipment for Students with Permanent Disabilities*. Ottawa: Government of Canada. https://www.canada.ca/en/services/benefits/education/student-aid/grants-loans/disabilities-service-equipment.html

Government of Ontario. (1990). *Education Act R.S.O. 1990, c. E.2.* https://www.ontario.ca/laws/statute/90e02

Government of Ontario. (2005). *Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c. 11.* https://www.ontario.ca/laws/statute/05a11

Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustün, T. B. (2007). Age of Onset of Mental Disorders: A Review of Recent Literature. *Current opinion in psychiatry, 20*(4), 359–364.

Lamb, D. & Chatoor, K. (2019). *Great Divide or Small Fissure? A Comparison of Skills, Education and Earnings across Standard and Non-standard Workers*. Toronto: Higher Education Quality Council of Ontario.

Marquis, E., Schormans, A. F., Jung, B., Vietinghoff, C., Wilton, R., & Baptiste, S. (2016). Charting the Landscape of Accessible Education for Post-secondary Students with Disabilities. *Canadian Journal of Disability Studies, 5*(2), 31–71.

Ministry of Children, Community and Social Services (2018). *Ontario Disability Support Program – Income Support*. Toronto: Queen's Printer for Ontario. https://www.mcss.gov.on.ca/en/mcss/programs/social/directives/odsp/is/5_11_ODSP_ISDirectives.aspx

Ministry of Education. (2011). *Memorandum*: *Categories of Exceptionalities.* Toronto*:* Ministry of Education. http://www.edu.gov.on.ca/eng/general/elemsec/speced/2011CategoryException.pdf

Ministry of Education (2017a). *The Identification, Placement, and Review* Committee. Toronto: Ministry of Education. http://www.edu.gov.on.ca/eng/general/elemsec/speced/identifi.html

Ministry of Education. (2017b). *Special Education in Ontario (Draft Version, 2017) PART E: The Individual Education Plan (IEP).* Toronto: Ministry of Education. http://www.edu.gov.on.ca/eng/document/policy/os/2017/spec_ed_content.html

Ministry of Education. (2017c). *An Introduction to Special Education in* Ontario. Toronto: Ministry of Education. http://www.edu.gov.on.ca/eng/general/elemsec/speced/ontario.html

Morris, S., Fawcett, G., Brisebois, L. & Hughes, J. (2018). *Canadian Survey on Disability: A Demographic, Employment and Income Profile of Canadians with Disabilities Aged 15 Years and Over, 2017*. Ottawa: Statistics Canada.

National Educational Association of Disabled Students. (2019) *Government of Ontario Funding for Students with Disabilities*. https://www.disabilityawards.ca/government-of-ontario-funding-for-students-with-disabilities/

Ontario College Health Association. (2009). *Towards a Comprehensive Mental Health Strategy: The Crucial Role of Colleges and Universities as Partners*. http://www.oucha.ca/pdf/mental_health/2009_12_OUCHA_Mental_Health_Report.pdf

Ontario Human Rights Commission. (no date). *The opportunity to succeed achieving barrier-free education for students with disabilities consultation report.* Toronto: Ontario Human Rights Commission. http://www.ohrc.on.ca/en/opportunity-succeed-achieving-barrier-free-education-students-disabilities/post-secondary-education

OSAP. (2020). *Bursary for Students with Disabilities (BSWD) and Canada Student Grant for Services and Equipment for Students with Permanent Disabilities (CSG-PDSE)*. Toronto: Queen's Printer for Ontario. https://osap.gov.on.ca/OSAPPortal/en/A-ZListofAid/PRDR019233.html

Pichette, J., Brumwell, S. & Rizk, J. (2020). *Improving the Accessibility of Remote Higher Education: Lessons from the pandemic and recommendations.* Toronto: Higher Education Quality Council of Ontario.

Sareen, J., Jagdeo, A., Cox, B.J., Clara, I., Have, M.T., Belik, S., de Graff., R. & Stein, M.B. (2007). Perceived Barriers to Mental Health Service Utilization in the United States, Ontario, and the Netherlands*. Psychiatric Services, 58*(3), 357–364.

Statistics Canada. (2017). *General Social Survey: Canadians at Work and Home (GSS)*. Ottawa: Statistics Canada.

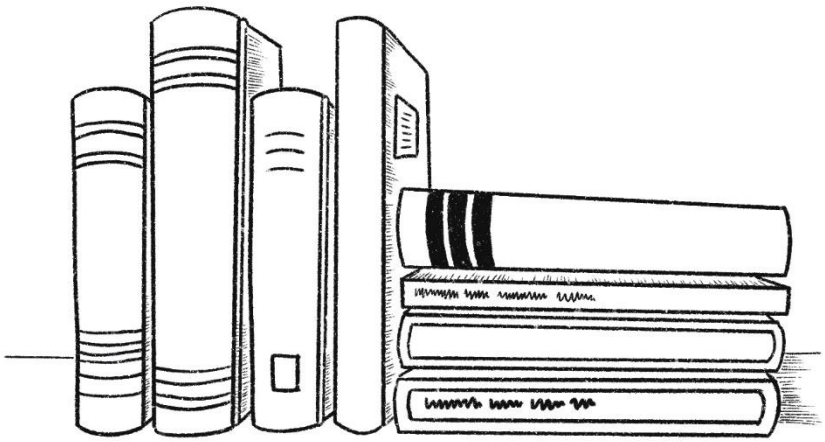
https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5221

Statistics Canada. (2014). *National Graduates Survey (NGS)*. Ottawa: Statistics Canada. https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&Id=122604

Statistics Canada. (2017). *Canadian Survey on Disability, 2017*. Ottawa: Statistics Canada. https://www150.statcan.gc.ca/n1/daily-quotidien/181128/dq181128a-cansim-eng.htm

Transition Resource Guide for Students with Disabilities. (2020). *Accessibility* Services. https://www.transitionresourceguide.ca/resources/accessibility-services

Versaevel, L. N. (2014). *Canadian Post-Secondary Students, Stress, and Academic Performance – A Socio-Ecological Approach*. Electronic Thesis and Dissertation Repository. 2657. https://ir.lib.uwo.ca/etd/2657



Postsecondary credential attainment and labour market outcomes for Ontario students with disabilities

Regression Models

In Table 1 the dependent variable is “Presence of a PSE credential” which is coded as “No PSE credential” (0) and “PSE credential” (1). Each column represents an independently run model.

Table 1: Logistic Regression Output for Presence of a PSE Credential Among Ontarians by Disability Type, GSS, Ontario, (N=3,100)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**-19.5%**	**-9.0**	**-12.3%**	-3.7	-5.0
		***(0.000)**	***(0.001)**	***(0.000)**	(0.491)	(0.281)
Female		**5.3%**	**5.7%**	**4.7%**	**5.1%**	**5.6%**
		***(0.008)**	***(0.004)**	***(0.040)**	***(0.011)**	***(0.005)**
Rural		**-7.8%**	**-7.8%**	**-9.0%**	**-7.5%**	**-7.7%**
		***(0.013)**	***(0.013)**	***(0.014)**	***(0.019)**	***(0.015)**
Immigrant		**6.2%**	**5.9%**	**7.9%**	**6.4%**	**6.4%**
		***(0.040)**	***(0.049)**	***(0.023)**	***(0.034)**	***(0.032)**
Visible Minority		1.7%	1.8%	1.7%	2.2%	2.7%
		(0.639)	(0.621)	(0.686)	(0.546)	(0.452)
Age Group	35-54 Years Old	3.0%	2.4%	-0.3%	3.0%	2.9 %
		(0.253)	(0.358)	(0.912)	(0.264)	(0.280)
	55-64 Years Old	**-11.2%**	**-11.5%**	**-10.0%**	**-10.5%**	**-10.7 %**
		***(0.000)**	***(0.000)**	***(0.004)**	**(0.001)**	***(0.001)**

* Significant at the 5% level (p<0.05)
Source: GSS (2016)

In Table 2 the dependent variable is “Part-time status,” which is coded as “full time” (0) and “part time” (1).

Table 2: Logistic Regression Output for Part-time Status, NGS, Ontario (N=3,200)

PSE Credential Type	Average Marginal Effects (%)
	(p value)
Presence of a Disability	4.3%
	(0.074)
Female	1.6%
	(0.194)
First-generation	**5.9%**
	***(0.000)**
Visible Minority	1.3%
	(0.301)
^Bachelor’s and Post-bachelor’s	**2.3%**
	***(0.000)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is college or trade credential
Source: NGS (2013)

In Table 3 the dependent variable is “Leave of absence” which is coded as “Student did not take a leave of absence during program” (0) and “Student took a leave of absence during study” (1).

Table 3: Logistic Regression Output for Leave of Absence, NGS, Ontario (N=3,200)

PSE Credential Type	Average Marginal Effects (%)
	(p value)
Presence of a Disability	**5.7%**
	***(0.000)**
Female	-0.8%
	(0.194)
First-generation	1.7%
	(0.076)
Visible Minority	0.7%
	(0.457)
^Bachelor’s and Post-bachelor’s	0.7%
	(0.109)

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is college or trade credential
Source: NGS (2013)

In Table 4 the dependent variable is “Graduate feels [attitude toward job]” which is coded as “Does not feel [attitude towards Job]” (0) and “Does feel [attitude towards job]” (1). Each column represents an independently run model.

Table 4: Logistic Regression Output for Recent Graduates’ Feelings About Job After Graduation, NGS, Ontario, (N=2,600)

Recent Graduate Feels…	Overqualified for job	Has skills for job	Work is related to school	Satisfied with job	Satisfied with pay
Model Factor	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of a Disability	**15.1%** ***(0.000)**	0.1% (0.768)	-6.2% (0.075)	-4.3% (0.057)	-6.6%% (0.068)
Female	0.8% (0.679)	**-4.6%** ***(0.000)**	-1.8% (0.281)	0.4% (0.705)	-1.9% (0.254)
Visible Minority	**7.1%** ***(0.001)**	2.7% (0.069)	1.0% (0.587)	**-3.4%** ***(0.006)**	**-6.7%** ***(0.000)**
First-generation	3.5% (0.102)	1.5% (0.967)	-1.2% (0.514)	1.5% (0.257)	-0.4% (0.819)
^Bachelor’s and Post-bachelor’s	**-5.3%** ***(0.002)**	**-1.5%** ***(0.015)**	**7.0%** ***(0.000)**	**2.0%** ***(0.066)**	**4.9%** ***(0.002)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is college or trade credential
Source: NGS (2013)

In Table 5 the dependent variable is “Presence of [benefit]” which is coded as “Does not have [benefit]” (0) and “Does have [benefit]” (1). No benefits is coded as “Has benefits” (0) and “Has No Benefits” (1). Each column represents an independently run model.

Table 5: Logistic Regression Output for Job Characteristics, NGS, Ontario, (N=2,500)

Job Market Characteristic	Extended Health Benefits	Dental Benefits	Retirement Benefits	Paid Vacation	Paid Sick Leave	No Benefits
Model Factor	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of a Disability	**-16.0%**	**-14.5%**	**-13.3%**	**-7.8%**	**-14.0%%**	**9.5%**
	***(0.000)**	***(0.000)**	***(0.005)**	***(0.043)**	***(0.001)**	***(0.001)**
Female	**-5.3%**	**-5.4%**	0.3%	-3.2%	-7.1%	2.8%
	***(0.004)**	***(0.004)**	(0.871)	(0.078)	(0.135)	(0.650)
Visible Minority	**5.2%**	4.1%	3.1%	**6.6%**	-1.1%	-3.9%
	***(0.013)**	(0.052)	(0.171)	***(0.001)**	(0.074)	(0.29)
First-generation	1.3%	1.4%	3.4%	0.4%	1.4%	0.3%
	(0.552)	(0.508)	(0.143)	(0.834)	(0.952)	(0.853)
Bachelor’s and Post-bachelor’s^	**11.4%**	**11.1%**	**15.3%**	**4.7%**	**12.3%**	**-4.7%**
	***(0.000)**	***(0.000)**	***(0.000)**	***(0.004)**	***(0.000)**	***(0.001)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is college or trade credential
Source: NGS (2013)

In Table 6 the dependent variable is “Unemployment rate” which is coded as “employed” (0) and “unemployed” (1).

Table 6: Logistic Regression Output for Unemployment Status, NGS, Ontario (N=3,200)

Unemployed	Average Marginal Effects (%)
	(p value)
Presence of a Disability	**6.8%**
	***(0.000)**
Female	-1.0 %
	(0.283)
First-generation	0.2%
	(0.816)
Visible Minority	**4.2%**
	***(0.000)**
^Bachelor’s and Post-bachelor’s	-1.0 %
	(0.206)

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is college or trade credential
Source: NGS (2013)

In Table 7 the dependent variable is “Took a different job because of health” which is coded as “Did not take a different job because of health” (0) and “Did take a different job because of health” (1).

Table 7: Logistic regression output for taking a different job due to health, NGS, Ontario (N=3,200)

Took a Different Job Because of Health	Average Marginal Effects (%)
	(p value)
Presence of a Disability	**15.1%**
	***(0.002)**
Female	-1.6%
	(0.543)
First-generation	0.4%
	*(0.882)
Visible Minority	-3.3%
	(0.287)
^Bachelor’s and Post-bachelor’s	**7.2%**
	***(0.014)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is College or Trade Credential
Source: NGS (2013)

In Table 8 the dependent variable is “Low-income status” which is coded as “Is not low income” (0) and “Is low income” (1). Each column represents an independently run model.

Table 8: Logistic Regression Output for Low-income Status, Ontario (N=3,100)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**15.1**	**16.3%**	**13.8%**	7.9%	0.5%
		***(0.000)**	***(0.000)**	***(0.000)**	(0.151)	(0.903)
^PSE Credential Type	College	**-13.8%**	**-13.5%**	**-12.1%**	**-14.2%**	**-14.1%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
	Bachelor’s and Post-bachelor’s	**-18.4%**	**-18.2%**	**-16.9%**	**-19.4%**	**-19.3%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
Female		**11.9%**	**11.1%**	**12.4%**	**12.0%**	**12.0%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
Rural		-1.7%	-1.7%	-1.8%	-1.3%	-1.6%
		(0.708)	(0.630)	(0.652)	(0.708)	(0.645)
Immigrant		**5.8%**	**6.2%**	5.9%	**5.7%**	**5.8%**
		***(0.043)**	***(0.029)**	(0.055)	***(0.043)**	***(0.039)**
Visible Minority		0.6%	1.7%	2.3%	0.5%	-0.1%
		(0.874)	(0.575)	(0.473)	(0.874)	(0.957)
Age Group	35–54 Years Old	**-24.1%**	**-23.1%**	**-21.2%**	**-24.1%**	**-24.1%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
	55–64 Years Old	**-16.5%**	**-15.5%**	**-14.4%**	**-17.2%**	**-16.8%**
		***(0.000)**	***(0.000)**	***(0.001)**	***(0.000)**	***(0.000)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is individuals with no high school credential or a high school credential
Source: GSS (2016)

In Table 9 the dependent variable is “Presence of paid work” which is coded as “Does not have paid work” (0) and “Does have paid work” (1). Each column represents an independently run model.

Table 9: Logistic Regression Output for Presence of Paid Work, Ontario (N=2,900)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**-19.7**	**-17.0%**	**-17.5%**	-7.2%	-4.8%
		***(0.000)**	***(0.000)**	***(0.000)**	(0.074)	(0.128)
^PSE Credential Type	College	**5.6%**	**5.7%**	2.8%	**7.0%**	**7.0%**
		***(0.018)**	***(0.017)**	(0.313)	***(0.004)**	***(0.003)**
	Bachelor’s and Post-bachelor’s	**10.6%**	**10.9%**	**9.9%**	**12.9%**	**12.8%**
		***(0.000)**	***(0.000)**	***(0.001)**	***(0.000)**	***(0.000)**
Female		**-9.8%**	**-8.9%**	**-10.0%**	**-9.8%**	**-9.7%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
Rural		-0.7%	-0.9%	-1.6%	-0.5%	-0.5%
		(0.836)	(0.786)	(0.657)	(0.865)	(0.884)
Immigrant		-3.8%	-4.5%	-3.3%	-3.5%	-3.7%
		(0.102)	(0.055)	(0.268)	(0.133)	(0.115)
Visible Minority		-2.0%	-3.3%	-3/8%	-1.5%	-1.4%
		(0.436)	(0.189)	(0.224)	(0.568)	(0.594)
Age Group	35–54 Years Old	0.6%	-0.9%	1.2%	0.2%	-0.2%
		(0.788)	(0.652)	(0.646)	(0.904)	(0.939)
	55–64 Years Old	**-5.6%**	**-7.0%**	-2.1%	-4.7%	-4.9%
		***(0.031)**	***(0.005)**	(0.512)	(0.062)	(0.059)

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is individuals with no high school credential or a high school credential
Source: GSS (2016)

In Table 10 the dependent variable is “Respondent is hopeful about the future” which is coded as “Respondent is not hopeful” (0), and “Respondent is hopeful” (1). Each column represents an independently run model.

Table 10: Logistic Regression Output for Hopefulness, Ontario (N=3,100)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**-23.0**	**-27.0%**	**-12.1%**	**-16.9%**	**-21.4**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**
^PSE Credential Type	College	**7.3%**	**7.3%**	**7.3%**	**8.6%**	**8.8%**
		***(0.005)**	***(0.004)**	***(0.015)**	***(0.001)**	***(0.001)**
	Bachelor’s and Post-bachelor’s	**9.5%**	**9.7%**	**8.9%**	**11.8%**	**11.3%**
		***(0.000)**	***(0.000)**	***(0.004)**	***(0.000)**	***(0.000)**
Female		2.7%	**4.0%**	0.1%	2.7%	3.4%
		(0.152)	***(0.039)**	(0.944)	(0.163)	(0.071)
Rural		**7.9%**	**7.5%**	**8.1%**	**7.6%**	**7.6%**
		***(0.012)**	***(0.017)**	***(0.033)**	***(0.021)**	***(0.017)**
Immigrant		-3.2%	-3.4%	-1.1%	-3.0%	-3.0%
		(0.237)	(0.209)	(0.707)	(0.265)	(0.258)
Visible Minority		**6.6%**	4.1%	5.1%	**7.0%**	**7.7%**
		***(0.027)**	(0.156)	(0.101)	***(0.018)**	***(0.010)**
Age Group	35–54 Years Old	-1.5%	-2.9%	-2.7%	-1.6%	-1.5%
		(0.529)	(0.222)	(0.335)	(0.519)	(0.534)
	55–64 Years Old	-1.1%	-2.3%	1.7%	0.2%	0.2%
		(0.696)	(0.377)	(0.600)	(0.935)	(0.938)

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is individuals with no high school credential or a high school credential
Source: GSS (2016)

In Table 11 the dependent variable is “Presence of high stress” which is coded as “Does not have high stress” (0) and “Does have high stress” (1). Each column represents an independently run model.

Table 11: Logistic Regression Output for High Stress, Ontario (N=3,100)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**20.5%**	**22.8%**	**12.3%**	**10.3%**	**13.7%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.007)**	***(0.000)**
^PSE Credential Type	College	-1.1%	-1.2%	-1.0%	-1.9%	-2.0%
		(0.624)	(0.581)	(0.706)	(0.393)	(0.377)
	Bachelor’s and Post-bachelor’s	3.7%	3.6%	3.1%	1.9%	2.3%
		(0.119)	(0.114)	(0.277)	(0.422)	(0.335)
Female		2.5%	1.1 %	3.1%	2.8%	2.2%
		(0.166)	(0.543)	(0.141)	(0.108)	(0.228)
Rural		-4.3%	-4.4%	-4.2%	-3.8%	-3.9%
		(0.166)	(0.139)	(0.240)	(0.215)	(0.202)
Immigrant		-0.6%	-0.5%	-1.4%	-0.9%	-0.7%
		(0.786)	(0.838)	(0.639)	(0.720)	(0.769)
Visible Minority		**-6.0%**	-4.1%	**-6.3%**	**-6.3%**	**-7.0%**
		***(0.037)**	(0.150)	**(0.072)**	***(0.031)**	***(0.017)**
Age Group	35–54 Years Old	**6.4%**	**7.3%**	**6.3%**	**6.3%**	**6.4%**
		***(0.005)**	***(0.001)**	***(0.022)**	***(0.007)**	***(0.006)**
	55–64 Years Old	3.8%	4.5%	0.5%	2.7%	2.8%
		(0.137)	(0.065)	(0.872)	(0.271)	(0.265)

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is individuals with no high school credential or a high school credential
Source: GSS (2016)

In Table 12 the dependent variable is “Health as a primary source of stress” which is coded as “Health is not a primary source of stress” (0) and “Health is a Primary source of stress” (1). Each column represents an independently run model.

Table 12: Logistic Regression Output for Health as a Primary Source of Stress, Ontario (N=3,100)

Disability Type		Learning Disability	Mental Health Disability	Physical Disability	Hearing Disability	Vision Disability
Model Factor		Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)	Average Marginal Effects (%) (p value)
Presence of Disability		**8.7%**	**7.3%**	**8.7%**	2.8%	**3.9%**
		***(0.000)**	***(0.000)**	***(0.000)**	(0.117)	***(0.008)**
^PSE Credential Type	College	-1.4%	-1.6%	-0.2%	-1.8%	-1.8%
		(0.249)	(0.194)	(0.871)	(0.176)	(0.181)
	Bachelor’s and Post-bachelor’s	**-2.9%**	**-3.3%**	-2.5%	**-3.7%**	**-3.7%**
		***(0.024)**	***(0.010)**	(0.134)	***(0.005)**	***(0.006)**
Female		0.9%	0.5%	0.0%	0.8%	0.8%
		(0.318)	(0.580)	(0.980)	(0.362)	(0.408)
Rural		0.4%	0.8%	1.0%	0.1%	0.3%
		(0.759)	(0.721)	(0.583)	(0.897)	(0.862)
Immigrant		0.0%	0.9%	0.3%	0.3%	0.1%
		(0.643)	(0.402)	(0.792)	(0.744)	(0.616)
Visible Minority		0.3%	0.9%	1.3%	0.2%	-0.0%
		(0.823)	(0.498)	(0.441)	(0.879)	(0.943)
Age Group	35–54 Years Old	**1.7%**	**1.9%**	2.1%	1.7%	**1.8%**
		***(0.042)**	***(0.021)**	(0.089)	(0.050)	***(0.035)**
	55–64 Years Old	**8.6%**	**8.7%**	**6.9%**	**7.8%**	**7.9%**
		***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**	***(0.000)**

* Significant at the 5% level (p<0.05)
^ The reference category for this variable is individuals with no high school credential or a high school credential
Source: GSS (2016)