



The impact of COVID-19 on eating disorders among Canadian youths

Children's Hospital of Eastern Ontario Research Institute

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Contents

Glossary	i
Executive summary	ii
1 Introduction	5
1.1 Background	5
1.2 Canadian system of care for eating disorders	5
1.3 The COVID-19 pandemic in Canada and impact on eating disorders	6
1.3.1 Canada’s response to COVID-19 pandemic	6
1.3.2 Impact of the COVID-19 on Canada’s healthcare services	7
1.3.3 Early evidence of the impact of the COVID-19 pandemic on eating disorders	7
1.3.4 Prevalence and the COVID-19 pandemic	8
1.4 The economic burden of eating disorders	9
1.5 Structure of this report	9
2 Methodology	10
2.1 Project aim	10
2.2 Analytical framework	10
2.2.2 How has the COVID-19 pandemic impacted need for health system services?	11
2.2.3 Have the care delivery pathways for children and youth with eating disorders changed?	12
2.2.4 What was the change in the economic cost to the Canadian health system and to children and youth with eating disorders?	12
2.2.5 Limitations and interpretation of results	13
3 The impact of COVID-19 on eating disorders	15
3.1 How has the COVID-19 pandemic impacted need for health system services among Canadian children and youth with eating disorders?	15
3.1.1 Increased inpatient hospitalisations	15
3.1.2 Increased emergency department presentations	16
3.1.3 Change in outpatient services	17
3.2 Have the care delivery pathways for children and young people with eating disorders changed due to the COVID-19 pandemic?	18
3.2.1 Reduced length of stay	18
3.2.2 Transition to virtual outpatient services	20
3.2.3 Changes to wait times for specialist eating disorder programs	21
3.3 What was the incremental economic cost impact to the Canadian health system for children and youth living with eating disorders?	22
3.3.1 Canadian health system	22
3.3.2 Individuals’ loss of wellbeing	22
3.3.3 Total incremental cost impact of the COVID-19 pandemic on children and youth with eating disorders	23
4 Future opportunities	25
Understanding the population with undiagnosed and untreated eating disorders.	25
Quantifying the broader economic costs of eating disorders.	25
The implications of reduced length of stay on patient outcomes are unknown.	25
Further research on the impact of elevated wait times for eating disorder treatment.	25
The effectiveness of virtual appointments for managing eating disorders is not yet fully understood.	26
Elevated incidence rate and future pressure on the health system service delivery.	26

Appendix A	Data requirements and limitations	27
	A.1. Data request	27
	A.2. Coverage and quality of data received	27
	A.3. Methods used to extrapolate on actual data	29
	A.4. Analysis limitations	29
Endnotes		30
Limitation of our work		39
	General use restriction	39

Charts

Chart i : Increase in health system and wellbeing costs pre and during COVID-19 pandemic (\$ millions)	iii
Chart 3.1 : Number of inpatient hospitalisations for eating disorders, 2019-22	16
Chart 3.2 : Number of emergency department presentations for eating disorders, 2019-22	17
Chart 3.3 : Number of outpatient services for eating disorders, 2019-22	18
Chart 3.4 : Average length of stay for inpatient hospital visits for eating disorders, 2019-22	19
Chart 3.5 : Total days in hospital for eating disorders (days), 2019-22	20
Chart 3.6 : Outpatient services for eating disorders, in-person vs virtual, 2019-22	21
Chart 3.7 : Total incremental cost of COVID-19 impacts on children and youth with eating disorders, FY21- FY22 (\$ million)	24

Tables

Table 1.1 : Specialised services for eating disorders in Canada	6
Table 1.2 : Psychological and environmental impacts of the COVID-19 pandemic	8
Table 2.1 : Estimated unit cost for Canadian Health system utilisation	12
Table 2.2 : Eating disorder disability weights	13
Table 3.1 : Number of inpatient hospitalisations for eating disorders	15
Table 3.2 : Number of emergency department presentations for eating disorders	16
Table 3.3 : Utilisation of outpatient services for eating disorders	17
Table 3.4 : Length of stay in days	19
Table 3.5 : Total days in hospital	19
Table 3.6 : Outpatient services, in-person vs virtual	21
Table 3.7 : Median wait time, GP to specialist (weeks)	22
Table 3.8 : Economic cost of youth eating disorders to Canadian health system (\$ millions)	22
Table 3.9 : Total and incremental wellbeing costs of waiting for eating disorders treatment (\$ millions)	23
Table 3.10 Total cost of waiting for eating disorder treatment, by province (\$ millions)	23
Table A.1 : Data availability by visit type	27
Table A.2 : Proportion of available (i.e., not suppressed) data ≠ 0 by visit type and diagnostic group	28
Table A.3 : Proportion of available (i.e., not suppressed) data ≠ 0 by visit type and province	28
Table A.4 : Distribution of available data by age and sex	28

Figures

Figure i : Change in health system utilisation pre and during COVID-19 pandemic..... ii
Figure 2.1 : Modelling framework..... 11

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Glossary

Acronym	Full name
AB	Alberta
AN	Anorexia nervosa
AAN	Atypical anorexia nervosa
ARFID	Avoidant / restrictive food intake disorder
BC	British Columbia
BED	Binge eating disorder
BN	Bulimia nervosa
CIHI	Canadian Institute for Health Information
COVID-19	Coronavirus 2019
DAD	Discharge Abstract Database
DALYs	Disability adjusted life years
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
FY	Financial year
FBT	Family Based Therapy
GP	General Practitioner
G7	Group of Seven
HMDB	Hospital Morbidity Database
HR	Hazard risk
IHME	Institute for Health Metrics and Evaluation
2SLGBTQIA+	Two-Spirit, lesbian, gay, bisexual, transgender, queer, intersex, asexual, plus
LOS	Length of stay
MB	Manitoba
NACRS	National Ambulatory Care Reporting System
NB	New Brunswick
NL	Newfoundland
NS	Nova Scotia
ON	Ontario
OMHRS	Ontario Mental Health Reporting System
OSFED/UFED	Other specified feeding or eating disorders / unspecified feeding or eating disorders
PE	Prince Edward Island
QC	Quebec
RR	Relative risk
SK	Saskatchewan
US	United States
VSLY	Value of a statistical life year

Executive summary

The restrictions associated with the COVID-19 pandemic led to an increase in the number of new cases and healthcare needs for eating disorders among children and youth in Canada. Higher incidence and more severe symptoms resulted in an increase of 21% in health system and wellbeing costs pre and during the COVID-19 pandemic. It is believed that this represents only a small subset of the entire cost of eating disorders. The impacts of the pandemic on healthcare needs are likely to persist over time, requiring the health system to plan and adapt.

Eating disorders are serious psychiatric illnesses characterised by severe and persistent disturbances in eating behaviours.¹ Despite the serious health complications, only 20% of young people living with an eating disorder seek treatment.²

The COVID-19 pandemic increased financial stress, isolation and anxiety – factors known to contribute to the development of eating disorder symptoms such as body image concerns, food restriction and binge eating.³ The COVID-19 pandemic also created disruptions to public health responses through lockdowns and other social restrictions, which may have impacted the ability for people with eating disorder symptoms to seek help.

The impact of the COVID-19 pandemic on costs to young people with eating disorders and their families is not yet well understood. As part of a larger study, the Children’s Hospital of Eastern Ontario Research Institute (CHEO RI) engaged Deloitte Access Economics to study the costs of the COVID-19 pandemic on children and young people (defined as those aged 5 to 25 years) with eating disorders.

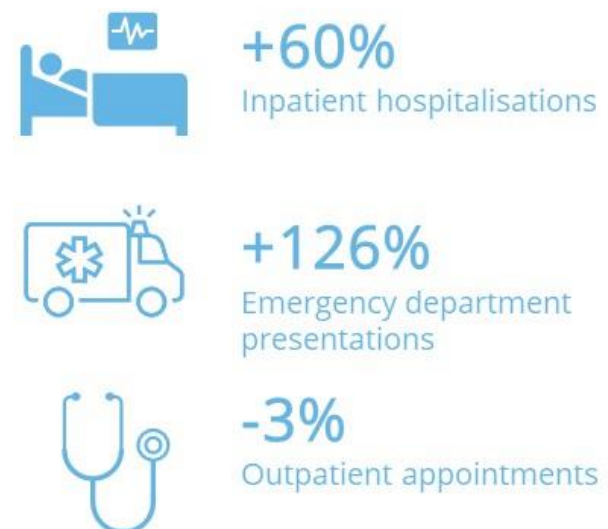
The analysis indicated that over the COVID-19 pandemic, there was greater use of healthcare services by young people living with eating disorders, an increase in virtual services being accessed, a tentative increase in wait times for accessing inpatient services since 2022, and a shift in need for more intensive health services.

Greater use of healthcare services, in particular inpatient admissions, and emergency department presentations, since the start of the COVID-19 pandemic

The COVID-19 pandemic led to heightened stress which has contributed to the development of eating disorders in young people.⁴ For example, the pandemic led to heightened stress and anxiety, school closures, increased use of social media, and restrictions on care, among others. Evidence suggests that these factors were associated with a general worsening of symptoms among young people living with an eating disorder, as well as more young people developing eating disorders.^{5,6,7,8}

This report considered the change in health system utilisation from the period immediately prior to the COVID-19 pandemic (FY20) to the periods during/after the COVID-19 pandemic (FY21 and FY22). The data analysed in this report shows that there was a 60% increase in inpatient hospitalisations from pre to during COVID-19 pandemic (Figure i). There was a 126% increase in emergency department presentations over the same period. Together, these increases indicate a greater number of children and youth accessing acute health care services for their eating disorders during the pandemic.

Figure i: Change in health system utilisation pre and during COVID-19 pandemic



Outpatient services transitioned from in-person to virtual delivery

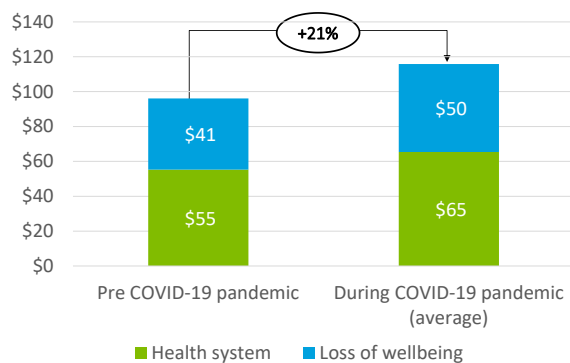
There has also been a shift towards virtual appointments from in-person since the start of the COVID-19 pandemic. Just 481 (or 0.3% of all) outpatient appointments for eating disorders in FY20 were virtual. This increased to 38% during

the pandemic. In FY21 and FY22, there were 51,963 and 58,974 virtual outpatient appointments respectively. The availability of virtual care delivery has been shown to improve help-seeking behaviours among some young people, with benefits such as anonymity, immediacy and ease of access all motivating factors to seek support.^{9,10,11} For these reasons, virtual care may be an important tool to tailor health services towards young people who may otherwise be unlikely to seek help. However, the effectiveness of virtual care at treating eating disorders relative to in-person care remains unclear. While early evidence suggests that the short-term clinical outcomes of virtual and in-person care are comparable,¹² some evidence suggests that the transition to online treatment during the pandemic adversely affected the quality of the care that patients received.^{13,14}

Greater demand, and use of more intensive health services by children and youth relating to eating disorders since the COVID-19 pandemic has increased costs to the health system and to individuals

Health system and wellbeing costs increased by 21% on average pre and during the COVID-19 pandemic. This totalled \$39.5 million in incremental costs over two years (Chart i). The largest contribution to the increase in costs was inpatient and emergency department services (\$20.2 million increase across both years). Importantly, this estimate reflects only the incremental impact of the COVID-19 pandemic and as such is only a small component of the total burden of eating disorders in Canada. Inpatient hospitalisations and emergency department presentations are typically only a small proportion of total burden of eating disorders; Australian estimates suggest less than 1% of the total burden of eating disorders is related to inpatient hospitalisations and emergency department costs.¹⁵ Instead, the majority of the economic burden of eating disorders relates to wellbeing and productivity losses experienced by individuals.

Chart i: Increase in health system and wellbeing costs pre and during COVID-19 pandemic (\$ millions)



Source: Deloitte Access Economics analysis.

Future opportunities

Based on this analysis, there are several key areas for future research to better understand the impact of the COVID-19 pandemic on children and youth with eating disorders in Canada. These areas include the impact on those who have not sought treatment, the ongoing impacts, and the full impact beyond direct health system costs.

Little is known about the impact of the COVID-19 pandemic on those who may have an eating disorder but are yet to seek treatment. Many people with eating disorders only seek treatment years after their symptoms first develop. Given the impacts of the pandemic, there may be a significant proportion of young people who have developed an eating disorder and are yet to seek treatment. Identifying and supporting these young people should be a priority to minimise the wellbeing impacts.

The COVID-19 pandemic will have resulted in costs beyond the health system such as educational, labour market, and other economic outcomes. While these costs were out of scope for this report, exploring these costs is possible through a cost of illness framework – with similar studies using this methodology already undertaken in the US, albeit prior to the pandemic.¹⁶

The implications of reduced length of stay on patient outcomes are unknown. Data received on length of stay suggested that the average length of inpatient admissions reduced from 30 days to 21 days across the observed period for children and youth with AN. The long-term effect of reduced length of stay on outcomes for children and youth is unclear, and the subsequent likelihood that a person will require future readmission to hospital is an area for further research.

Delayed treatment and elevated wait times may impact eating disorder treatment and outcomes. This report only focused on the impacts of children and youth waiting for intensive treatment delivered through an eating disorder program. Wait time delays may also impact children with recent onset eating disorder symptoms. Further research is needed to determine both the impact of delayed treatment on the duration and severity of eating disorders for these children, and the subsequent economic impact of these delays.

The effectiveness of virtual appointments for managing eating disorders is not yet fully understood. Prior to the COVID-19 pandemic, virtual appointments accounted for less than 1% of all appointments, with this increasing to approximately 30% during the COVID-19 pandemic. While the shift to virtual appointments does not necessarily indicate a reduced quality of care delivery, the effectiveness of these appointments is not fully known.

Elevated incidence may place future pressure on health system service delivery.

It is likely that elevated demand for health services will remain going forward – a function of both the continued stresses created by the COVID-19 pandemic and the impacts upon children and youth who are yet to seek treatment and (given that a substantial proportion may not recover) will continue to need care as an adolescent or adult. Ongoing monitoring of the impact of the COVID-19 pandemic is necessary to fully understand its impact on children and youth with eating disorders in Canada.

Deloitte Access Economics

1 Introduction

1.1 Background

Eating disorders are psychiatric disorders characterised by severe and persistent disturbances in eating behaviours.¹⁷ They may be accompanied by distorted body image, a pre-occupation with body weight and/or shape and frequent behaviours to control weight and/or shape, such as vomiting or excessive exercise.¹⁸ Point in time estimates of the number of Canadians with a diagnosed eating disorder range from approximately 1 to 2.9 million.^{19,20,21,22}

There are a range of different types of eating disorders. This report examines the eating disorders recorded in the Canadian Institute of Health Information (CIHI) data – anorexia nervosa (AN), bulimia nervosa (BN), binge-eating disorder (BED), avoidant / restrictive food intake disorder (ARFID), other specified feeding or eating disorders (OSFED), including atypical anorexia nervosa (AAN), and unspecified feeding or eating disorder (UFED).

Eating disorders have a host of serious physical and mental health impacts. They have among the highest mortality rate of any mental illness,²³ with estimates ranging between 10-15%.²⁴ People with AN are especially at risk – typically from heart failure, starvation, or suicide – with a standardised mortality rate of 5.35 times the general population.²⁵ Eating disorders can also increase the risk of a number of physical health conditions, including malnutrition, kidney and heart failure and osteoporosis.^{26,27} They are also strongly associated with other mental health conditions. The most prevalent psychiatric comorbidities for people with eating disorders are anxiety disorders, substance use disorder and post-traumatic stress disorder.^{28,29,30} Over five decades of literature has shown that eating disorders can be a chronic, persistent illness for some individuals. Fewer than half of adults with AN and BN recover; an additional one-third improve but remain symptomatic; and up to one fifth stay chronically ill.^{31,32}

Despite the serious health impacts, only 19-36% of people living with an eating disorder receive treatment.³³ For those who receive treatment, there is typically a considerable delay between the onset of symptoms and accessing health services – 2.5 years for AN and 4.4 years for BN.³⁴ In Canada, treatment typically involves repeated visits to a primary care physician for diagnosis, referrals, and management.³⁵ Treatment is available across several levels of care, ranging from outpatient to intensive day programs, residential and inpatient services.³⁶ It can include weight restoration, medical care to address the physical health consequences of an eating disorder (e.g., malnutrition), nutritional counselling, psychiatric monitoring, and ongoing psychological interventions.^{37,38}

Although an exact cause of eating disorders has not yet been determined, biological, psychological, and environmental factors, as well as their interactions, have been found to increase the likelihood of eating disorder development.^{39,40}

- **Biological factors** relate to genetics, gastrointestinal microbiota, and autoimmune reactions.⁴¹
- **Psychological factors** refer to an individual's mental state and span other forms of mental illness (e.g., anxiety) and particular personality traits (e.g., perfectionism).^{42,43,44}
- **Environmental factors** refer to the physical, social, and attitudinal environment in which people develop and live.⁴⁵

1.2 Canadian system of care for eating disorders

Canadian clinical care guidelines for paediatric eating disorders recommend the least intensive treatment possible, particularly for children and youth with a recent onset of an eating disorder.⁴⁶ Eating disorder treatment in Canada is centred on medical stabilisation, nutritional rehabilitation, normalisation of eating disorders and, in some cases, stabilisation of psychiatric comorbidities.⁴⁷ In Canada, there are a range of specialised services for eating disorders (see Table 1.1). Some of these services are publicly funded. Unfortunately, specialised eating disorder programs are not spread proportionally across the country – with access to support particularly limited in the Territories.⁴⁸ Services also differ by the availability of appropriate interprofessional teams, services offered, treatment philosophies, modalities used, the involvement of families, and treatment inclusion criteria.

Health system utilisation data on eating disorders in Canada is typically collected at a province level. These data are aggregated by CIHI, utilising data from the National Ambulatory Care Reporting System, The Hospital Morbidity Data Base, the Discharge Abstract Database and the Ontario Mental Health Reporting System.

Table 1.1: Specialised services for eating disorders in Canada

Type of specialised service	Location	Intensity	Patients
Residential	Residential properties	Short-term, 24/7 support	Individuals who are medically stable but require intensive levels of service to work on reducing eating disorder symptoms.
Inpatient units	Tertiary care facilities, either in specialised eating disorder units or embedded within general units. This is a higher level of specialised care within a hospital.	Short term, 24/7 support	Individuals with an eating disorder who are medically unstable and require weight restoration or intensive support.
Day treatment program	Tertiary care facilities	6-10 hours of treatment every day for 4-5 days per week	Individuals who are medically stable but who require intensive levels of support to work towards recovery from an eating disorder.
Intensive outpatient programs (IOPs)	Outside of hospital and may involve visits to different providers	Frequency varies	Individuals who require less intensive treatment than a day treatment program but more services than one treatment per week.
Outpatient programs	Hospitals	Frequency varies	Individuals who are stable but require some services to combat their eating disorder
Step-down outpatient services	Hospitals	Once per week	Individuals who are stable but require some services to combat their eating disorder
Transitional/supportive housing	Residential properties	Frequency varies	Individuals who have completed more intensive treatment but are unable to return to their home communities.

Source: Canadian Eating Disorders Strategy (2019)

Prior to the emergence of COVID-19, eating disorders were already having a substantive impact on the health and wellbeing of Canadian residents. A 2014 parliamentary report titled *Eating disorders among girls and women in Canada* acknowledged that eating disorders are a “severe and life-threatening” mental health condition affecting “hundreds of thousands of Canadians” and outlined the range of barriers that prevent access to treatment, including inadequate training for medical professionals, a lack of treatment programs, lengthy wait times and insufficient research.⁴⁹ Accordingly, the emergence of the COVID-19 pandemic in 2019 may have exacerbated already existing challenges in the Canadian system of care for eating disorders.

1.3 The COVID-19 pandemic in Canada and impact on eating disorders

The COVID-19 pandemic and its associated public health measures created psychological and environmental conditions, such as increased anxiety and reduced access to supports, that were associated with a higher severity and incidence of eating disorders. This is in addition to the already serious health consequences that result from eating disorders that were experienced before the COVID-19 pandemic.

1.3.1 Canada’s response to COVID-19 pandemic

Canada adopted a host of strict and persistent health measures to manage the COVID-19 pandemic. These measures, including school closures and limits on public gatherings, were more restrictive than other North American and European countries.⁵⁰ As a result, when compared with the G7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States), Canada had the lowest number of infections and deaths in the first two years of the COVID-19 pandemic.⁵¹

Cases of community transmission were first confirmed in Canada in March 2020, causing all Canadian provinces and territories to declare a state of emergency.⁵² This resulted in the gradual introduction of restrictions, including prohibitions on gatherings and closures of nonessential businesses.⁵³ Provincial and territory governments in Canada determined the

severity and length of the restrictions imposed. As policies were determined and implemented at the province level, public health measures and outcomes varied significantly across the country.⁵⁴ Ontario adopted some of the strongest restrictions in Canada – while it lifted its state of emergency on July 24, 2020, it then experienced two province-wide lockdowns and several partial lockdowns. In fact, the city of Toronto banned indoor dining for over 360 days.⁵⁵ Quebec experienced similar sustained lockdowns throughout 2020 and 2021, as well as a curfew that was in effect for nearly 140 days.⁵⁶

1.3.2 Impact of the COVID-19 on Canada's healthcare services

The detection, treatment and prevention of COVID-19 required health resources to be redirected. As a result, there were unintended consequences on the care of conditions other than COVID-19. This could be seen across physician care, emergency department (ED) presentations and surgeries, where total patient numbers declined.

Physician care declined strongly during Canada's first wave before returning close to previous levels.⁵⁷ This includes visits, consults, psychotherapy, and procedures that is provided by family physicians, medical specialists, and surgeons. Physician activity in Ontario was more than 40% lower in April 2020 than it had been in April of the previous year. By August 2020, it reached close to 2019 levels (less than a 10% difference). Further, physicians responded to COVID-19 restrictions by rapidly shifting to virtual care for consults.⁵⁸ Prior to March 2020, almost all consults were conducted in-person.⁵⁹ By April 2020, 70% of family physician services in British Columbia were provided virtually.⁶⁰ From February 2020 to March 2021, the proportion of family physician consults provided virtually in Canada averaged between 27-57%.⁶¹

There was also a notable reduction in **emergency department** visits. From March 2020 to June 2021, there were approximately 9,300 fewer visits per day across Canada compared to the pre-pandemic period.⁶² This was likely due to public hesitancy to leave home during lockdowns, as well as a reduction in other drivers of emergency department presentations (e.g., the flu, accidents, etc). The sharpest decline in emergency department visits occurred during the first wave, with almost 25,000 fewer visits (approximately half the usual number) occurring on a day in mid-April.⁶³ However, the second wave also saw a strong drop, decreasing by almost 15,000 on a day in December 2020. By the third wave of COVID-19 in Canada, emergency department visits had largely rebounded to near pre-pandemic levels. Adolescents (aged 10 to 19) had a much larger decline in emergency department visits than adults aged 20-64. A similar drop was seen in family physician visits for people aged 0-17.⁶⁴

At the pandemic's onset, tens of thousands of scheduled **surgeries** were cancelled or postponed to prepare for a surge in COVID-19 patients and optimise hospital capacity.⁶⁵ Initial data from the Canadian Institute for Health Information (CIHI) revealed that over half a million (560,000) fewer surgeries were performed in the first 16 months of the pandemic (approximately 35,000 less a month), compared to previous years.⁶⁶

Importantly, the impact of COVID-19 on the health care system **varied significantly across provinces** as health restrictions differed. In Ontario, non-emergency care and elective surgeries were cancelled in mid-March 2020, with hospitals gradually resuming elective surgeries in late May 2020. A rapid rise in COVID-19 cases caused non-emergency care to be restricted again in April 2021. By comparison, British Columbia recommenced elective surgeries in May 2020 and, as of March 2021, 95% of surgeries that were postponed during the first wave had been completed. Similarly, physician services in Manitoba declined by nearly 15% less than in Ontario and recovered to pre-pandemic levels 8 months earlier.⁶⁷ This variation in health restrictions by province likely produced differing health outcomes across Canada.

Despite elevated mental health and substance use concerns during the COVID-19 pandemic, rates of access to related services remained relatively low in all provinces across Canada.⁶⁸ During the COVID-19 pandemic, mental health concerns intensified – with almost 35% of Canadians reporting moderate to severe mental health concerns. Further, 1 in 4 people who used alcohol, cannabis or both reported problematic use during this period.⁶⁹ However, rates of access to mental health and substance use services (virtual and in-person) didn't increase substantially throughout the COVID-19 pandemic – less than 1 in 3 people with mental health concerns accessed mental health services and less than 1 in 4 with problematic substance use accessed relevant services.⁷⁰ There are many potential explanations for why service utilisation didn't increase with the intensification of mental health conditions – including public hesitancy about accessing services during lockdowns and financial stress limiting access to paid services.

1.3.3 Early evidence of the impact of the COVID-19 pandemic on eating disorders

While it is evident that the COVID-19 pandemic had an impact on healthcare provision, less is known about how care for people with eating disorders was impacted by the COVID-19 pandemic. The COVID-19 pandemic and its associated public health measures massively disrupted everyday life and access to health services, creating the psychological and environmental conditions in which eating disorders were more likely to arise and worsen. Table 1.2 summarises how the COVID-19 pandemic exacerbated psychological and environmental factors.^{71,72,73,74}

Table 1.2: Psychological and environmental impacts of the COVID-19 pandemic

Psychological factors	Environmental factors
<ul style="list-style-type: none"> • Greater levels of stress and anxiety, stemming from a loss of control (due to healthcare restrictions) and growing concerns over catching COVID-19 • Reduced self-esteem and distorted body image due to increased time spent online 	<ul style="list-style-type: none"> • Reduced access to eating disorder services and supports • Disrupted routines and activities in the community • Changes to treatment, including early discharge from healthcare facilities • Exposure to unhelpful social messages in media (e.g., promotions of the pandemic as a time to lose weight and get fit) • Increased social isolation and confinement, which was already common among people with eating disorders • Increased financial stress

Source: Miniati et al. (2021), Vuillier et al. (2021) and Bryan et al. (2020)

There are several reports that suggest individuals with eating disorders experienced an exacerbation in the severity of their symptoms during the COVID-19 pandemic – for example, a survey of approximately 1,700 people with eating disorders found that 88% reported an increase in body image concerns, 74% in food restriction, 66% in binge eating and 47% in excessive exercise during the COVID-19 pandemic.⁷⁵ Throughout COVID-19 pandemic, the incidence of eating disorders also increased.^{76,77,78} For instance, a Canadian study found that the incidence of AN and AAN among children and adolescents who were presenting to tertiary hospitals increased from 24.5 to 40.6 cases per month.⁷⁹ Similarly, a study using US electronic health records found that the diagnostic incidence of eating disorders was 15.3% higher in 2020 compared with previous years (relative risk, RR = 1.15).⁸⁰ In the UK, the observed incidence of eating disorders was 42.4% higher than expected for girls aged 13-16 years and 32.0% higher than expected for girls aged 17-19 between March 2020 and March 2022.⁸¹

International evidence suggests that the growth in the severity and incidence of eating disorders during the pandemic increased the use and intensity of health system services.^{82,83,84} Unlike for other conditions, which typically saw a decrease in service use during the pandemic, emergency department presentations and inpatient hospital visits for eating disorders increased. For example, a Canadian study found that hospitalisations for newly diagnosed youth with eating disorders more than doubled during the first COVID-19 wave, with the greatest increases in provinces and territories with the most stringent lockdowns.⁸⁵ Similarly, two Australian studies found a substantial increase in the number of hospitalisations during the first wave of the pandemic among adolescents previously diagnosed with eating disorders.^{86,87} This reflects that the impact of the pandemic on severity and incidence of eating disorders was so significant that urgent, acute care needed to be delivered at unprecedented rates.⁸⁸

International literature also suggests that the COVID-19 pandemic changed and in some cases reduced the access of people with eating disorders to appropriate, high-quality care.^{89,90,91} This occurred in three main ways. First, outpatient services (e.g., psychologist visits) were cancelled due to healthcare restrictions.⁹² Second, after some time, these services transitioned from in-person to virtual. While some early evidence suggests the short-term clinical outcomes for virtual and in-person care are comparable, this evidence is not conclusive.^{93,94} Finally, in some countries, wait times for outpatient services increased.^{95,96}

While there is a range of international evidence on the impact of the COVID-19 pandemic on eating disorders, there is limited information specific to the Canadian context. Given the varied responses to the COVID-19 pandemic across countries, there is a need to investigate the specific impact of the COVID-19 pandemic on youth with eating disorders living in Canada.

1.3.4 Prevalence and the COVID-19 pandemic

Point in time estimates of the number of Canadians with an eating disorder range from approximately 1 to 2.9 million.^{97,98,99} This variation reflects differences in how eating disorders are measured and sample make-up (e.g., age, year). For example, including all forms of eating disorders, rather than just AN, results in significantly higher estimates of overall prevalence.

The early evidence of the impact of the COVID-19 pandemic on eating disorders (discussed in section 1.3.3) indicates that there are higher incidence rates than prior to the pandemic. Elevated incidence implies that the prevalence of eating

disorders will also increase over time at greater rates than previously anticipated. Further research will be needed to understand the extent to which elevated incidence rates of eating disorders continue beyond 2023.

Increasing prevalence of eating disorders will place a greater burden on the Canadian economy. This study focuses on the incremental impact of the COVID-19 pandemic to specific components of the Canadian health system relating to eating disorders, but this is only a small component of the total economic cost of eating disorders in Canada.

1.4 The economic burden of eating disorders

While there is no direct estimate for the economic burden of eating disorders in Canada, based on research for other countries, the economic burden of eating disorders is substantial.^{100,101,102,103} For example, estimates in Australia suggest the total burden of eating disorders was AUD\$69.7 billion in 2012.¹⁰⁴ While health care costs were significant – AUD\$99 million in total – they made up less than 1% of this total cost.¹⁰⁵ This suggests that there are a range of other significant costs associated with eating disorders – including reduced labour force productivity and participation, informal care costs and wellbeing losses.^{106,107} However, these studies do not estimate the incremental impact of COVID-19 on the economic burden of eating disorders and based on the evidence and experience discussed above, there is reason to expect that the economic costs of eating disorders has increased as a result of the COVID-19 pandemic. This report aims to estimate the economic costs, focusing on the change in hospital costs due to COVID-19 and the impact of increasing waiting lists. While this may be only a portion of the total costs of eating disorders, it is the component that there has been the least research so far.

1.5 Structure of this report

The remainder of this report is structured in the following way:

- **Chapter 2** provides an overview of the methodology used to quantify the impacts of COVID-19 on eating disorders among Canadian youth.
- **Chapter 3** presents the findings from the analysis of the impact of COVID-19 on eating disorders in Canada, including the utilisation of health system services, changes to the care pathway and the overall impact on economic costs.
- **Chapter 4** contains a discussion of the key implications from the report and the opportunities for future research.
- **Appendix A** outlines the data requirements and limitations.

2 Methodology

This chapter provides an overview of the modelling approach used in estimating the economic impact of the COVID-19 pandemic on eating disorders in Canada.

2.1 Project aim

This study seeks to answer the following three research questions:

- How has the COVID-19 pandemic impacted need for health system services among Canadian children and youth (aged 5-25) with eating disorders?
- Have the care delivery pathways for children and young people with eating disorders changed due to the COVID-19 pandemic?
- What was the overall economic cost impact to the Canadian health system and to children and youth living with eating disorders?

This study leverages data from CIHI to identify changes in the use of different health services, including inpatient admissions, emergency department presentations, and outpatient clinic use.

The analysis was undertaken over three financial years: FY20 (1 April 2019 – 31 March 2020), FY21 (1 April 2020 – 31 March 2021) and FY22 (1 April 2021 – 31 March 2022). For the purposes of the analysis FY20 is considered to be prior to the COVID-19 pandemic and is used as the reference year for considering incremental costs.

A summary of the modelling approach used to estimate these effects is provided in Section 2.2. A detailed description of the methodology, data sources, and assumptions is provided in Appendix A.

2.2 Analytical framework

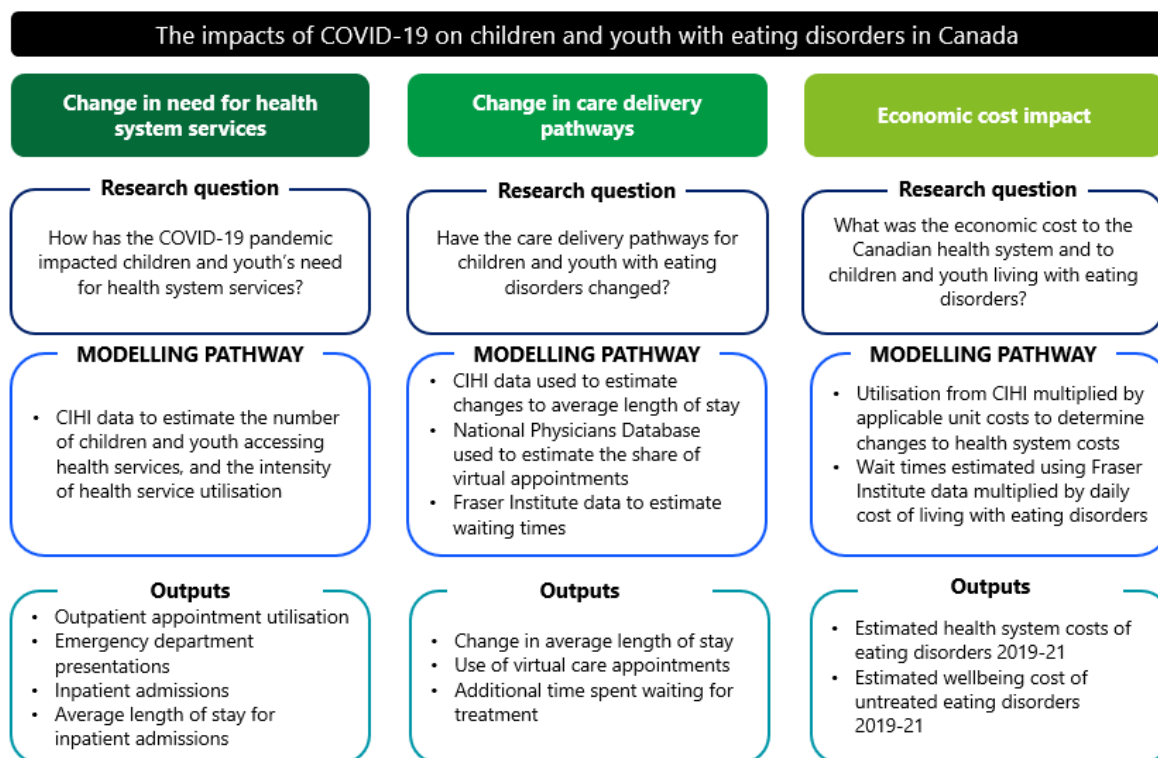
Figure 2.1 outlines the high-level analytical framework used to assess the impacts of the COVID-19 pandemic on children and youth with eating disorders in Canada. Each stream has a tailored approach to answer the corresponding research question.

1. **Change in need for health system services** – To understand the net impact of the COVID-19 pandemic, taking available health system utilisation data into account, and to assess changes to the need for health system services.
2. **Change in care delivery pathways** – To explore the changes in the care delivery pathways regarding changing length of stay, the use of virtual appointments and changes to wait times for services.
3. **Economic cost impact** – To estimate the economic cost impact to the Canadian Health system based on changes to health system utilisation, as well as the wellbeing impact to individuals waiting for treatment.

Importantly, CIHI data doesn't capture all the available care options for eating disorders. As such, the analysis included in this report is limited to inpatient hospitalisations, emergency department visits and outpatient appointments with a Doctor of Medicine. In section 2.2.5.1, the limitations of the data is discussed in further detail.

For the purposes of this report, children and youth were classified as people aged 5-25. Children and youth are typically classified as people aged 0-25. Children under 5 were excluded from this report as eating disorders for this age group are rare.¹⁰⁸ All the data requested and modelling undertaken is specific to this population. Further details relating to the data requirements are outlined in Appendix A.

Figure 2.1: Modelling framework



Source: Deloitte Access Economics.

This analysis presents a novel approach to understanding the economic impact of eating disorders to children and youth with eating disorders following the COVID-19 pandemic. The analysis leverages CIHI data across FY20-FY22 for inpatient hospitalisations, emergency department presentations and outpatient appointments. The modelling also utilises publicly available data from the National Physician Database, the Fraser Institute, and the Global burden of disease to appropriately cost the impact of COVID-19 on children and youth with eating disorders. All available data from Canada's provinces and territories was included.

- Inpatient hospitalisations: Data available from all provinces and territories.
- Emergency department visits: Data available from Ontario, Quebec, and Alberta only.
- Outpatient appointments: Data available from Alberta only.

Importantly, the analysis measures the incremental impact of COVID-19 on children and youth with eating disorders as seen through specific components of the health system, not the entire cost of eating disorders. The latter has been the approach and focus of some well-known reports for other countries so the results from this analysis are not comparable to some overseas estimates.^{109,110}

2.2.2 How has the COVID-19 pandemic impacted need for health system services?

To understand the impact of the COVID-19 pandemic on the need for health system services by children and youth experiencing eating disorders, a comparison of the use and intensity of hospital health system services prior to the COVID-19 pandemic, during various lockdowns occurring in 2020-2021 and in the period post COVID-19 lockdowns is made. This component focused exclusively on hospital admissions, emergency department presentations and outpatient appointments.

Due to limitations in the availability of CIHI data (see Appendix A.2), it was determined that the actual utilisation data observed would significantly underestimate health service utilisation. To account for this, health system utilisation for some provinces was estimated based on the utilisation rates of provinces with more complete data. Further adjustments to account for expected differences between provinces were made using the approach outlined in Appendix A.3. Modelling was done by province/territory, age, sex, condition type and visit type.

2.2.3 Have the care delivery pathways for children and youth with eating disorders changed?

The way care was delivered changed during the COVID-19 pandemic, through changes to length of stay, the use of virtual care and wait times for inpatient treatment. These changes were all considered within this analysis.

- Changes to length of stay were based on data provided by CIHI for inpatient hospitalisations. Due to data limitations, only the length of stay for people with AN is included in the analysis.
- Virtual care visits were estimated using data from the National Physician database. This data was disaggregated by province and age to estimate comparative changes to virtual care use for the period before COVID-19 and the period during the pandemic. As this dataset is not condition-specific, the approach assumed that the transition to virtual appointments for children and youth with eating disorders mirrored the experience of managing other conditions. The proportions of virtual visits were then multiplied by CIHI data on in-person outpatient visits to estimate the total number of outpatient services. It is assumed that all outpatient visits are eating disorder specific – as an eating disorder was listed as the main condition.
- Data from the Fraser Institute was used to estimate the average delay in accessing specialist eating disorder programs. It is noted that the data from the Fraser Institute is based on a survey of Canadian physicians. In 2022, there were 855 responses received (a 7.1% response rate). The low response rate means that wait time data for relatively small provinces, such as Prince Edward Island, should be treated with caution. The average wait time was compared to the median reasonable wait time for access. The total size of the backlog of patients waiting for treatment was estimated based on average annual inpatient admissions using data from CIHI.

2.2.4 What was the change in the economic cost to the Canadian health system and to children and youth with eating disorders?

The economic cost of the COVID-19 pandemic is made up of the monetisation of the change in need for health system services (section 2.2.2) and the changes to care delivery (section 2.2.3), as well as the wellbeing impact to individuals living with an eating disorder.

The **costs to the health system** were based on the estimated utilisation determined in section 2.2.2. Total utilisation for each service type was multiplied by the relevant unit cost. The unit cost for inpatient hospital visits was based on CIHI’s patient cost estimator. The unit cost for emergency department visits was based on CIHI data¹¹¹ and outpatient appointments was based on the National Physician database.¹¹² The unit costs used in the analysis are provided in Table 2.1 and were adjusted for inflation based on changes to health care prices over time using Statistics Canada data.^{113,114} The unit costs were not specific to children and young people.

Table 2.1: Estimated unit cost for Canadian Health system utilisation

Component	Cost (\$2021)	Unit	Source
Inpatient hospitalisations	18,165 – 29,277	Per standard hospital stay for people with eating disorders	CIHI patient cost estimator
Emergency department visits	315	Per presentation	CIHI ¹¹⁵
Outpatient appointments	115	Per appointment	National Physician database ¹¹⁶

Source: CIHI data.

The **loss of wellbeing** for individuals with an eating disorder was based on the cost of the additional time an individual spends with an untreated eating disorder. This is a function of the total wait time for treatment, the wellbeing loss associated with that time and the value society places on that wellbeing loss, as shown by the equation below. The number of people waiting for treatment was based on the total inpatient utilisation informed from CIHI data (see section 2.2.2). Estimated wait times were based on data available from the Fraser Institute (disaggregated by the relevant year of data and by province). It is noted that the estimated wait times from the Fraser Institute are for entry into specialist eating disorder programs. Patients requiring inpatient hospitalisation for immediate medical stabilisation would not experience wait time delays. However, inpatient admission for medical stabilisation is also assumed to only manage the presenting physical symptoms of the condition, rather than treating the condition itself. For this reason, it was assumed that children

$$\text{Impact of wait times} = \text{Total number of people waiting for treatment} \times \text{Average time spent waiting (days)} \times \text{Daily loss of wellbeing} \times \text{Value of an additional day of perfect health}$$

and youth admitted for immediate medical stabilisation would also be the same cohort of children and youth waiting for admission to a specialist eating disorder program.

This modelling component estimated the impact of increased wait times using the World Health Organisation’s burden of disease methodology. This is a non-financial approach, where pain, suffering and premature mortality are measured in terms of disability adjusted life years (DALYs). DALYs are calculated by assigning disability weights to various health states, where zero represents a year of perfect health and one represents death. For example, a disability weight of 0.2 is interpreted as a 20% loss in the quality of life relative to perfect health for the duration of the condition. Disability weights for eating disorders were obtained from the Institute for Health Metrics and Evaluation (IHME) Global Burden of Disease Study 2019.¹¹⁷ Table 2.2 outlines the disability weights for each eating disorder. For example, living with AN reduces the quality of life of an individual by 22% on average, highlighting the need to prioritise timely treatment.

Table 2.2: Eating disorder disability weights

Condition	Disability weight
Anorexia Nervosa	0.224
Bulimia Nervosa	0.223
Other or unspecified feeding or eating disorders	0.115

Source: IHME (2019). Note that it was assumed that AAN had the same disability weight as AN as disability. Disability weights were only available for the eating disorders listed in the table.

DALYs can be converted into Canadian dollars based on the value society places on an anonymous life – referred to as the value of a statistical life year (VSLY). The VSLY estimate was informed using the Canadian Cost-Benefit Analysis guidelines.¹¹⁸ The VSLY was determined to be \$476,000 after inflating to 2023 terms.

To estimate the total cost of increased waiting times, the difference between the median wait time to access an eating disorder program and the estimated reasonable wait time was calculated to produce the additional days each person lives with an untreated eating disorder. The total number of days lived with untreated eating disorders was then multiplied by the estimated daily wellbeing cost of an eating disorder. (This is the VSLY multiplied by the relevant disability weight and divided by 365 to adjust to a daily rate.)

2.2.5 Limitations and interpretation of results

While the modelling and analysis are based on the best available data at the time, there are some data limitations and context which should be considered when interpreting the findings.

2.2.5.1 Data limitations

- Limitations to CIHI data** - The data received from CIHI was subject to several limitations. There were incomplete data submissions where certain data inputs were not available. For example, hospital inpatient was the only visit type where data was provided for all provinces. By comparison, complete data on hospital outpatient services was only available for Alberta. Additionally, there were significant suppression rates due to the small sample sizes. While the modelling approach has accounted for the gaps in the data received, there may be variation between our estimates and the actual underlying data due to differences between health systems in each province that could not be

accounted for. For outpatient appointments, only appointments with a Doctor of Medicine are included as that was the only data available. This means that other appointments with mental health specialists, support workers, nutritionists or other specialists were not included. An overview of the data request is provided in Appendix A.

- **Wait times data should be interpreted cautiously** - Estimates for the wait times for treatment were based on publicly available survey data conducted by the Fraser Institute, as no data could be obtained from CIHI. The survey data is subject to limitations as it only represents the views of physicians responding to the survey (855 responses received in 2022, a 7.1% response rate), and some provinces had a small sample size of responses. The data was also only annually so it was unable to be used to examine the impact of specific lockdown measures / restrictions on wait times. For these reasons, the wait times results should be interpreted with caution.
- **Limited data on certain conditions** - Though data were requested for binge eating disorder, avoidant/restrictive food intake disorder and overeating/vomiting with other psychological disturbance, the data received were suppressed for these conditions due to small sample sizes and therefore not included within the analysis. This omission will have resulted in an underestimation of the total impact on eating disorders, though it is expected that this effect was small.
- **Estimation using data for main problem only** – The data used in the analysis only includes counts of individuals where an eating disorder was recorded as the main problem for the individual. Data were also available for visit counts where an eating disorder was listed as an ‘other problem’ but not the main problem. This approach avoids overestimating results by not applying health system costs which were not fully attributable to an eating disorder. However, this is a conservative approach as there are likely hospital costs partially attributable to eating disorders which have not been accounted for in this analysis.

2.2.5.2 Interpreting and contextualising the results

The results presented in Chapter 3 are not intended to represent a complete picture of the costs of eating disorders. Rather the results focus on specific components of the Canadian health system. Of note there are a number of omissions from the costing analysis in this report and that reported for other countries.

- **Not all components of the Canadian health system were estimated** - The analysis focuses on inpatient, outpatient, and emergency department services provided by the Canadian health system. This reflects only a subset of the total costs to the Canadian health system. Other components of health system costs are not readily available in administrative datasets. Specifically, costs relating to allied health, general practitioner services, residential services, day treatment programs, intensive outpatient programs, and transitional/supportive housing costs were not available.
- **Impacts extend beyond the health system** - The costs of eating disorders are far broader than the impact to the health system to include costs such as productivity, informal care, and efficiency losses. Productivity impacts such as individuals being less likely to attain employment, requiring more time away from work or working less efficiently than those without eating disorders. Costs to informal caregivers from taking time off work to care for individuals with eating disorders. Efficiency losses deriving from increased government assistance payments and lost taxation revenue. These costs which were not within the scope of this analysis but are likely to be sizeable. For example, they represented approximately 93% of the total financial cost of eating disorders in the US.¹¹⁹
- **Defined population of interest** - The scope of this analysis was to consider children and youth aged 5-25. This excludes those who are over 25 who experience an eating disorder. In the US, people aged 0-30 represent approximately 51% of the male population with eating disorders and 46% of the female population with eating disorders.¹²⁰ This indicates that focusing only on those aged 5-25 may only be capturing around half of the full population of people with eating disorders.

For the reasons above it is highlighted that the costs estimated in this report are not a reflection of the true cost of eating disorders in Canada and are only a small subset of the total cost. As such, there is limited scope to compare these results to other international cost-of-illness estimates.

3 The impact of COVID-19 on eating disorders

This chapter presents the impact of COVID-19 on the need for health system services among children and young people with eating disorders, changes in their care delivery pathways and the economic impact to the system.

3.1 How has the COVID-19 pandemic impacted need for health system services among Canadian children and youth with eating disorders?

As discussed in Section 1.3.3, the COVID-19 pandemic and its associated health restrictions exacerbated psychological and environmental conditions that are associated with increased demand for eating disorder healthcare.^{121, 122, 123, 124} According to analysis in this report, there was a 60% increase in inpatient hospitalisations from pre to during COVID-19 pandemic; a 126% increase in emergency department presentations over the same period; and a 3% decrease in outpatient appointments. These impacts of the COVID-19 pandemic on the need for health system services among Canadian children and youth with eating disorders across the three fiscal years examined (FY20, FY21 and FY22) are discussed in detail in the following sections. Overall, the analysis on the whole indicates a greater number of children and youth accessing acute health care services for their eating disorders during the pandemic.

3.1.1 Increased inpatient hospitalisations

As shown in Table 3.1, the number of inpatient hospitalisations with a main diagnosis of an eating disorder was 44% higher in FY21 (2,187 visits) and 75% higher in FY22 (2,644 visits), than in FY20 (1,514 visits), indicating a sizeable increase in demand for eating disorder-related inpatient hospitalisations in the first two years of the pandemic. On average, hospitalisations were 60% higher during the COVID-19 pandemic compared to the pre-COVID-19 pandemic year.

Table 3.1: Number of inpatient hospitalisations for eating disorders

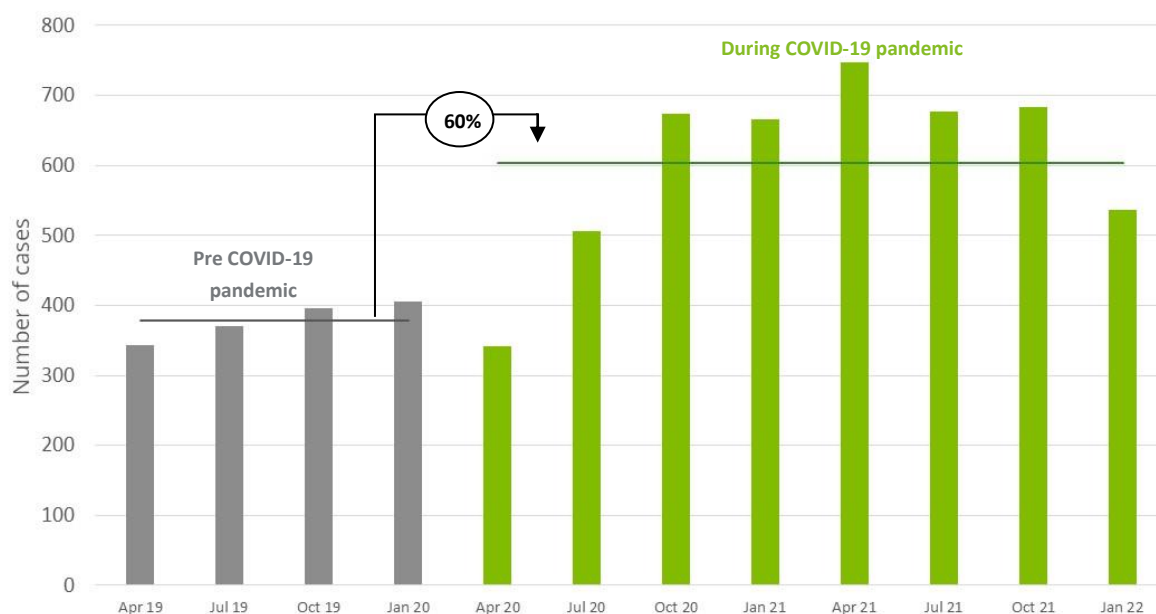
	Pre-COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
Total number of hospitalisations	1,514	2,187	2,644
Average number of annual hospitalisations	1,514	2,416	
Percentage increase from pre- to during COVID-19	N/A	60%	

Source: CIHI data, estimated

Quarterly data shows how demand for inpatient hospitalisations evolved. At the onset of the COVID-19 pandemic, inpatient hospitalisations for eating disorders among Canadian youth dropped from an average of 379 per quarter pre-pandemic to 342 in the April 2020 quarter. After this initial drop, inpatient hospitalisations for eating disorders increased significantly for the remainder of the COVID-19 pandemic (i.e., from the July 2020 quarter onwards). Visits for this group increased from an average of 379 per quarter pre-pandemic to a peak of 747 in the April 2021 quarter, which is a 97% increase (see Chart 3.1). This substantive increase in inpatient services for children and young people with eating disorders is consistent with international evidence.^{125,126,127} It may suggest that eating disorders among Canadian youth increased in severity and/or incidence, or that increased contact between parents and young people led to greater detection.¹²⁸

Females made up the majority share of inpatient hospitalisations. In FY20 approximately 70% of hospitalisations were for females aged 5 to 17, 26% of hospitalisations were for females aged 18-25 and 4% of hospitalisations were for males aged 5-17. This distribution shifted further towards females aged 5-17 during FY21 (79%) and FY22 (80%).

Chart 3.1: Number of inpatient hospitalisations for eating disorders, 2019-22



Source: CIHI data, estimated

3.1.2 Increased emergency department presentations

The number of emergency department admissions with a main diagnosis of an eating disorder increased for the first two years of the pandemic. As shown in Table 3.2, the number of emergency department presentations was 94% higher in FY21 (1,979 visits) and 158% higher in FY22 (2,623 visits), than in FY20 (1,019 visits). On average, emergency department presentations were 126% higher during the COVID-19 pandemic compared to the period pre-COVID-19 pandemic.

Table 3.2: Number of emergency department presentations for eating disorders

	Pre-COVID-19 pandemic		During COVID-19 pandemic	
	FY20	FY21	FY21	FY22
Total number of presentations	1,019	1,979	1,979	2,623
Average number of annual presentations	1,019		2301	
Percentage increase from pre- to during COVID-19	N/A		126%	

Source: CIHI data, estimated.

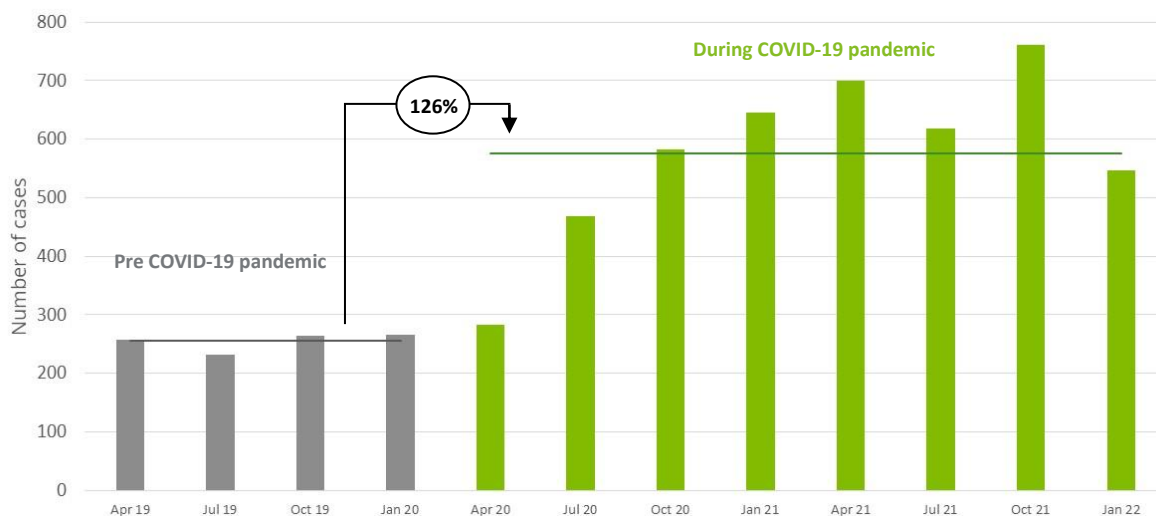
Note: This refers exclusively to admissions with a main diagnosis of an eating disorder.

During the first quarter of the COVID-19 pandemic, emergency presentations among young people with eating disorders increased from an average of 255 pre-pandemic to 282, an 8.4% increase. This likely indicates that the COVID-19 pandemic had a small but almost immediate impact on increasing the likelihood that a youth would need to present themselves to the emergency department for an eating disorder. This may reflect changes in care delivery, such as reduced access to primary care physicians (possibly due to workforce constraints), as well as an increase in the severity and/or incidence of eating disorders among young people in Canada,

After this small initial increase, emergency department presentations for young Canadians rose substantially for the rest of the COVID-19 pandemic. They increased from an average of 255 per quarter pre-pandemic to a peak of 760 in the October 2021 quarter.

As for inpatient hospitalisations, emergency department presentations were largely attributed to females. In FY20 approximately 62% of emergency department presentations were for females aged 5 to 17, 32% of emergency department presentations were for females aged 18-25, 6% were for males aged 5-17 and 1% were for males aged 18-25. This distribution shifted further towards females aged 5-17 during FY21 (76%) and FY22(76%).

Chart 3.2: Number of emergency department presentations for eating disorders, 2019-22



Source: CIHI data, estimated

3.1.3 Change in outpatient services

The total number of eating disorder related outpatient visits (including in-person and virtual visits) experienced a small decline in the first year of the pandemic before returning to pre-pandemic levels in FY22. This is based on CIHI data on outpatient visits which is only limited to physician appointments.

As shown in Table 3.3, the number of outpatient services was 9% lower in FY21 (135,150 visits) and 3% higher in FY22 (153,416 visits) than in FY20 (148,252 visits). On average, outpatient visits were 3% lower during the COVID-19 pandemic compared to the period before the pandemic. For information on the transition from in-person to virtual outpatient services, see 3.2.2.

Table 3.3: Utilisation of outpatient services for eating disorders

	Pre-COVID-19 pandemic		During COVID-19 pandemic	
	FY20		FY21	FY22
Total number of visits (virtual and in-person)	148,252		135,150	153,416
Average number of visits	148,252		144,283	
Percentage increase from pre- to during COVID-19	N/A		-3%	

Source: CIHI data, estimated.

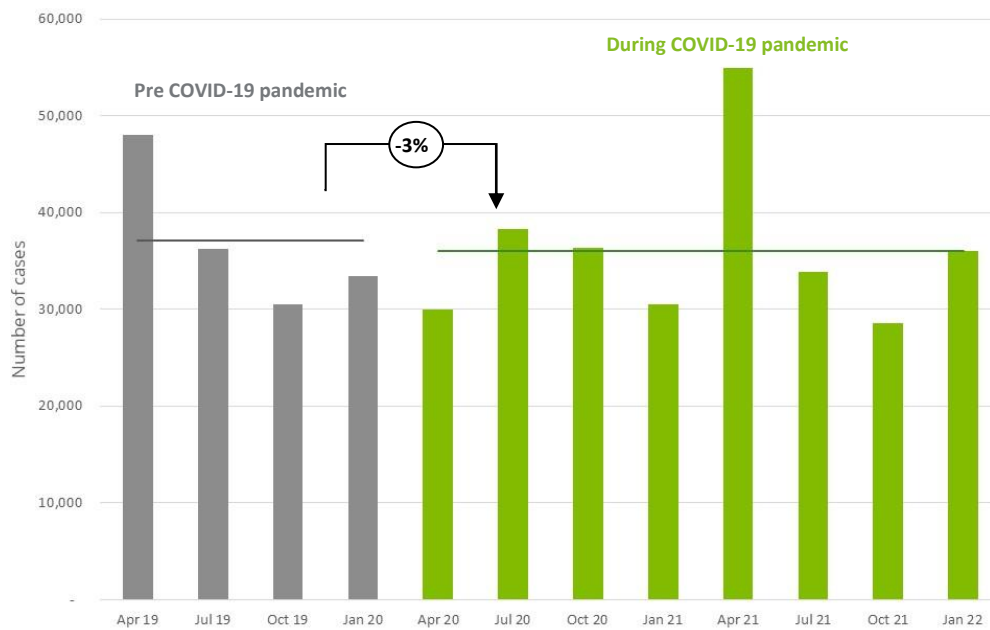
Note: This refers exclusively to admissions with a main diagnosis of an eating disorder.

As for both inpatient hospitalisations and emergency department presentations, females were the majority users of outpatient services for eating disorders. Approximately 57% of all services were estimated to be for females aged 5-17 and 39% of services were for females aged 18-25. The remaining services were utilised by males aged 5-17 (3%) and males aged 18-25 (1%). It is noted that the age/sex distributions for outpatient services were only informed using data for Alberta and should therefore be interpreted with caution.

During the first quarter of the COVID-19 pandemic, the number of outpatient services delivered to Canadian youth for eating disorders dropped from a pre-pandemic average of 37,063 to 30,003, a 19% decrease. This reflects that only some of the in-person outpatient services that were cancelled due to the increased risk of COVID-19 and public health restrictions were replaced with virtual sessions.

After this initial drop, outpatient visits for eating disorders fluctuated substantially from quarter-to-quarter. For example, outpatient visits were 48% above pre-pandemic levels in the April 2021 quarter, but below or equivalent to pre-pandemic levels in the remaining quarters. Notably, the change in outpatient visits is less sizeable relative to the results for inpatient admissions and emergency department presentations.

Chart 3.3: Number of outpatient services for eating disorders, 2019-22



Source: CIHI data, estimated. Note: As data for outpatient appointments were only available for Alberta, data were estimated for other provinces using the method outlined in section A.3. This data should be interpreted with caution for this reason.

3.2 Have the care delivery pathways for children and young people with eating disorders changed due to the COVID-19 pandemic?

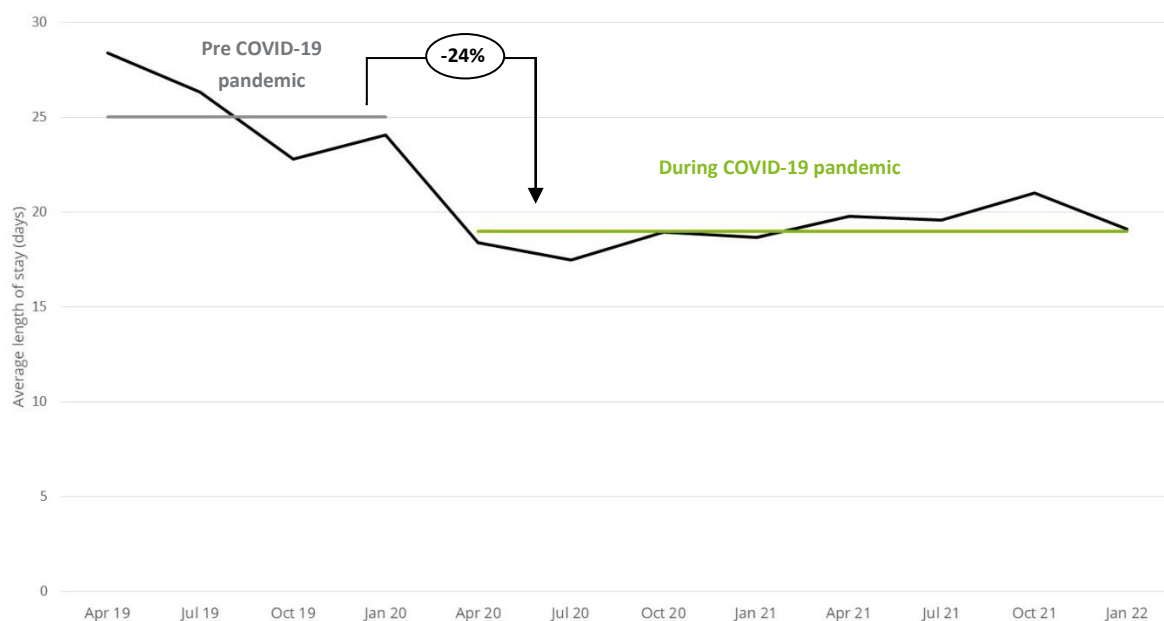
Limited access to services was not the only form of disruption; the way services were delivered was also affected by the COVID-19 pandemic. The COVID-19 pandemic disrupted care delivery to Canadian youth with AN by shortening length of stay, shifting some outpatient services from in-person to virtual delivery and changing wait times. First, the COVID-19 pandemic increased the likelihood of being discharged from hospital for those in inpatient care, shortening length of stay. Changes to hospital capacity (i.e., reductions in hospital beds due to physical distancing requirements) and an increase in hospital admissions for eating disorders caused non-acute patients to be discharged more quickly. Second, the COVID-19 pandemic caused outpatient services to transition from in-person to virtual delivery to reduce the risk of COVID-19 transmission. Third, it impacted wait times. While there were small reductions in estimated wait times in calendar years 2020 and 2021 relative to 2019, the increases to wait times reported in 2022 may be indicative of the backlog of patients waiting for treatment growing over time, combined with a possible lagged effect from the likely increase in incidence and/or severity of eating disorders.

3.2.1 Reduced length of stay

The average length of stay for patients with AN was reduced during the COVID-19 pandemic. Early discharge was likely a result of hospital capacity constraints as physical distancing requirements resulted in fewer beds in the same space and increased hospital admissions for patients with eating disorders increased demand for those fewer beds. This earlier discharge of non-acute patients shortened average length of stay. However, total hospital days increased, suggesting that, while patients were staying shorter periods in hospitals, there were more patients overall. This is consistent with the discussion in Section 3.1.1 on the increase in inpatient hospitalisations.

As shown in Chart 3.4, the **average length of stay** for inpatient hospitalisations for AN in Canada declined during the COVID-19 pandemic (24%). As AN makes up 70% of recorded inpatient hospitalisations, the reduction in length of stay from an average 25 days (April 2019-2020) to 19 days (April 2020-2022) for people with AN drove the overall decline in length of stay. Average length of stay also trended down for all other eating disorder types, with the exception of the “Other” category, which remained constant.

Chart 3.4: Average length of stay for inpatient hospital visits for eating disorders, 2019-22



Source: CIHI data, estimated

As shown in Table 3.4, the average length of stay was 28% lower in FY21 (18 days) and 22% lower in FY22 (20 days) than in FY20 (25 days). After the July 2020 quarter, the average length of stay began to rise. While average length of stay was higher in FY22 than in FY21, it remained lower than the pre-pandemic normal.

Table 3.4: Length of stay in days

	Pre-COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
Average length of stay (days)	25	18	20
Average length of stay (days)	25	19	
Percentage decrease from pre- to during COVID-19	N/A	24%	

Source: CIHI data, estimated

Despite this decline in average length of stay, the **total days in hospital** for young people with an eating disorder in Canada increased during the COVID-19 pandemic. Total days in hospital increased by 5% (to 40,692) in the first year and 36% (to 53,058) in the second year of the COVID-19 pandemic. On average, total days in hospital during the COVID-19 pandemic was 20% higher than pre-COVID-19 pandemic.

Table 3.5: Total days in hospital

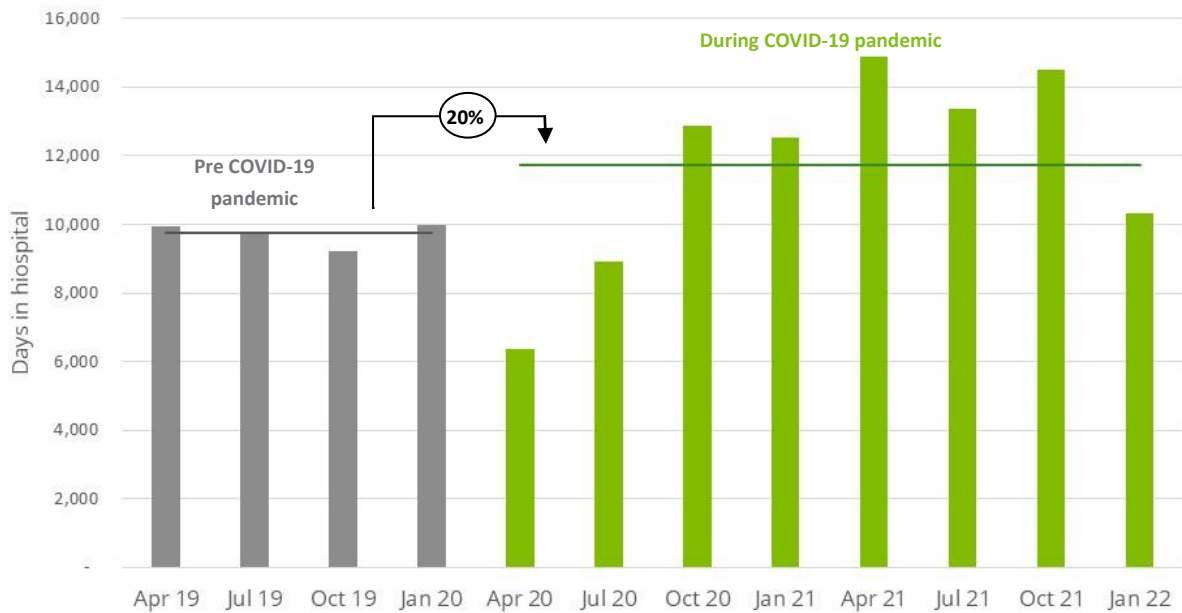
	Pre-COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
Total days in hospital	38,928	40,692	53,058
Average annual days in hospital	38,928	46,875	
Percentage increase from pre- to during COVID-19	N/A	20%	

Source: CIHI data, estimated

There was an initial drop in total days from a pre-pandemic average of 9,732 to 6,356 in the April 2020 quarter, which was a 35% decline. This drop reflected a reduction in the number of hospital inpatient admissions and a decline in the average

length of stay. However, from then, total days in hospital rose rapidly to a peak of 14,876 in the April 2021 quarter, which was a 53% increase from pre-pandemic levels. This increase in total days reflects that the growth of inpatient hospital admissions during the pandemic outweighed any reduction in length of stay.

Chart 3.5: Total days in hospital for eating disorders (days), 2019-22



Source: CIHI data, estimated

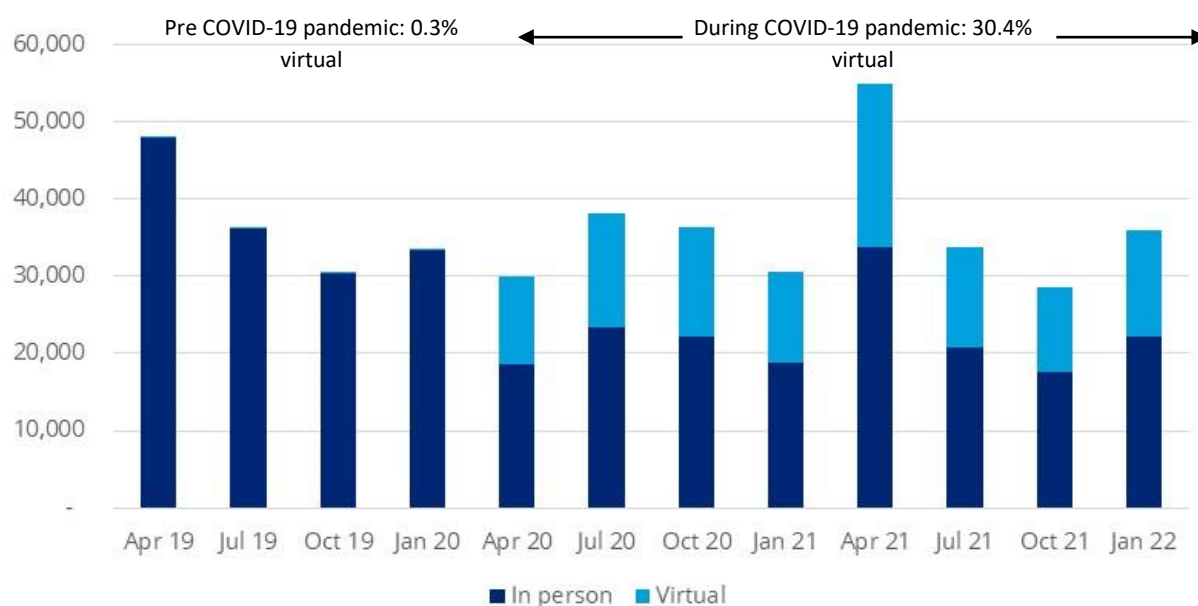
3.2.2 Transition to virtual outpatient services

During the COVID-19 pandemic, physicians and other health professionals increasingly delivered outpatient services to Canadian youth virtually, rather than in-person. This enabled them to mitigate the spread of COVID-19 and comply with public health measures.

As shown in Chart 3.6 and Table 3.6, very few outpatient visits were provided virtually pre-pandemic – in fact, of the 148,252 outpatient appointments conducted in FY20, only 481 were conducted virtually (0.3%). At the COVID-19 pandemic’s onset, this number increased rapidly. In FY21, 51,963 appointments were virtual (a 10,702% increase), and in FY22, this grew to 58,974 (a 12,159% increase). Virtual appointments increased across all provinces with available data by as much as 50% (specifically, 17% in Alberta, 38% in Ontario, 28% in Manitoba, 37% in Saskatchewan and 50% in British Columbia) during 2020.¹²⁹

On average, virtual appointments during the COVID-19 pandemic were 11,432% higher than pre-COVID-19 pandemic. During the COVID-19 pandemic, virtual appointments on average made up 30.4% of total outpatient services.

Chart 3.6: Outpatient services for eating disorders, in-person vs virtual, 2019-22



Source: CIHI data, estimated

Table 3.6: Outpatient services, in-person vs virtual

	Pre-COVID-19 pandemic		During COVID-19 pandemic	
	FY20	FY21	FY21	FY22
Average number of in-person visits per quarter	36,943	20,797	23,610	
Average number of virtual visits per quarter	120	12,991	14,744	
Total number of in-person visits	147,771	83,187	94,441	
Total number of virtual visits	481	51,963	58,974	
Average annual number of virtual visits	481	55,469		
Virtual visits as a proportion of total visits	0.3%	30.4%		
Percentage increase in virtual visits from pre- to during COVID-19	N/A	11,432%		

Source: CIHI data, estimated

3.2.3 Changes to wait times for specialist eating disorder programs

Changes in the time taken for patients to receive treatment (e.g., time taken to see a specialist plus the time taken to be admitted to a specialist eating disorder program) have a significant impact on care delivery pathways. Data from the Fraser Institute’s *Waiting your Turn: Wait Times for Health Care in Canada (2019-22)* show that patients were waiting more than 12 weeks to visit a specialist¹ after seeing a GP in 2022 (Table 3.7). There was then an additional wait of almost 23 weeks to commence receiving treatment through a specialised eating disorder program. This compares to 2019 where the wait time was approximately 19 weeks. However, as Table 3.7 shows, there were reported decreases to average wait times across the 2020-21 period. It is highlighted that the data included in Table 3.7 were not specific to children and youth, and therefore it is assumed that wait times for entry into a specialist eating disorder program were consistent across all age groups.

¹ This data is not specific to eating disorder specialists – rather it shows the general trend in wait times between visiting a GP (for any condition) and subsequently seeing a specialist.

It is important to distinguish that children and youth admitted to hospital for medical stabilisation would not have incurred material wait times. The wait times indicated by the Fraser Institute data are specific to people admitted for entry into specialist eating disorder programs with a good majority of these programs being housed in hospitals.

Despite this, the wait times remain substantially larger than what is considered reasonable by physicians. The average reasonable wait time from specialist to commencement of an eating disorder program was 4.3 weeks in 2022.¹³⁰ The 2022 wait times data suggests that wait times for eating disorder treatment are several weeks longer now than they were prior to the COVID-19 pandemic. This could be because any backlog of patients waiting for treatment has not been reduced or that there have been further increases in incidence of eating disorders over time – noting that there is typically a substantive average delay between eating disorder symptoms developing and an individual seeking treatment.

Wait times data was also available by province. In 2019, the wait time from specialist to eating disorder program varied from 3 weeks in Nova Scotia to 22 weeks in Ontario. In 2022, wait times varied from 9 weeks in Saskatchewan to 39 weeks in Manitoba. Wait times in Ontario (the province with the most inpatient admissions) ranged from 22 weeks in 2019, 16 weeks in 2020, 20 weeks in 2021 and 24 weeks in 2022 – results largely in line with the national medians for each year.^{131, 132, 133, 134}

Table 3.7: Median wait time, GP to specialist (weeks)

Component	2019	2020	2021	2022
GP to specialist*	10.6	10.5	11.1	12.6
Specialist to eating disorder program	18.7	15.9	16.4	22.9
Cumulative wait time	29.3	26.4	27.5	35.5

Source: Fraser Institute 2019-2022. *This component of waiting times was not specific to eating disorders and was therefore excluded from the economic analysis.

3.3 What was the incremental economic cost impact to the Canadian health system for children and youth living with eating disorders?

3.3.1 Canadian health system

The incremental increase in costs over the COVID-19 pandemic period was \$20.2 million. Approximately 89% of the incremental costs were incurred in FY22. In FY22, the incremental cost of eating disorders to the health system was \$18.0 million, reflecting increased utilisation across all estimated components.

Table 3.8: Economic cost of youth eating disorders to Canadian health system (\$ millions)

	Pre COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
Inpatient hospitalisations	38.5	41.6	54.8
ED presentations	0.3	0.6	0.8
Outpatient visits	16.5	15.3	17.7
Total costs	55.3	57.5	73.3
Difference in total costs from FY20	N/A	2.2	18
Incremental increase in total costs from pre- to during COVID-19 pandemic	N/A	20.2	

Source: Deloitte Access Economics analysis based on data from CIHI. Note components may not sum due to rounding.

3.3.2 Individuals' loss of wellbeing

Delays in accessing treatment can result in the loss of wellbeing for individuals with an eating disorder, as they live with their condition untreated for longer. The total cost of wait times on patient outcomes was estimated to be \$40.8 million in FY20, increasing to \$57.5 million in FY22. This suggests that the wellbeing cost of waiting for eating disorder treatment was already significant prior to the onset of COVID-19. The incremental costs arising from wellbeing losses were \$2.6 million in FY21, increasing to \$16.7 million in FY22. Thus, the total incremental costs associated with loss of wellbeing was \$19.3

million. These are the costs of waiting for treatment alone, and are incurred solely by the individual with the eating disorder. As the findings in section 3.2.3 indicate, there were declining wait times over the 2020-21 period (median wait times of 15.9-16.4 weeks), and so the increase in costs is a result of increased volume of people waiting for treatment.

Table 3.9: Total and incremental wellbeing costs of waiting for eating disorders treatment (\$ millions)

	Pre COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
Total cost	40.8	43.4	57.5
Difference in total costs from FY20	N/A	2.6	16.7
Incremental increase in total costs from pre- to during COVID-19 pandemic	N/A	19.3	

Source: Deloitte Access Economics analysis based on data from CIHI and the Fraser Institute.

Wait times vary across provinces. The difference in the average wait time between visiting a specialist and access to an eating disorder program and the reasonable wait time² ranged between 28 days in Saskatchewan to 238 days in Manitoba in 2022.¹³⁵ Table 3.10 shows the impact of waiting times on wellbeing across provinces. These were estimated based on the province specific median wait times data available in the Fraser Institute. The largest costs were incurred by Ontario both prior to COVID-19 (\$22.7 million) and during COVID-19 (\$21.9-\$37.0 million). Costs did not increase in all provinces. In provinces such as British Columbia and Quebec, costs decreased between FY20 and FY22 due to a reduction in wait times as reported in the Fraser Institute data.

Table 3.10 Total cost of waiting for eating disorder treatment, by province (\$ millions)

	Pre COVID-19 pandemic	During COVID-19 pandemic	
	FY20	FY21	FY22
AB	1.1	4.8	3.0
BC	6.2	4.4	4.2
MB, SK	0.6	1.5	3.8
NL, NB, PE, NS	3.8	1.1	3.9
ON	22.7	21.9	37.0
QC	6.2	9.7	5.6
Total	40.8	43.4	57.5

Source: Deloitte Access Economics analysis.

It is important to highlight that this modelling component considers wellbeing costs alone – and omits additional economic costs that may be incurred. For example, delays to treatment may result in increased severity of the condition. This may mean that the length of inpatient hospitalisation is longer, or it may mean that a person is more likely to be re-admitted to hospital in the future. Furthermore, there are a range of other economic costs, such as productivity losses, associated with a person being absent from work or less productive while at work, which are all relevant to assessing the total impact of the condition and the effect of waiting times on eating disorders treatment. For this reason, it is likely that this modelling component is a significant underestimate of the true cost of increased wait times.

3.3.3 Total incremental cost impact of the COVID-19 pandemic on children and youth with eating disorders

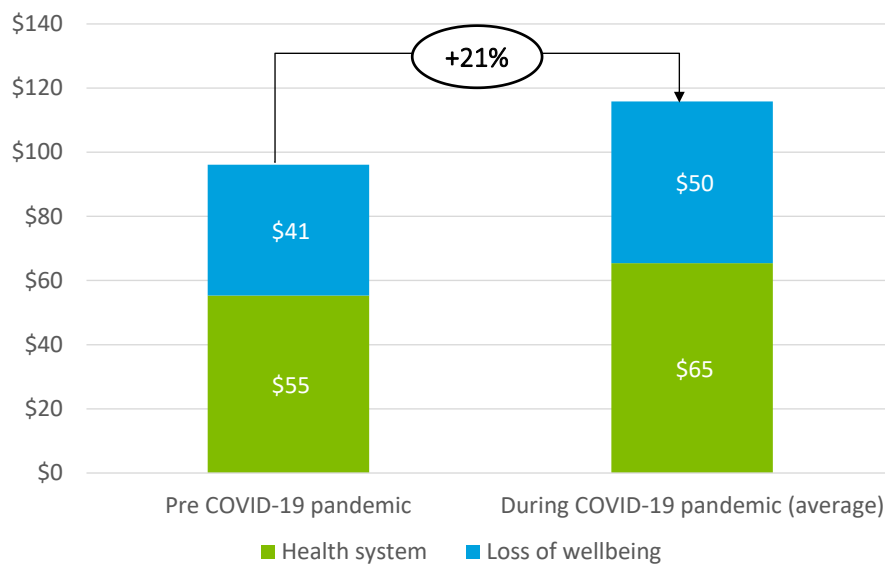
The total incremental cost impact of the COVID-19 pandemic on children and youth with eating disorders in Canada was \$39.5 million, incurred over a two-year period. Most of the cost impact occurred in FY22 (\$34.7 million, or 88% of the total impact). The majority share of incremental costs due to COVID-19 could be attributed to females aged 5-17 (68% of total

² The amount of time physicians considered to be clinically ‘reasonable’ before entry into an eating disorder program.

costs in FY20), increasing to 76% of total costs in FY21 and 77% of total costs in FY22. Overall, approximately 95% of all health system costs could be attributed to female patients across the entire analysis.

It is important to highlight that this is only the incremental cost due to the COVID-19 pandemic conditions for children and youth, and not the total cost of eating disorders in Canada for all persons with eating disorders. As discussed in detail in Section 2.2.5, not all components of the Canadian health system was estimated with some notable exclusions being allied health, general practitioner services, residential services, day treatment programs, intensive outpatient programs, and transitional/supportive housing costs. Furthermore, while this analysis focused on the costs associated with selected aspects of the health system (inpatient, outpatient, and emergency department), the cost of eating disorders extend beyond the health system to include costs such as productivity, informal care and efficiency losses. Finally, the analysis does not include the incremental impact of adult presentations for eating disorders. Given this, the estimate of total incremental costs as a result of COVID-19 pandemic in Canada presented here should not be compared to costings that have done for other countries.^{136,137,138,139}

Chart 3.7: Total incremental cost of COVID-19 impacts on children and youth with eating disorders, FY21- FY22 (\$ million)



Source: Deloitte Access Economics analysis.

4 Future opportunities

This section summarises the limitations of the analysis and the opportunities for future research to better understand the impact of COVID-19 on children and young people with eating disorders.

This report investigates the impact of the COVID-19 pandemic among young people with eating disorders in Canada. It considers healthcare utilisation, quality, and cost. However, there are several limitations to the analysis. These limitations include the exclusion of the untreated population due to data restrictions, the lack of data across the full continuum of care (especially beyond hospitalisations, ED presentations, and outpatient visits), the opportunity to capture economic costs outside of just the healthcare system and the impact of reduced length of stay, increased wait times or transition to virtual models of care. These limitations are important areas for further research. Future opportunities include exploring the experiences of those who are undiagnosed, the broader economic costs beyond costs to the health system, and the long-term effect of the COVID-19 pandemic upon eating disorder incidence among Canadian children and youth.

Understanding the population with undiagnosed and untreated eating disorders.

While the analysis indicated that more people were accessing emergency department and inpatient treatment throughout the COVID-19 pandemic, it does not talk to the experiences of the undiagnosed or untreated population. It is well known that some people with eating disorders only seek treatment years after their symptoms first develop. It may be the case that there is a significant proportion of people who developed an eating disorder during the pandemic who remain undiagnosed. There is a future opportunity to investigate the prevalence of eating disorders, including estimates of the undiagnosed population. This may include further research into the impact on people from historically and intentionally excluded communities, including racialized individuals, individuals from the 2SLGBTQIA+ community and people experiencing socioeconomic disadvantage – where early evidence suggests that these people have experienced greater increases in eating disorders relative to the rest of the population.¹⁴⁰

Quantifying the broader economic costs of eating disorders.

There is also an opportunity to quantify the impact of the COVID-19 pandemic on eating disorders beyond the costs to the health system. For example, the impact of an eating disorder on education, the workforce and other economic costs to government were not within the scope of this study. Exploring these costs in Canada is possible through a cost of illness framework – with similar studies using this methodology already undertaken in the US, albeit prior to the pandemic.¹⁴¹

The implications of reduced length of stay on patient outcomes are unknown.

The impact of a reduced length of stay on longer-term health outcomes of people living with eating disorders is also yet to be understood. Data received on length of stay suggested that the average length of inpatient admissions reduced from 25 days to 19 days across the observed period for children and youth with AN. Based on anecdotal evidence, this is unlikely to be driven by lower severity of symptoms. The long-term effect of reduced length of stay on outcomes for children and youth is unclear, and the subsequent likelihood that a person will require future readmission to hospital is an area for further research.

Further research on the impact of elevated wait times for eating disorder treatment.

Similarly, there is limited evidence available on the impact of elevated wait times for eating disorder treatment. This report found that waitlists for treatment were extensive prior to the COVID-19 pandemic and remain significantly above the recommended wait time of medical professionals. However, this report only focused on the impacts of children and youth waiting for intensive treatment delivered through an eating disorder program. Wait time delays may also impact children with recent onset eating disorder symptoms. While there is little guidance on what is considered to be a reasonable wait time, there are comparable examples which could be used as a guide. For example, the First Episode Rapid Early Intervention for Eating Disorders model used wait time targets of 14 days to first assess a child with a recent onset eating disorder (following a referral), and 28 days to commence treatment.¹⁴² Another example, is a study in Australia which found that the average wait to see a therapist was 2 months after first seeing a general practitioner.¹⁴³ The time to treatment may impact recovery rates, with this study reporting a 5.7 month average wait time to commencing treatment in the cohort who had recovered from their eating disorder, relative to a 6.7 month average wait time in the cohort who still had a current eating disorder.¹⁴⁴ This compares to the current wait time of more than 12 weeks to visit a specialist after seeing a GP in 2022 and an additional wait of almost 23 weeks to commence receiving treatment through a

specialised eating disorder program.¹⁴⁵ Further research is needed to understand if children with recent onset eating disorder symptoms in Canada are receiving treatment within suitable timeframes and the subsequent economic impact of any delays in treatment.

The effectiveness of virtual appointments for managing eating disorders is not yet fully understood.

The impact on health outcomes of the shift from in-person to virtual care is also an area for further exploration. Prior to the COVID-19 pandemic, virtual appointments accounted for less than 1% of all appointments, with this proportion increasing significantly across all provinces with available data by as much as 50% (specifically, 17% in Alberta, 38% in Ontario, 28% in Manitoba, 37% in Saskatchewan and 50% in British Columbia) during 2020.¹⁴⁶ While the shift to virtual appointments does not necessarily indicate a reduced quality of care delivery, the effectiveness of these appointments is not fully known. Emerging evidence provides support for the use of virtual treatment, including telehealth FBT, for children and young people – but further research is needed.¹⁴⁷ In particular, future research should be conducted on the potential cost and benefits of virtual inpatient pathways in supporting patients in returning to their home communities as soon as possible while still receiving intensive treatment.¹⁴⁸

Elevated incidence rate and future pressure on the health system service delivery.

The COVID-19 pandemic has elevated incidence rates of eating disorders among children and youth in Canada, leading to increases in demand for health system services. Considered alongside the unknown size of the undiagnosed or untreated population as well as ongoing elevated rates of mental health concerns more generally¹⁴⁹, it is possible that demand for health services will remain elevated for some time. Ongoing monitoring of the impact of the COVID-19 pandemic is necessary to fully understand its impact on children and youth with eating disorders.

Appendix A Data requirements and limitations

A.1. Data request

A data request was submitted to CIHI to obtain information on the utilisation of health services by children and youth with eating disorders. Data were received from the Discharge Abstract Database (DAD), National Ambulatory Care Reporting System (NACRS), Hospital Morbidity Database (HMDB), and Ontario Mental Health Reporting System (OMHRS). To include data from Quebec, approval was acquired from the Quebec Government. The data extracts received covered fiscal years (April 1 – March 31) 2019/20, 2020/21 and 2021/22 and included the following variables:

- Fiscal quarter
- Province and territory
- Sex
- Age group (5-17 and 18-25)
- Visit type (Outpatient visit, inpatient visit, emergency department visit)
- Diagnosis group (AN, AAN, ARFID, BED, BN, OSFED)
- Count of total visits (where the eating disorder was listed as the main problem)
- Count of total visits (where the eating disorder was listed as the main problem or a second or third problem)
- Average length of stay (days)

A.2. Coverage and quality of data received

Due to gaps in the reporting of data alongside the need to receive deidentified data, the data provided by CIHI had three key limitations (see Table A.1):

1. **Incomplete data submissions** – Certain data inputs were either not available or aggregated at a higher level. For example, hospital inpatient was the only visit type where data was provided for all provinces. By comparison, complete data on hospital outpatient services was only available for Alberta. Manitoba and Saskatchewan were also aggregated rather than reported separately.
2. **High suppression rates** – Across the four visit types, the proportion of data suppressed ranged from 8%-48%. Nearly half (48%) of hospital inpatient data was suppressed, compared to only 8% of hospital outpatient data. Data counts were suppressed when there were only 1-4 observations recorded.
3. **Missing data** – Due to limitations in the recording of data, certain data inputs are missing. This explains why a large portion of hospital inpatient data is equal to zero (39%). However, it is difficult to distinguish between data points that are missing from those who have been correctly labelled as zero. For example, day surgeries relating to eating disorders are very rare, suggesting that the data entries equal to zero for this visit type are accurate.

Table A.1: Data availability by visit type

Visit type	Provinces with complete data submission	Proportion of data suppressed	Proportion of available data ≠ 0
Hospital inpatient	All provinces and territories	48%	61%
Emergency department	Ontario, Alberta, Quebec	46%	69%
Day surgery	All provinces and territories	20%	2%
Other hospital outpatient	Alberta	8%	93%

Source: CIHI data

These data limitations mean that there would be significant gaps in the results if the analysis were based solely on the actual data received. For example, data on other hospital outpatient appointments would be limited to AB only (see Table A.3). To minimise the impact of these limitations, methods to extrapolate the data have been used in order to present the likely impact across all provinces. The methods used are discussed in section A.3.

As shown in Table A.2, the diagnostic groups with the highest proportion of available data not equal to zero are AN, BN, OSFED and AAN respectively. ARFID and BED have no non-zero observations for any visit type.

Table A.2: Proportion of available (i.e., not suppressed) data ≠ 0 by visit type and diagnostic group

Visit type	AN	AAN	ARFID	BED	BN	OSFED
Hospital inpatient	93.8%	48.6%	0.0%	0.0%	46.1%	56.2%
Emergency department	91.5%	0.0%	n/a	n/a	55.2%	87.9%
Day surgery	12.5%	0.0%	n/a	n/a	0.0%	0.0%
Other hospital outpatient	100.0%	100.0%	n/a	n/a	84.4%	88.9%

Source: CIHI data. Note: “n/a” means that there are no observations that match these categories.

The provinces with the highest proportion of available data not equal to zero are AB and ON, see Table A.3. BC, MB, SK, NL, NB, PE, NS and QC only have non-zero observations for hospital inpatient data. Territories has no non-zero observations for any visit type.

Day surgery has only one non-zero observation.

Table A.3: Proportion of available (i.e., not suppressed) data ≠ 0 by visit type and province

Visit type	AB	BC	MB, SK	NL, NB, PE, NS	ON	QC	Territories
Hospital inpatient	54.7%	73.1%	45.8%	57.8%	71.6%	58.4%	0.0%
Emergency department	53.6%	n/a	n/a	n/a	77.7%	n/a	n/a
Day surgery	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	n/a
Other hospital outpatient	93.0%	n/a	n/a	n/a	n/a	n/a	n/a

Source: CIHI data. Note: “n/a” means that there are no observations that match these categories.

The data were also presented by age and sex. Four groupings were considered: females aged 5-17, females aged 18-25, males aged 5-17 and males aged 18-25. The distribution of the data is presented in Table A.4 below.

Table A.4: Distribution of available data by age and sex

Age/sex category	Inpatients	Emergency department	Outpatient appointments
Females 5-17	77%	73%	57%
Females 18-25	18%	21%	39%
Males 5-17	5%	5%	3%
Males 18-25	0%	0%	1%

Source: CIHI data.

A.3. Methods used to extrapolate on actual data

Due to the limitations in the coverage and quality of CIHI data received (see section A.2), it was determined that presenting results based on the actual data would provide an incomplete picture of the impact of the COVID-19 pandemic on children and youth with eating disorders. For example, costs relating to hospital outpatient data would only be available for Alberta. For this reason, cost impacts were estimated across all provinces based on the data available. The steps used to extrapolate the existing data are detailed below:

- Several provinces had low proportions of data not equal to zero. For example, AB, QC and ON were the only provinces to record any applicable data for emergency department visits. Age/sex specific per capita rates were estimated for provinces where data were available, and these rates were applied to provinces where no data were available.
- It is understood that there may be differences in per capita rates of utilisation across provinces. As data were complete for inpatient admissions for AN, relative rates of utilisation were estimated between provinces. These relative rates were applied to inpatient admissions (across BN, AAN and OSFED) as well as emergency department presentations to account for differences in utilisation across provinces.
- For outpatient appointments, additional data from the National Physician Database were used to compare outpatient appointments per capita for Alberta with the per capita rates in other provinces. It is noted that while this data was specific to children and youth, the data was for all outpatient appointments and not specific to eating disorders.
- For outpatient utilisation, data were only received for in-person visits. Virtual visits were estimated based on the split between services provided in-person and virtually using data from the National Physician Database.¹⁵⁰

A.4. Analysis limitations

While the modelling and analysis are based on the best data available at the time, there remain limitations which should be noted. The main considerations for interpretation are discussed below:

- The data received from CIHI was subject to several limitations. There were incomplete data submissions where certain data inputs were not available. Additionally, there were significant suppression rates due to the small sample sizes. While the modelling approach has accounted for the gaps in the data received, there may be variation between our estimates and the actual underlying data that could not be accounted for.
- The data provided by CIHI lacked the demographic detail needed to investigate the potential differential impacts of the COVID-19 pandemic on the eating disorders of equity-deserving groups (e.g., regional and remote communities, Indigenous peoples, people of colour, and 2SLGBTQIA+ people).
- Estimates for the wait times for treatment were based on publicly available survey data, as no data could be obtained from CIHI. For this reason, the wait times results should be interpreted with caution. Further, the data was not granular enough to examine the impact of specific lockdown measures/restrictions on wait times.

Endnotes

- ¹ Treasure, J., Duarte, T. A., & Schmidt, U. (2020). Eating disorders. *The Lancet (British Edition)*, 395(10227), 899–. [https://doi.org/10.1016/S0140-6736\(20\)30059-3](https://doi.org/10.1016/S0140-6736(20)30059-3)
- ² Forrest, L. N., Smith, A. R., & Swanson, S. A. (2017). Characteristics of seeking treatment among U.S. adolescents with eating disorders. *The International Journal of Eating Disorders*, 50(7), 826–833. <https://doi.org/10.1002/eat.22702>
- ³ Miskovic-Wheatley, J., Koreshe, E., Kim, M., Simeone, R., & Maguire, S. (2022). The impact of the COVID-19 pandemic and associated public health response on people with eating disorder symptomatology: an Australian study. *Journal of Eating Disorders*, 10(1), 9–9. <https://doi.org/10.1186/s40337-021-00527-0>
- ⁴ Katzman, D. K. (2021). The COVID-19 Pandemic and Eating Disorders: A Wake-Up Call for the Future of Eating Disorders Among Adolescents and Young Adults. *Journal of Adolescent Health*, 69(4), 535–537. <https://doi.org/10.1016/j.jadohealth.2021.07.014>
- ⁵ Ibid.
- ⁶ Agostino, H., Burstein, B., Moubayed, D., Taddeo, D., Grady, R., Vyver, E., Dimitropoulos, G., Dominic, A., & Coelho, J. S. (2021). Trends in the Incidence of New-Onset Anorexia Nervosa and Atypical Anorexia Nervosa Among Youth During the COVID-19 Pandemic in Canada. *JAMA Network Open*, 4(12), e2137395–e2137395. <https://doi.org/10.1001/jamanetworkopen.2021.37395>
- ⁷ Vuillier, L., May, L., Greville-Harris, M., Surman, R., & Moseley, R. L. (2021). The impact of the COVID-19 pandemic on individuals with eating disorders: the role of emotion regulation and exploration of online treatment experiences. *Journal of Eating Disorders*, 9(1), 10–10. <https://doi.org/10.1186/s40337-020-00362-9>
- ⁸ Taquet, M., Geddes, J. R., Luciano, S., & Harrison, P. J. (2021). Incidence and outcomes of eating disorders during the COVID-19 pandemic. *British Journal of Psychiatry*, 220(5), 1–264. <https://doi.org/10.1192/bjp.2021.105>
- ⁹ Nicula, M., Pellegrini, D., Grennan, L., Bhatnagar, N., McVey, G., & Couturier, J. (2022). Help-seeking attitudes and behaviours among youth with eating disorders: a scoping review. *Journal of Eating Disorders*, 10(1), 21–21. <https://doi.org/10.1186/s40337-022-00543-8>
- ¹⁰ Pretorius, C., Chambers, D., & Coyle, D. (2019). Young People’s Online Help-Seeking and Mental Health Difficulties: Systematic Narrative Review. *Journal of Medical Internet Research*, 21(11), e13873–e13873. <https://doi.org/10.2196/13873>
- ¹¹ Kauer, S. D., Mangan, C., & Sanci, L. (2014). Do online mental health services improve help-seeking for young people? A systematic review. *Journal of Medical Internet Research*, 16(3), e66–e66. <https://doi.org/10.2196/jmir.3103>
- ¹² Steiger, H., Booij, L., Crescenzi, O., Oliverio, S., Singer, I., Thaler, L., St-Hilaire, A., & Israel, M. (2022). In-person versus virtual therapy in outpatient eating-disorder treatment: A COVID-19 inspired study. *The International Journal of Eating Disorders*, 55(1), 145–150. <https://doi.org/10.1002/eat.23655>
- ¹³ Stewart, C., Konstantellou, A., Kassamali, F., McLaughlin, N., Cutinha, D., Bryant-Waugh, R., Simic, M., Eisler, I., & Baudinet, J. (2021). Is this the ‘new normal’? A mixed method investigation of young person, parent and clinician experience of online eating disorder treatment during the COVID-19 pandemic. *Journal of Eating Disorders*, 9(1), 1–78. <https://doi.org/10.1186/s40337-021-00429-1>
- ¹⁴ Lewis, Y. D., Elran-Barak, R., Grundman-Shem Tov, R., & Zubery, E. (2021). The abrupt transition from face-to-face to online treatment for eating disorders: a pilot examination of patients’ perspectives during the COVID-19 lockdown. *Journal of Eating Disorders*, 9(1), 31–31. <https://doi.org/10.1186/s40337-021-00383-y>
- ¹⁵ The Butterfly Foundation (2012). Paying the Price, Deloitte Access Economics. <https://butterfly.org.au/wp-content/uploads/2020/06/Butterfly_Report_Paying-the-Price.pdf>.
- ¹⁶ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the

United States: Evidence to inform policy action. *The International Journal of Eating Disorders*, 54(5), 851–868. <https://doi.org/10.1002/eat.23486>

¹⁷ Qian, J., Wu, Y., Liu, F., Zhu, Y., Jin, H., Zhang, H., Wan, Y., Li, C., & Yu, D. (2022). An update on the prevalence of eating disorders in the general population: a systematic review and meta-analysis. *Eating and Weight Disorders*, 27(2), 415–428. <https://doi.org/10.1007/s40519-021-01162-z>

¹⁸ Rikani, A. A., Choudhry, Z., Choudhry, A. M., Ikram, H., Asghar, M. W., Kajal, D., Waheed, A., & Mobassarrah, N. J. (2013). A critique of the literature on etiology of eating disorders. *Annals of Neurosciences*, 20(4), 157–161. <https://doi.org/10.5214/ans.0972.7531.200409>

¹⁹ Stone, K. D., Dimitropoulos, G., & MacMaster, F. P. (2021). Food for Thought: A Dissonance Between Healthcare Utilization Costs and Research Funding for Eating Disorders in Canada. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 30(3), 197–203.

²⁰ Langlois, K. A., Samokhvalov, A. V., Rehm, J., Spence, S. T., & Gorber, S. C. (2012). *Health state descriptions for Canadians: Mental illnesses* (pp. 82-619). Ottawa: Statistics Canada.

²¹ Tse, A., Xavier, S., Trollope-Kumar, K., Agarwal, G., & Lokker, C. (2022). Challenges in eating disorder diagnosis and management among family physicians and trainees: a qualitative study. *Journal of Eating Disorders*, 10(1), 45–45. <https://doi.org/10.1186/s40337-022-00570-5>

²² Qian, J., Wu, Y., Liu, F., Zhu, Y., Jin, H., Zhang, H., Wan, Y., Li, C., & Yu, D. (2022). An update on the prevalence of eating disorders in the general population: a systematic review and meta-analysis. *Eating and Weight Disorders*, 27(2), 415–428. <https://doi.org/10.1007/s40519-021-01162-z>

²³ Harris, C., & Barraclough, B. (1998). Excess mortality of mental disorder. *British Journal of Psychiatry*, 173(1), 11–53. <https://doi.org/10.1192/bjp.173.1.11>

²⁴ Arcelus, J., Mitchell, A. J., Wales, J., & Nielsen, S. (2011). Mortality Rates in Patients With Anorexia Nervosa and Other Eating Disorders: A Meta-analysis of 36 Studies. *Archives of General Psychiatry*, 68(7), 724–731. <https://doi.org/10.1001/archgenpsychiatry.2011.74>

²⁵ Fichter, M. M., & Quadflieg, N. (2016). Mortality in eating disorders - results of a large prospective clinical longitudinal study. *The International Journal of Eating Disorders*, 49(4), 391–401. <https://doi.org/10.1002/eat.22501>

²⁶ Ali, K., Fassnacht, D. B., Farrer, L. M., Rieger, E., Moessner, M., Bauer, S., & Griffiths, K. M. (2022). Recruitment, adherence and attrition challenges in internet-based indicated prevention programs for eating disorders: lessons learned from a randomised controlled trial of ProYouth OZ. *Journal of Eating Disorders*, 10(1), 1–1. <https://doi.org/10.1186/s40337-021-00520-7>

²⁷ Olguin, P., Fuentes, M., Gabler, G., Guerdjikova, A. I., Keck, P. E., & McElroy, S. L. (2017). Medical comorbidity of binge eating disorder. *Eating and Weight Disorders*, 22(1), 13–26. <https://doi.org/10.1007/s40519-016-0313-5>

²⁸ Bryant, E., Spielman, K., Le, A., Marks, P., Aouad, P., Barakat, S., Boakes, R., Brennan, L., Bryant, E., Byrne, S., Caldwell, B., Calvert, S., Carroll, B., Castle, D., Caterson, I., Chelius, B., Chiem, L., Clarke, S., Conti, J., ... Maguire, S. (2022). Screening, assessment and diagnosis in the eating disorders: findings from a rapid review. *Journal of Eating Disorders*, 10(1), 78–78. <https://doi.org/10.1186/s40337-022-00597-8>

²⁹ Swinbourne, J., Hunt, C., Abbott, M., Russell, J., St Clare, T., & Touyz, S. (2012). The comorbidity between eating disorders and anxiety disorders: Prevalence in an eating disorder sample and anxiety disorder sample. *Australian and New Zealand Journal of Psychiatry*, 46(2), 118–131. <https://doi.org/10.1177/0004867411432071>

³⁰ Swinbourne, J. M., & Touyz, S. W. (2007). The co-morbidity of eating disorders and anxiety disorders: a review. *European Eating Disorders Review*, 15(4), 253–274. <https://doi.org/10.1002/erv.784>

³¹ Steinhausen, H.-C., & Weber, S. (2009). The Outcome of Bulimia Nervosa: Findings From One-Quarter Century of Research. *The American Journal of Psychiatry*, 166(12), 1331–1341. <https://doi.org/10.1176/appi.ajp.2009.09040582>

- ³² Eddy, K. T., Tabri, N., Thomas, J. J., Murray, H. B., Keshaviah, A., Hastings, E., Edkins, K., Krishna, M., Herzog, D. B., Keel, P. K., & Franko, D. L. (2017). Recovery from anorexia nervosa and bulimia nervosa at 22-year follow-up. *The Journal of Clinical Psychiatry*, *78*(2), 184–189. <https://doi.org/10.4088/JCP.15m10393>
- ³³ Hart, L. M., Granillo, M. T., Jorm, A. F., & Paxton, S. J. (2011). Unmet need for treatment in the eating disorders: A systematic review of eating disorder specific treatment seeking among community cases. *Clinical Psychology Review*, *31*(5), 727–735. <https://doi.org/10.1016/j.cpr.2011.03.004>
- ³⁴ Austin, A., Flynn, M., Richards, K., Hodsoll, J., Duarte, T. A., Robinson, P., Kelly, J., & Schmidt, U. (2021). Duration of untreated eating disorder and relationship to outcomes: A systematic review of the literature. *European Eating Disorders Review*, *29*(3), 329–345. <https://doi.org/10.1002/erv.2745>
- ³⁵ Couturier, J., Isserlin, L., Norris, M., Spettigue, W., Brouwers, M., Kimber, M., ... & Pilon, D. (2020). Canadian practice guidelines for the treatment of children and adolescents with eating disorders. *Journal of Eating Disorders*, *8*(1), 1-80.
- ³⁶ Canadian Eating Disorders Alliance, (2019). *The Canadian eating disorders strategy: 2019-2029*. https://nied.ca/wp-content/uploads/2019/11/NIED_Strategy_Eng_CR_MedRes_SinglePages_REV.pdf
- ³⁷ Grilo, C. M., & Mitchell, J. E. (2009). *The Treatment of Eating Disorders: A Clinical Handbook* (1st ed.). Guilford Publications.
- ³⁸ Stice, E., Nathan Marti, C., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, *122*(2), 445–457. <https://doi.org/10.1037/a0030679>
- ³⁹ Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research Review: What we have learned about the causes of eating disorders - a synthesis of sociocultural, psychological, and biological research. *Journal of Child Psychology and Psychiatry*, *56*(11), 1141–1164. <https://doi.org/10.1111/jcpp.12441>
- ⁴⁰ Schaumberg, K., Welch, E., Breithaupt, L., Hübel, C., Baker, J. H., Munn-Chernoff, M. A., Yilmaz, Z., Ehrlich, S., Mustelin, L., Ghaderi, A., Hardaway, A. J., Bulik-Sullivan, E. C., Hedman, A. M., Jangmo, A., Nilsson, I. A. K., Wiklund, C., Yao, S., Seidel, M., & Bulik, C. M. (2017). The Science Behind the Academy for Eating Disorders' Nine Truths About Eating Disorders. *European Eating Disorders Review*, *25*(6), 432–450. <https://doi.org/10.1002/erv.2553>
- ⁴¹ Himmerich, H., Bentley, J., Kan, C., & Treasure, J. (2019). Genetic risk factors for eating disorders: an update and insights into pathophysiology. *Therapeutic Advances in Psychopharmacology*, *9*, 2045125318814734–2045125318814734. <https://doi.org/10.1177/2045125318814734>
- ⁴² Solmi, M., Radua, J., Stubbs, B., Ricca, V., Moretti, D., Busatta, D., Carvalho, A. F., Dragioti, E., Favaro, A., Monteleone, A. M., Shin, J. I., Fusar-Poli, P., & Castellini, G. (2021). Risk factors for eating disorders: an umbrella review of published meta-analyses. *Brazilian Journal of Psychiatry*, *43*(3), 314–323. <https://doi.org/10.1590/1516-4446-2020-1099>
- ⁴³ Rikani, A. A., Choudhry, Z., Choudhry, A. M., Ikram, H., Asghar, M. W., Kajal, D., Waheed, A., & Mobassarrah, N. J. (2013). A critique of the literature on etiology of eating disorders. *Annals of Neurosciences*, *20*(4), 157–161. <https://doi.org/10.5214/ans.0972.7531.200409>
- ⁴⁴ Rosewall, J. K., Gleaves, D. H., & Latner, J. D. (2018). An examination of risk factors that moderate the body dissatisfaction-eating pathology relationship among New Zealand adolescent girls. *Journal of Eating Disorders*, *6*(1), 38–38. <https://doi.org/10.1186/s40337-018-0225-z>
- ⁴⁵ Solmi, M., Radua, J., Stubbs, B., Ricca, V., Moretti, D., Busatta, D., Carvalho, A. F., Dragioti, E., Favaro, A., Monteleone, A. M., Shin, J. I., Fusar-Poli, P., & Castellini, G. (2021). Risk factors for eating disorders: an umbrella review of published meta-analyses. *Revista Brasileira de Psiquiatria*, *43*(3), 314–323. <https://doi.org/10.1590/1516-4446-2020-1099>
- ⁴⁶ Couturier, J., Isserlin, L., Norris, M., Spettigue, W., Brouwers, M., Kimber, M., ... & Pilon, D. (2020). Canadian practice guidelines for the treatment of children and adolescents with eating disorders. *Journal of Eating Disorders*, *8*(1), 1-80.
- ⁴⁷ Canadian Eating Disorders Alliance, (2019). *The Canadian eating disorders strategy: 2019-2029*. https://nied.ca/wp-content/uploads/2019/11/NIED_Strategy_Eng_CR_MedRes_SinglePages_REV.pdf
- ⁴⁸ Ibid.
- ⁴⁹ House of Commons, (2014). *Eating disorders among girls and women in Canada* <https://www.ourcommons.ca/DocumentViewer/en/41-2/FEWO/report-4/page-18>.

- ⁵⁰ Razak, F., Shin, S., Naylor, C. D., & Slutsky, A. S. (2022). Canada's response to the initial 2 years of the COVID-19 pandemic: a comparison with peer countries. *Canadian Medical Association Journal (CMAJ)*, *194*(25), E870–E877. <https://doi.org/10.1503/cmaj.220316>
- ⁵¹ Ibid.
- ⁵² Desson, Z., Weller, E., McMeekin, P., & Ammi, M. (2020). An analysis of the policy responses to the COVID-19 pandemic in France, Belgium, and Canada. *Health Policy and Technology*, *9*(4), 430–446. <https://doi.org/10.1016/j.hlpt.2020.09.002>
- ⁵³ Agostino, H., Burstein, B., Moubayed, D., Taddeo, D., Grady, R., Vyver, E., Dimitropoulos, G., Dominic, A., & Coelho, J. S. (2021). Trends in the Incidence of New-Onset Anorexia Nervosa and Atypical Anorexia Nervosa among Youth during the COVID-19 Pandemic in Canada. *JAMA Network Open*, *4*(12), e2137395–e2137395. <https://doi.org/10.1001/jamanetworkopen.2021.37395>
- ⁵⁴ Desson, Z., Weller, E., McMeekin, P., & Ammi, M. (2020). An analysis of the policy responses to the COVID-19 pandemic in France, Belgium, and Canada. *Health Policy and Technology*, *9*(4), 430–446. <https://doi.org/10.1016/j.hlpt.2020.09.002>
- ⁵⁵ Levinson-King, R. (2021). *Toronto lockdown – one of the world's longest*. British Broadcasting Corporation <https://www.bbc.com/news/world-us-canada-57079577>.
- ⁵⁶ Alami, H., Lehoux, P., Fleet, R., Fortin, J.-P., Liu, J., Attieh, R., Cadeddu, S. B. M., Abdoulaye Samri, M., Savoldelli, M., & Ag Ahmed, M. A. (2021). How Can Health Systems Better Prepare for the Next Pandemic? Lessons Learned From the Management of COVID-19 in Quebec (Canada). *Frontiers in Public Health*, *9*, 671833–671833. <https://doi.org/10.3389/fpubh.2021.671833>
- ⁵⁷ Canadian Institute for Health Information, (2021), *COVID-19's impact on physician services* <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/physician-services>.
- ⁵⁸ Ibid.
- ⁵⁹ Baumgart, D. C. (2020). Digital advantage in the COVID-19 response: perspective from Canada's largest integrated digitalized healthcare system. *NPJ Digital Medicine*, *3*(1), 1–4. <https://doi.org/10.1038/s41746-020-00326-y>
- ⁶⁰ Canadian Institute for Health Information, (2021), *COVID-19's impact on physician services*. <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/physician-services>.
- ⁶¹ Ibid.
- ⁶² Canadian Institute for Health Information, (2021), *COVID-19's impact on emergency departments* <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/emergency-departments>.
- ⁶³ Ibid.
- ⁶⁴ Canadian Institute for Health Information, (2021), *COVID-19's impact on physician services*. <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/physician-services>.
- ⁶⁵ Urrutia, D., Manetti, E., Williamson, M., & Lequy, E. (2021). Overview of Canada's answer to the COVID-19 pandemic's first wave (January–April 2020). *International Journal of Environmental Research and Public Health*, *18*(13), 7131–. <https://doi.org/10.3390/ijerph18137131>
- ⁶⁶ Canadian Institute for Health Information: Over Half a Million Fewer Surgeries Have Been Performed in Canada Since the Start of the Pandemic. (2021). In *Targeted News Service*. Targeted News Service.
- ⁶⁷ Ibid.
- ⁶⁸ Mental Health Commission of Canada Researcher Highlights Recent Research in Mental Health Diseases and Conditions (Out from the shadows: What health leaders should do to advance the mental health and substance use health workforce). (2022). In *Medical Letter on the CDC & FDA* (pp. 1136–). NewsRX LLC.
- ⁶⁹ Ibid.
- ⁷⁰ Ibid.

- ⁷¹ Clark Bryan, D., Macdonald, P., Ambwani, S., Cardi, V., Rowlands, K., Willmott, D., & Treasure, J. (2020). Exploring the ways in which COVID-19 and lockdown has affected the lives of adult patients with anorexia nervosa and their carers. *European Eating Disorders Review*, 28(6), 826–835. <https://doi.org/10.1002/erv.2762>
- ⁷² Vuillier, L., May, L., Greville-Harris, M., Surman, R., & Moseley, R. L. (2021). The impact of the COVID-19 pandemic on individuals with eating disorders: the role of emotion regulation and exploration of online treatment experiences. *Journal of Eating Disorders*, 9(1), 10–10. <https://doi.org/10.1186/s40337-020-00362-9>
- ⁷³ Ibid.
- ⁷⁴ Miniati, M., Marzetti, F., Palagini, L., Marazziti, D., Orrù, G., Conversano, C., & Gemignani, A. (2021). Eating Disorders Spectrum During the COVID Pandemic: A Systematic Review. *Frontiers in Psychology*, 12, 663376–663376. <https://doi.org/10.3389/fpsyg.2021.663376>
- ⁷⁵ Miskovic-Wheatley, J., Koreshe, E., Kim, M., Simeone, R., & Maguire, S. (2022). The impact of the COVID-19 pandemic and associated public health response on people with eating disorder symptomatology: an Australian study. *Journal of Eating Disorders*, 10(1), 9–9. <https://doi.org/10.1186/s40337-021-00527-0>
- ⁷⁶ Taquet, M., Geddes, J. R., Luciano, S., & Harrison, P. J. (2021). Incidence and outcomes of eating disorders during the COVID-19 pandemic. *British Journal of Psychiatry*, 220(5), 262–264. <https://doi.org/10.1192/bjp.2021.105>
- ⁷⁷ Agostino, H., Burstein, B., Moubayed, D., Taddeo, D., Grady, R., Vyver, E., Dimitropoulos, G., Dominic, A., & Coelho, J. S. (2021). Trends in the Incidence of New-Onset Anorexia Nervosa and Atypical Anorexia Nervosa among Youth during the COVID-19 Pandemic in Canada. *JAMA Network Open*, 4(12), e2137395–e2137395. <https://doi.org/10.1001/jamanetworkopen.2021.37395>
- ⁷⁸ Vyver, E., Han, A. X., Dimitropoulos, G., Patten, S. B., Devoe, D. J., Marcoux-Louie, G., & Katzman, D. K. (2023). The COVID-19 Pandemic and Canadian Pediatric Tertiary Care Hospitalizations for Anorexia Nervosa. *Journal of Adolescent Health*, 72(3), 344–351. <https://doi.org/10.1016/j.jadohealth.2022.07.003>
- ⁷⁹ Ibid.
- ⁸⁰ Taquet, M., Geddes, J. R., Luciano, S., & Harrison, P. J. (2021). Incidence and outcomes of eating disorders during the COVID-19 pandemic. *British Journal of Psychiatry*, 220(5), 262–264. <https://doi.org/10.1192/bjp.2021.105>
- ⁸¹ Trafford, A. M., Carr, M. J., Ashcroft, D. M., Chew-Graham, C. A., Cockcroft, E., Cybulski, L., Garavini, E., Garg, S., Kabir, T., Kapur, N., Temple, R. K., Webb, R. T., & Mok, P. L. H. (2023). Temporal trends in eating disorder and self-harm incidence rates among adolescents and young adults in the UK in the 2 years since onset of the COVID-19 pandemic: a population-based study. *The Lancet Child & Adolescent Health*, 7(8), 544–554. [https://doi.org/10.1016/S2352-4642\(23\)00126-8](https://doi.org/10.1016/S2352-4642(23)00126-8)
- ⁸² Asch, D. A., Buresh, J., Allison, K. C., Islam, N., Sheils, N. E., Doshi, J. A., & Werner, R. M. (2021). Trends in US Patients Receiving Care for Eating Disorders and Other Common Behavioral Health Conditions before and during the COVID-19 Pandemic. *JAMA Network Open*, 4(11), e2134913–e2134913. <https://doi.org/10.1001/jamanetworkopen.2021.34913>
- ⁸³ Haripersad, Y. V., Kannegiesser-Bailey, M., Morton, K., Skeldon, S., Shipton, N., Edwards, K., Newton, R., Newell, A., Stevenson, P. G., & Martin, A. C. (2021). Outbreak of anorexia nervosa admissions during the COVID-19 pandemic. *Archives of Disease in Childhood*, 106(3), e15–e15. <https://doi.org/10.1136/archdischild-2020-319868>
- ⁸⁴ Jones, P. D., Gentin, A., Clarke, J., & Arakkakunnel, J. (2020). FEWER RESPIRATORY ADMISSIONS IN COVID-19 ERA. *Journal of Paediatrics and Child Health*, 56(12), 1997–1999. <https://doi.org/10.1111/jpc.15248>
- ⁸⁵ Agostino, H., Burstein, B., Moubayed, D., Taddeo, D., Grady, R., Vyver, E., Dimitropoulos, G., Dominic, A., & Coelho, J. S. (2021). Trends in the Incidence of New-Onset Anorexia Nervosa and Atypical Anorexia Nervosa among Youth during the COVID-19 Pandemic in Canada. *JAMA Network Open*, 4(12), e2137395–e2137395. <https://doi.org/10.1001/jamanetworkopen.2021.37395>
- ⁸⁶ Haripersad, Y. V., Kannegiesser-Bailey, M., Morton, K., Skeldon, S., Shipton, N., Edwards, K., Newton, R., Newell, A., Stevenson, P. G., & Martin, A. C. (2021). Outbreak of anorexia nervosa admissions during the COVID-19 pandemic. *Archives of Disease in Childhood*, 106(3), e15–e15. <https://doi.org/10.1136/archdischild-2020-319868>
- ⁸⁷ Jones, P. D., Gentin, A., Clarke, J., & Arakkakunnel, J. (2020). FEWER RESPIRATORY ADMISSIONS IN COVID-19 ERA. *Journal of Paediatrics and Child Health*, 56(12), 1997–1999. <https://doi.org/10.1111/jpc.15248>

- ⁸⁸ Zipfel, S., Schmidt, U., & Giel, K. E. (2022). The hidden burden of eating disorders during the COVID-19 pandemic. *The Lancet. Psychiatry*, *9*(1), 9–11. [https://doi.org/10.1016/S2215-0366\(21\)00435-1](https://doi.org/10.1016/S2215-0366(21)00435-1)
- ⁸⁹ Spigel, R., Lin, J. A., Milliren, C. E., Freizinger, M., Vitagliano, J. A., Woods, E. R., Forman, S. F., & Richmond, T. K. (2021). Access to care and worsening eating disorder symptomatology in youth during the COVID-19 pandemic. *Journal of Eating Disorders*, *9*(1), 1–69. <https://doi.org/10.1186/s40337-021-00421-9>
- ⁹⁰ Branley-Bell, D., & Talbot, C. V. (2020). Exploring the impact of the COVID-19 pandemic and UK lockdown on individuals with experience of eating disorders. *Journal of Eating Disorders*, *8*(1), 44–44. <https://doi.org/10.1186/s40337-020-00319-y>
- ⁹¹ Weissman, R. S., Bauer, S., & Thomas, J. J. (2020). Access to evidence-based care for eating disorders during the COVID-19 crisis. *International Journal of Eating Disorders*, *53*(5), 369–376. <https://doi.org/10.1002/eat.23279>
- ⁹² Lin, J. A., Hartman-Munick, S. M., Kells, M. R., Milliren, C. E., Slater, W. A., Woods, E. R., Forman, S. F., & Richmond, T. K. (2021). The Impact of the COVID-19 Pandemic on the Number of Adolescents/Young Adults Seeking Eating Disorder-Related Care. *Journal of Adolescent Health*, *69*(4), 660–663. <https://doi.org/10.1016/j.jadohealth.2021.05.019>
- ⁹³ Steiger, H., Booij, L., Crescenzi, O., Oliverio, S., Singer, I., Thaler, L., St-Hilaire, A., & Israel, M. (2022). In-person versus virtual therapy in outpatient eating-disorder treatment: A COVID-19 inspired study. *International Journal of Eating Disorders*, *55*(1), 145–150. <https://doi.org/10.1002/eat.23655>
- ⁹⁴ Stewart, C., Konstantellou, A., Kassamali, F., McLaughlin, N., Cutinha, D., Bryant-Waugh, R., Simic, M., Eisler, I., & Baudinet, J. (2021). Is this the ‘new normal’? A mixed method investigation of young person, parent and clinician experience of online eating disorder treatment during the COVID-19 pandemic. *Journal of Eating Disorders*, *9*(1), 1–78. <https://doi.org/10.1186/s40337-021-00429-1>
- ⁹⁵ Iacobucci, G. (2021). Eating disorders: Record number of young people wait for treatment as demand soars. *BMJ (Online)*, *374*, n2058–n2058. <https://doi.org/10.1136/bmj.n2058>
- ⁹⁶ Ayton, A., Viljoen, D., Ryan, S., Ibrahim, A., & Ford, D. (2022). Risk, demand, capacity and outcomes in adult specialist eating disorder services in South-East of England before and since COVID-19. *BJPsych Bulletin*, *46*(2), 89–95. <https://doi.org/10.1192/bjb.2021.73>
- ⁹⁷ Stone, K. D., Dimitropoulos, G., & Macmaster, F. P. (2021). Food for Thought: A Dissonance Between Healthcare Utilization Costs and Research Funding for Eating Disorders in Canada. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *30*(3), 197–203.
- ⁹⁸ Langlois, K. A. (2012). *Health state descriptions for Canadians: Mental illness*. Statistics Canada.
- ⁹⁹ Tse, A., Xavier, S., Trollope-Kumar, K., Agarwal, G., & Lokker, C. (2022). Challenges in eating disorder diagnosis and management among family physicians and trainees: a qualitative study. *Journal of Eating Disorders*, *10*(1), 45–45. <https://doi.org/10.1186/s40337-022-00570-5>
- ¹⁰⁰ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Sammaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders*, *54*(5), 851–868. <https://doi.org/10.1002/eat.23486>
- ¹⁰¹ Jenkins, P. E. (2022). Cost-of-illness for non-underweight binge-eating disorders. *Eating and Weight Disorders*, *27*(4), 1377–1384. <https://doi.org/10.1007/s40519-021-01277-3>
- ¹⁰² Tannous, W. K., Hay, P., Girosi, F., Heriseanu, A. I., Ahmed, M. U., & Touyz, S. (2022). The economic cost of bulimia nervosa and binge eating disorder: a population-based study. *Psychological Medicine*, *52*(16), 3924–3938. <https://doi.org/10.1017/S0033291721000775>
- ¹⁰³ de Oliveira, C., Colton, P., Cheng, J., Olmsted, M., & Kurdyak, P. (2017). The direct health care costs of eating disorders among hospitalized patients: A population-based study. *The International Journal of Eating Disorders*, *50*(12), 1385–1393. <https://doi.org/10.1002/eat.22797>
- ¹⁰⁴ Deloitte Access Economics (2012). *Paying the Price*, for The Butterfly Foundation, . https://butterfly.org.au/wp-content/uploads/2020/06/Butterfly_Report_Paying-the-Price.pdf

¹⁰⁵ Ibid

- ¹⁰⁶ Safi, F., Anisierowicz, A. M., Colquhoun, H., Stier, J., & Nowrouzi-Kia, B. (2022). Impact of eating disorders on paid or unpaid work participation and performance: a systematic review and meta-analysis protocol. *Journal of Eating Disorders, 10*(1), 7–7. <https://doi.org/10.1186/s40337-021-00525-2>
- ¹⁰⁷ Jenkins, P. E. (2022). Cost-of-illness for non-underweight binge-eating disorders. *Eating and Weight Disorders, 27*(4), 1377–1384. <https://doi.org/10.1007/s40519-021-01277-3>
- ¹⁰⁸ Hornberger, L. L., & Lane, M. A. (2021). Identification and management of eating disorders in children and adolescents. *Pediatrics (Evanston), 147*(1), 1-. <https://doi.org/10.1542/PEDS.2020-040279>
- ¹⁰⁹ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders, 54*(5), 851–868. <https://doi.org/10.1002/eat.23486>
- ¹¹⁰ Deloitte Access Economics (2012). *Paying the Price*, for The Butterfly Foundation, . https://butterfly.org.au/wp-content/uploads/2020/06/Butterfly_Report_Paying-the-Price.pdf.
- ¹¹¹ Canadian Health Policy Institute: Private Health Insurance Costs for Dental, Vision, Professionals, Hospitals and Administration Are Growing 2 to 5 Times Faster Than Spending on New Medicines. (2014). *Internet Wire*.
- ¹¹² Canadian Institute for Health Information (2022), ‘National Physician Database Data Release, 2020–2021’. *Ottawa, ON: CIHI*.
- ¹¹³ Canadian Institute for Health Information (2020), ‘Hospital spending: Focus on the emergency department’, *Ottawa, ON: CIHI*. Hospital spending: Focus on the emergency department ([cihi.ca](https://www.cihi.ca))
- ¹¹⁴ Canadian Institute for Health Information (2022), ‘National Physician Database Data Release, 2020–2021’, *Ottawa, ON: CIHI*
- ¹¹⁵ Canadian Institute for Health Information (2020), ‘Hospital spending: Focus on the emergency department, Ottawa, ON: CIHI.
- ¹¹⁶ Canadian Institute for Health Information (2022), ‘National Physician Database Data Release, 2020–2021’, *Ottawa, ON: CIHI*.
- ¹¹⁷ Tichenor, M., & Sridhar, D. (2020). Metric partnerships: Global burden of disease estimates within the World Bank, the World Health Organisation and the Institute for Health Metrics and Evaluation. *Wellcome Open Research, 4*, 35–35. <https://doi.org/10.12688/wellcomeopenres.15011.2>
- ¹¹⁸ Government of Canada (2023) *Canada’s Cost-Benefit Analysis Guide for Regulatory Proposals* <https://www.canada.ca/en/government/system/laws/developing-improving-federal-regulations/requirements-developing-managing-reviewing-regulations/guidelines-tools/cost-benefit-analysis-guide-regulatory-proposals.html>.
- ¹¹⁹ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders, 54*(5), 851–868. <https://doi.org/10.1002/eat.23486>
- ¹²⁰ Ibid.
- ¹²¹ Clark Bryan, D., Macdonald, P., Ambwani, S., Cardi, V., Rowlands, K., Willmott, D., & Treasure, J. (2020). Exploring the ways in which COVID-19 and lockdown has affected the lives of adult patients with anorexia nervosa and their carers. *European Eating Disorders Review, 28*(6), 826–835. <https://doi.org/10.1002/erv.2762>
- ¹²² Vuillier, L., May, L., Greville-Harris, M., Surman, R., & Moseley, R. L. (2021). The impact of the COVID-19 pandemic on individuals with eating disorders: the role of emotion regulation and exploration of online treatment experiences. *Journal of Eating Disorders, 9*(1), 10–10. <https://doi.org/10.1186/s40337-020-00362-9>
- ¹²³ Miskovic-Wheatley, J., Koreshe, E., Kim, M., Simeone, R., & Maguire, S. (2022). The impact of the COVID-19 pandemic and associated public health response on people with eating disorder symptomatology: an Australian study. *Journal of Eating Disorders, 10*(1), 9–9. <https://doi.org/10.1186/s40337-021-00527-0>

¹²⁴ Miniati, M., Marzetti, F., Palagini, L., Marazziti, D., Orrù, G., Conversano, C., & Gemignani, A. (2021). Eating Disorders Spectrum During the COVID Pandemic: A Systematic Review. *Frontiers in Psychology, 12*, 663376–663376. <https://doi.org/10.3389/fpsyg.2021.663376>

¹²⁵ Ibid

¹²⁶ Haripersad, Y. V., Kannegiesser-Bailey, M., Morton, K., Skeldon, S., Shipton, N., Edwards, K., Newton, R., Newell, A., Stevenson, P. G., & Martin, A. C. (2021). Outbreak of anorexia nervosa admissions during the COVID-19 pandemic. *Archives of Disease in Childhood, 106*(3), e15–e15. <https://doi.org/10.1136/archdischild-2020-319868>

¹²⁷ Lin, J. A., Hartman-Munick, S. M., Kells, M. R., Milliren, C. E., Slater, W. A., Woods, E. R., Forman, S. F., & Richmond, T. K. (2021). The Impact of the COVID-19 Pandemic on the Number of Adolescents/Young Adults Seeking Eating Disorder-Related Care. *Journal of Adolescent Health, 69*(4), 660–663. <https://doi.org/10.1016/j.jadohealth.2021.05.019>

¹²⁸ Toulany, A., Kurdyak, P., Guttman, A., Stukel, T. A., Fu, L., Strauss, R., Fiksenbaum, L., & Saunders, N. R. (2022). Acute Care Visits for Eating Disorders Among Children and Adolescents After the Onset of the COVID-19 Pandemic. *Journal of Adolescent Health, 70*(1), 42–47. <https://doi.org/10.1016/j.jadohealth.2021.09.025>

¹²⁹ Canadian Institute for Health Information (2022), 'National Physician Database Data Release, 2020–2021'. *Ottawa, ON: CIHI*.

¹³⁰ Mair, M., & Barua, B. (2022). Waiting Your Turn: Wait Times for Health Care in Canada, 2022. In *Policy File*. The Fraser Institute.

¹³¹ Ibid

¹³² Moir, M., & Barua, B. (2021). Waiting Your Turn: Wait Times for Health Care in Canada, 2021. In *Policy File*. The Fraser Institute.

¹³³ Barua, B., & Moir, M. (2020). Waiting Your Turn: Wait Times for Health Care in Canada, 2020. In *Policy File*. The Fraser Institute.

¹³⁴ Barua, B., & Moir, M. (2019). Waiting Your Turn: Wait Times for Health Care in Canada, 2019. In *Policy File*. The Fraser Institute.

¹³⁵ Mair, M., & Barua, B. (2022). Waiting Your Turn: Wait Times for Health Care in Canada, 2022. In *Policy File*. The Fraser Institute.

¹³⁶ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders, 54*(5), 851–868. <https://doi.org/10.1002/eat.23486>

¹³⁷ Jenkins, P. E. (2022). Cost-of-illness for non-underweight binge-eating disorders. *Eating and Weight Disorders, 27*(4), 1377–1384. <https://doi.org/10.1007/s40519-021-01277-3>

¹³⁸ Tannous, W. K., Hay, P., Girosi, F., Heriseanu, A. I., Ahmed, M. U., & Touyz, S. (2022). The economic cost of bulimia nervosa and binge eating disorder: a population-based study. *Psychological Medicine, 52*(16), 3924–3938. <https://doi.org/10.1017/S0033291721000775>

¹³⁹ de Oliveira, C., Colton, P., Cheng, J., Olmsted, M., & Kurdyak, P. (2017). The direct health care costs of eating disorders among hospitalized patients: A population-based study. *The International Journal of Eating Disorders, 50*(12), 1385–1393. <https://doi.org/10.1002/eat.22797>

¹⁴⁰ Hall, D. (2020). Geographical Mobility, Sexual Identities and Personal Stories: Complexities of LGBT Christians' Activism in Poland. In *Intersecting Religion and Sexuality* (pp. 122-144). Brill.

¹⁴¹ Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). Social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders, 54*(5), 851–868. <https://doi.org/10.1002/eat.23486>

¹⁴² Richards, K. L., Hyam, L., Allen, K. L., Glennon, D., Di Clemente, G., Semple, A., Jackson, A., Belli, S. R., Dodge, E., Kilonzo, C., Holland, L., & Schmidt, U. (2023). National roll-out of early intervention for eating disorders: Process and clinical

outcomes from first episode rapid early intervention for eating disorders. *Early Intervention in Psychiatry*, 17(2), 202–211. <https://doi.org/10.1111/eip.13317>

¹⁴³ Wilksch, S. M. (2023). Toward a more comprehensive understanding and support of parents with a child experiencing an eating disorder. *The International Journal of Eating Disorders*, 56(7), 1275–1285. <https://doi.org/10.1002/eat.23938>

¹⁴⁴ Ibid.

¹⁴⁵ Mair, M., & Barua, B. (2022). *Waiting Your Turn: Wait Times for Health Care in Canada, 2022*. In *Policy File*. The Fraser Institute.

¹⁴⁶ Canadian Institute for Health Information (2022), 'National Physician Database Data Release, 2020–2021'. *Ottawa, ON: CIHI*.

¹⁴⁷ Couturier, J., Pellegrini, D., Miller, C., Bhatnagar, N., Boachie, A., Bourret, K., Brouwers, M., Coelho, J. S., Dimitropoulos, G., Findlay, S., Ford, C., Geller, J., Grewal, S., Gusella, J., Isserlin, L., Jericho, M., Johnson, N., Katzman, D. K., Kimber, M., ... Webb, C. (2021). The COVID-19 pandemic and eating disorders in children, adolescents, and emerging adults: virtual care recommendations from the Canadian consensus panel during COVID-19 and beyond. *Journal of Eating Disorders*, 9(1), 46–46. <https://doi.org/10.1186/s40337-021-00394-9>

¹⁴⁸ Novack, K., Dufour, R., Picard, L., Taddeo, D., Nadeau, P.-O., Katzman, D. K., Booij, L., & Chadi, N. (2023). Canadian pediatric eating disorder programs and virtual care during the COVID-19 pandemic: a mixed-methods approach to understanding clinicians' perspectives. *Annals of General Psychiatry*, 22(1), 16–16. <https://doi.org/10.1186/s12991-023-00443-4>.

¹⁴⁹ Pongou, R., Ahinkorah, B. O., Maltais, S., Mabeu, M. C., Agarwal, A., & Yaya, S. (2022). Psychological distress during the COVID-19 pandemic in Canada. *Plos one*, 17(11), e0277238.

¹⁵⁰ Canadian Institute for Health Information, (2021). *COVID-19's impact on physician services*. <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/physician-services>.

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