Determinants of Self-referral Pathways to Youth Mental Health Services

and

Their Impact on Timely Access to Care

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Table of Contents

English Abstract

Aims: The traditional youth mental health system has been criticized for being inaccessible and complicated, with youth making multiple stops before receiving care. ACCESS Open Minds (ACCESS), a services research project, developed, implemented, and evaluated a transformation of youth mental health services at 14 sites across Canada. Unlike the traditional system, ACCESS allowed youth to refer themselves (self-referral). Self-referral has been theorized to shorten treatment delays, especially for traditionally underserved youth. Questions remain about which youth self-refer and if it impacts wait times to mental health services. This study aims to compare: (1) socio-demographic and clinical characteristics associated with self-referral versus other referral routes among help-seeking youth at ACCESS sites; (2) wait times to first appointment for those self-referring versus using other routes. We hypothesized that self-referral would be associated with shorter wait times to first appointment.

Methods: Data on sociodemographic, clinical, referral pathways, and service use factors were collected via records, self-report forms, and clinical interviews. Eleven of the fourteen sites were included in the analyses; excluded sites were either not part of the cohort study (n=2) or did not collect data on key outcomes (n=1). Multiple logistic regression and an accelerated failure time model, both with multilevel modelling, were used to investigate the first and second aim, respectively. Multivariate Imputation by Chained Equations (MICE) was used to handle missingness.

Results: The analytic sample included 4,421 youth; 39% were self-referred and 61% arrived via other referral pathways. The odds of self-referral were higher for each increasing year of age (OR:1.10, 95% CI:1.06-1.14), for those who did not have a secondary diploma, compared to

those who were too young to have a secondary diploma (OR:1.42, 95% CI:1.02-1.98); for those who had previously been assessed at ACCESS sites, compared to those with no previous service seeking (OR:2.28, 95% CI:1.61-3.24), and for each six-month increase in time since ACCESS implementation (OR:1.09, 95% CI:1.05-1.14). Conversely, sexual minority youth (OR:0.81, 95% CI:0.67-0.98) and those with moderate-to-significant difficulties with functioning (OR:0.81, 95% CI:0.65-0.99) were less likely to self-refer. Self-referral was not associated with gender, ethnic or cultural origins, engagement in education, employment, or training, presence of a reliable adult, mental health problem severity, or coming in before or after the start of the COVID-19 pandemic. Controlling for these socio-demographic, clinical, and service use factors, self-referral was associated with decreased time (in days) from referral to first appointment (TR:0.70, 95% CI:0.65-0.76). Explanatory analyses showed that the increased time to first appointment for those referred by others is attributable to the time needed to first contact the referral source and then the youth to offer an appointment.

Conclusions: The notable uptake of self-referral and its impact on increasing timeliness of access to care suggest that self-referral should remain a feature of youth mental health service reform. However, this pathway was used differentially by youth based on certain characteristics, which may contribute to disparities in timely access to care. Future work should promote self-referral, particularly among those less likely to use it, while reducing delays to appointments for youth referred by others.

French Abstract

Objectifs: Le système traditionnel de santé mentale pour les jeunes a été critiqué pour être inaccessible et compliqué, les jeunes devant faire plusieurs arrêts avant de recevoir des soins. ACCESS Open Minds (ACCESS), un projet de recherche sur les services, a développé, mis en œuvre et évalué une transformation des services de santé mentale pour les jeunes dans 14 sites à travers le Canada. Contrairement au système traditionnel, ACCESS permet aux jeunes de se référer eux-mêmes (auto-référencement). L'auto-référencement a été théorisé pour raccourcir les délais de traitement, surtout traditionnellement pour les jeunes défavorisés. Des questions subsistent sur les jeunes qui s'auto-référencent et si cela impacte les temps d'attente pour les services de santé mentale. Cette étude vise à: (1) comparer les caractéristiques sociodémographiques et cliniques associées à l'auto-référencement par rapport aux autres voies de référencement parmi les jeunes en quête d'aide dans les sites ACCESS; (2) comparer les temps d'attente pour le premier rendez-vous pour ceux qui s'auto-référencent par rapport à ceux utilisant d'autres voies. L'hypothèse était que l'auto-référencement serait associé à des temps d'attente plus courts pour le premier rendez-vous.

Méthodes: Les données sur les facteurs sociodémographiques, cliniques, les voies de référencement et l'utilisation des services ont été collectées via des dossiers, des formulaires d'auto-évaluation et des entretiens cliniques. Onze des quatorze sites ont été inclus dans les analyses; les sites exclus ne faisaient pas partie de l'étude de cohorte (n=2) ou n'ont pas collecté de données sur les issues clés (n=1). Une régression logistique multiple et un modèle de temps de défaillance accéléré, tous deux avec modélisation multiniveau, ont été utilisés pour investiguer les premier et deuxième objectifs, respectivement. Les modèles d'imputation multivariée par équations chaînées (MICE) ont été utilisés pour gérer les données manquantes.

Résultats: L'échantillon analytique comprenait 4 421 jeunes; 39 % des jeunes se sont auto-référés tandis que 61 % sont arrivés via d'autres voies de référencement. Les probabilités de s'auto-référencer étaient plus élevées pour chaque année supplémentaire (OR:1,10, IC à 95 %:1,06-1,14), pour ceux qui n'avaient pas de diplôme secondaire, par rapport à ceux qui étaient trop jeunes pour avoir un diplôme secondaire (OR:1,42, IC à 95 %:1,02-1,98) ; pour ceux qui avaient déjà été évalués dans les sites ACCESS, par rapport à ceux n'ayant jamais recherché/utilisé de services auparavant (OR:2,28, IC à 95 %:1,61-3,24), et pour chaque augmentation de 6 mois depuis la mise en œuvre d'ACCESS (OR:1,09, IC à 95 %:1,05-1,14). En revanche, les jeunes minoritaires sexuels et ceux ayant des difficultés fonctionnelles significatives étaient moins susceptibles de s'auto-référencer (OR:0,81, IC à 95 %:0,67-0,98 et OR:0,81, IC à 95 %:0,65-0,99, respectivement). L'auto-référencement n'était pas associé au sexe, à l'origine ethnique/culturelle, à l'engagement dans l'éducation, l'emploi ou la formation, à la présence d'un adulte de confiance, à la gravité des problèmes de santé mentale ou à la période avant ou après le début de la pandémie de COVID-19. En contrôlant pour ces facteurs sociodémographiques, cliniques et d'utilisation des services, l'auto-référencement était associé à une diminution du temps (en jours) entre le référencement et le premier rendez-vous (TR:0,70, IC à 95 %:0,65-0,76). Les analyses explicatives ont montré que c'est le temps impliqué dans le premier contact avec la source de référencement puis avec le jeune avant qu'un rendez-vous ne soit proposé qui est responsable de l'augmentation du temps entre le référencement et le premier rendez-vous pour ceux qui ne s'auto-référencent pas.

Conclusions: Plus d'un tiers des jeunes se sont auto-référés aux sites ACCESS et, comme hypothétiquement, ils avaient des temps d'attente plus courts pour un premier rendez-vous par rapport à ceux qui étaient référés par d'autres. Contrairement à ce qui a été théorisé, les groupes

de jeunes plus vulnérables n'étaient soit pas plus susceptibles, soit, dans certains cas, moins susceptibles d'utiliser cette voie d'accès aux soins. La prise en charge remarquable de l'auto-référencement et son impact sur l'amélioration de la rapidité d'accès aux soins suggèrent que l'auto-référencement devrait rester une caractéristique de la réforme des services de santé mentale pour les jeunes. Cependant, les voies d'auto-référencement peuvent involontairement élargir les disparités dans l'accès rapide aux soins. Des travaux futurs devraient examiner pourquoi cette voie est utilisée de manière différenciée et promouvoir l'auto-référencement, en particulier parmi ceux qui sont moins susceptibles de l'utiliser, tout en réduisant les délais pour les rendez-vous des jeunes qui sont référés par d'autres.

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List of Tables

List of Figures

List of Abbreviations and Acronyms

ACCESS	ACCESS Open Minds
CI	Confidence interval
CIHR	Canadian Institute of Health Research
DSM-5	Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition
DUI	Duration of untreated illness
DUP	Duration of untreated psychosis
ER	Emergency room
IQR	Interquartile range
LGBQTIA2S+	Lesbian, Gay, Bisexual, Queer and Questioning, Transgender and Trans, Intersex, Asexual or Agender, Two-spirited
MICE	Multivariate imputation by chained equations
N/A	Not applicable
NEET	Not in education, employment, or training
OR	Odds ratio
SD	Standard deviation
SPOR	Strategy for Patient-Oriented Research
TR	Time ratio

Introduction

In recent years, there have been growing calls in Canada and globally to invest in youth mental health (1, 2). While most mental disorders have their onset before the age of 25 (3) and early interventions are known to result in better outcomes for individuals and society (2), traditional mental health services have been criticized for being incapable of meeting the needs of young people (4, 5). These services often require that individuals meet diagnostic criteria, ignoring the distress and negative consequences associated with precursor signs and symptoms; are fragmented and siloed, making it difficult to obtain the entirety of care required; and are often developmentally inappropriate (4, 6). In the face of increasing rates of mental health and substance use problems among young people in many jurisdictions globally, the need for youth mental health service reform has grown (6). Such reform has typically focused on offering services across the age range of 11 to 25 years because it corresponds to the high-risk period for onset of mental health problems (3, 5) and prevents disruptive discontinuities in care between child-adolescent services that typically go on until age 16-18 and adult services that start after 16-18 (5, 7).

In response, the first Canadian Institute of Health Research (CIHR) Strategy for Patient-Oriented Research (SPOR) initiative was funded and ACCESS Open Minds (ACCESS), a youth mental health service network, was established (8). With 14 sites across Canada, ACCESS was designed by multiple stakeholders, including young people, to implement and evaluate a transformation to youth mental health services (8). The transformation involved outreach to increase referrals; rapid access to an initial evaluation (within 72 hours) and appropriate services (within a maximum of 30 days for non-urgent cases) in youth-friendly community/primary care settings; young people and family engagement in treatment decision-making and in designing

developmentally appropriate, LGBQTIA2S+ friendly, and culturally sensitive services; and no age-based transitions between the ages of 11 and 25 (8). Notably, ACCESS allowed referrals to come from any source, including self-referrals (8).

Self-referral pathways are theorized to improve accessibility to mental health services because they remove the requirement to involve service gatekeepers, particularly general practitioners (9). Incorporating such a route to care could also improve health equity by facilitating direct access to mental healthcare for young people; specifically, it may promote access for those who experience barriers presenting to or who have difficulty with obtaining a referral from a general practitioner (9). Research has found that certain youth groups, particularly transgender young people (10), are less likely to present to primary care and others, such as ethnic minority young people (11), are less likely to be referred to specialty mental health services by a general practitioner compared to their peers. Reducing the number of required contacts could also, in theory, reduce the duration of untreated illness, which has been associated with poorer prognosis, particularly for certain conditions including psychosis (12), eating disorders (13) and bipolar disorder (14).

In the face of calls to scale up self-referral pathways, it is imperative that this route to care be examined rigorously. A recent systematic review found that self-referral pathways to health services, including both physical and mental health services, could be increasing health inequalities as some groups are less likely to use these pathways (15). However, this study was not specific to youth populations or mental health services so further investigation is warranted.

Objective:

The objective of this thesis is to investigate the uptake of self-referral pathways to youth mental health services, as well as to examine whether there are differences in the sociodemographic and clinical characteristics of young people using self-referral when compared to young people using other referral routes. A second objective is to study the impacts of a self-referral pathway in increasing timeliness of access to youth mental health services. It is hypothesized that self-referral would be associated with shorter wait times to the first appointment compared to other referral pathways. These two objectives are addressed using data from the ACCESS Open Minds project.

Chapter 1: Literature Review

This review of the literature provides relevant background knowledge about the nature of mental disorders, how they impact populations, and the systems in place to treat them. It emphasizes the importance of early intervention, the treatment gap that currently exists for young people and consequently the need for greater investment in youth mental health. Through examining current initiatives to improve youth mental health, it highlights the importance of referral sources and the theorized impact of open referral systems (which allow for self-referral). The review then explores what is known about the routes young people take to arrive at mental health services in practice and examines the determinants of referral sources. Concluding with a review of what is currently known about the use and impact of self-referral pathways for young people seeking mental health care, it identifies current gaps in knowledge and the need for further investigations.

1.1 Mental disorders and mental health systems

1.1.1 Defining mental disorders

Mental disorders, broadly characterized as syndromes resulting in clinically significant disruptions in one's emotional regulation, cognition, and/or behaviour, are typically associated with distress and difficulties with social, and/or occupational functioning and other activities of daily living (16). Estimated to affect most of the population to varying degrees within a lifetime (17), they currently make up 13% of disability-adjusted life years and 32% of years lived with disability globally (18). The etiology of these disorders is understood to be complex and involves an interplay between environmental and biological risk factors (19).

The Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (DSM-5) currently describes 20 types of disorders which themselves encompass over 200 diagnosable mental health conditions (16). With each disorder defined by its own characteristic pattern of signs and symptoms, this classification system was developed to help clinicians with identifying, planning, and treating mental health problems (16). However, it has been argued that diagnostic categories take a top-down approach, and that DSM-based cut-offs do not adequately account for either the overlapping nature of symptoms across diagnoses or the differences in symptom patterns among individuals within the same diagnostic groupings (19).

For many, precursor signs and symptoms are experienced prior to meeting diagnostic criteria for specific disorders; for others, similar signs and symptoms may never lead to the development of a diagnosable disorder (20). Regardless of whether threshold criteria are met, treating signs and symptoms can still be greatly beneficial, especially if subthreshold symptoms are associated with high levels of distress and impairments with functioning, which can often be the case (21). Left untreated, people may go on to develop major mental disorders, even those that are not strictly associated with the signs and symptoms with which they originally presented (22). For instance, only a minority of young people who are clinically-high-risk for psychosis go on to develop diagnosable psychotic disorders, but a much higher number develop other major mental disorders (23). Psychosocial and pharmacological interventions have been developed to delay or prevent the transition to threshold-level disorders (24). Beyond this objective, these interventions also aim to reduce distress and the severity, recurrence and persistence of symptoms, improve functioning, and promote well-being (25).

For those who do go on to develop a mental disorder, most will experience the onset before the age of 25 (26). For many, but not all individuals, the onset of mental disorders is often preceded

by a prodrome, the time between the onset of symptoms and meeting diagnostic criteria (20). The prodrome may differ across individuals and disorders (27) and the time at which it occurs may also vary; for instance, the prodrome for depressive and bipolar disorders typically occurs during young adulthood, while for anxiety and impulse control disorders, it often occurs during childhood (20). Most importantly, mental disorders are treatable, and many individuals who receive proper intervention meet criteria for symptom remission, i.e., a significant reduction in signs and symptoms that persists for a specified time period (20). Some will meet diagnostic criteria again post-remission (i.e., relapse), which may necessitate a recommencement of treatment or a change in treatment type or intensity (20).

Complicating matters further, mental disorders can be co-morbid, referring to the occurrence of at least two mental disorders at the same time. Some argue that comorbidity is the result of narrow diagnostic categories that do not account for the possibility that the co-occurrence is an entity of its own (28). Still comorbidities complicate the identification of underlying disorders and, consequently, treatment plans (29). Comorbidity can also occur between mental disorders and physical health conditions. In fact, a recent study from Canada found that approximately 8.4% of the population over 18 years old have a physical and mental health comorbidity (30).

1.1.2 Mental health systems

Mental health systems can be described as actions, people, and/or organizations whose expressed purpose is to promote, maintain, or restore the mental wellbeing of individuals (31). While these systems differ by country, especially depending on resource levels, they generally attempt to provide effective and appropriate interventions to those in need (31). For the most part, health services have been siloed, with physical and mental health conditions treated in different settings

and by different providers (32). Globally, health expenditures have been concentrated on physical health problems, with monetary investments made for mental health being far lower (31). The proportion of money spent on mental health is country-dependent with large disparities in mental health care provisions, prevention, and health promotion programming between low-to-middle-income and high-income countries. Notably, a study of countries in the Americas, of various income statuses, found that across the board, the proportion of funds allocated to mental health is lower than the burden of disease attributable to mental disorders (33). In most parts of the world, funding for mental health care comes primarily from public or government agencies with only some out-of-pocket spending required (34). On the other hand, in some regions, private funding is relied upon, either due to the availability of more expensive treatments through private insurance, or the lack of public services, depending on the service (34). Most governmental spending, particularly in low to middle-income countries, is focused on inpatient or specialty mental health services (34). Across the public and private sector, mental health professionals, including psychiatrists, psychiatric nurses, psychologists, social workers, occupational therapists, psychoeducators, sexologists, and peer support workers, can provide an array of different treatments such as individual therapy, group therapy, pharmacotherapy, psychoeducation, case management, and educational or vocational support.

The design and delivery of mental health systems have changed over time. Historically, mental health services were, for the most part, delivered in inpatient hospital settings or asylums (35). While these systems treated a variety of patients with severe mental illnesses, they were likened to prisons which isolated patients from the outside world and stripped them of their autonomy (35, 36). By the mid-20th century, with the development of new treatments, particularly antipsychotic medications and therapeutic models that could be delivered without the need for

long-term hospitalizations, there was a move toward deinstitutionalization and a push for community-based care (35). Focusing not just on treatment, but also prevention and promotion, community mental health care was seen as a more recovery-oriented and cost-effective way to provide access to team- and evidence-based care while strengthening networks with the involvement of community members (37, 38). Community mental health services can also improve accessibly and may even reduce wait times for services (39). However, there has been some push back against the deinstitutionalization movement. Specifically, it has been argued that it has had adverse consequences for those with the most severe mental health problems and greatest mental health needs, who are now at increased risk of homelessness and incarceration (38). While this is true, in the presence of appropriate supports and adequate resources, community mental health services have proven to increase quality of life and satisfaction compared to hospital settings (40). For this reason, it has been argued that further investment should be made in community-based services (38).

Another area of evolution has been the distinction between child-adolescent versus adult mental health services. It was not until the late 19th century that it was recognized that children experience mental health problems and until the early 20th century, that child-adolescent mental health services were developed (41). It is now recognized that evidence-based practices may differ between children/adolescents and adults. Firstly, children/adolescents undergo rapid psychological, neurological, and physiological changes, which may impact the effectiveness of interventions and the durability of their effects (41). Also, family members have a much greater role in the identification, help-seeking, understanding, and treatment of mental health problems among younger populations (41). In fact, information from family members is often vital to diagnosing children and adolescents (41). Further, the planning and delivery of treatment also

vary between children/adolescents and adult populations. For example, school-based interventions are an important form of treatment for children and adolescents but are not applicable to adults (41). Due to these various differences, services have traditionally been divided between those for children/adolescents and those for adults. This division is usually determined using age cut-offs, typically 18 years old, depending on the service and country (42, 43).

In many countries, especially but not limited to low to middle-income countries, the lack of mental health professionals hinders the ability of child/adolescent and adult mental health services to meet public mental health needs (44). However, primary care can play a vital role in mental health service delivery (31) and, in many countries, it is the first point of contact for people seeking help for mental health or substance use problems (45). In fact, in many countries, including Canada and the United Kingdom, access to specialty mental health services requires a referral from a general practitioner (46). Considering primary care clinics treat physical illnesses, are integrated into communities, and allow for long-term follow up of patients, there are benefits to the delivery of mental health treatments in this setting (31). Yet, many general practitioners report feeling ill-equipped to handle the mental health needs of their patients and many people with mental health problems, who are seen by general practitioners, go undetected (47, 48). Even when mental health problems are identified and general practitioners refer patients, specialized services have long wait lists (1, 49), which is problematic because untreated mental health problems can become more severe and complex over time (50). To address this issue, integrated primary care clinics have been proposed as a viable solution. Under this model, mental health professionals are integrated into the primary care setting and collaborate with general

practitioners to provide timely, appropriate treatment (31). Integrated primary care has currently been implemented in countries like Australia, the United Kingdom, Ireland, and Canada.

1.2 Pathways to care for young people

In recent decades, there has been increasing recognition that mental health services targeting youth populations are necessary for reducing the burden of mental disorders (1, 2). In many low to middle-income countries, the number of young people has increased, while in high-income countries, the proportion of young people has decreased, meaning that the aging population is more dependent on younger people (51, 52). With the presence of modern medicine, the rates of physical illnesses have decreased in many places globally, especially in high-income countries, but mental health problems continue to pose a large threat to the health and productivity of young people (52, 53).

Occurring during an instrumental developmental period, the onset of mental disorders during youth may result in difficulties attaining important educational, occupational, and interpersonal milestones (52). They are the leading cause of disability-adjusted life years in high-income countries, and account for 25% of all years lived in disability for children and young people worldwide (54). Further, if they are left untreated, they may persist into adulthood, become more difficult to treat, and/or increase one's risk of developing comorbidities (50). Adolescence and young adulthood therefore present as a critical period in which early intervention strategies can be applied to prevent the exacerbation of mental health problems and the impact of associated consequences (55). While early interventions could have long-term positive impacts for both individuals and society, many young people do not access mental health services due to the

barriers they face when seeking mental health care (56). Those who try are often met with long wait times, resulting in unmet mental health needs or delayed treatment (57).

Help-seeking, the process of looking for help from formal (e.g., general practitioner) or informal (e.g., friend (s)) sources, involves problem identification, choosing to get help, deciding from whom to get help, and then actually accessing services (58). It has been argued that studying the people or organizations that young people contact while engaged in help-seeking (59), i.e., the pathway to care, may be pivotal to improving the timeliness of their service use (60).

For psychotic disorders, pathways to care have been studied to reduce the duration of untreated psychosis, i.e., the time from the onset of psychosis to the start of appropriate treatment (61). Work in this area can identify what barriers to care exist, where they occur, and how they impacted treatment delays, thus allowing for the development of targeted interventions (59). There has been growing interest to extend this approach to understanding and reducing the duration of untreated illness, i.e., time from symptom onset to the start of appropriate treatment (62), across the broader spectrum of mental health problems that young people experience (63, 64). This may be especially so, since findings from psychosis research may not be generalizable to other mental health problems due to differences in clinical presentation and severity. While investigations into the pathways to care for young people are still in their infancy, current available evidence suggests that young people face long, painful, and complicated pathways to care that involve multiple help-seeking contacts (59).

1.2.1 Barriers to care for young people

Barriers to care may occur at the individual level or at the systems level (65). Young people are known to experience numerous individual-level barriers to help-seeking, including poor mental

health literacy, internalized stigmatization, fear of a breach of confidentiality, and self-reliance (56). For psychosis, individual-level characteristics have been found to be more influential on help-seeking delays, the time from first symptom onset to the first mental health service contact, compared to referral delays, the time from making the first mental health service contact to obtaining appropriate services (66, 67).

Young people also disproportionately face barriers at the service level; child and adolescent mental health services are typically split across providers, programs, and even levels of government, which makes system navigation complex (2). With high service needs and lack of funding (56), many young people have difficulty accessing community-based services, which leads to the exacerbation of problems and the use of emergency department services (68). There are also issues regarding the discontinuity of care for young people transitioning from child/adolescent to adult mental health services as a result of age cut-offs in services (7). Even if a young person is referred to adult services, they are likely to experience developmentally inappropriate services that often do not accommodate sub-threshold mental health problems (69). Such system-level barriers have been found to influence referral delays (66). Given the impact that barriers to care have on treatment delays, it is vital that they are identified and addressed (61).

Young people who live in remote or rural areas, belong to sexual, gender, or ethnic minority groups, are Indigenous, are homeless, or are of low socio-economic status, not only experience the barriers mentioned above, but also additional barriers to care (70). For example, rural and remote areas are typically under-resourced and lack specialty services, which limits service use for the young people living there (71). Even when they are available, distance to services, and the need for appropriate transportation and associated costs, impact accessibility (72). Sexual and

gender minority young people may have difficulty finding appropriate services that understand their identities and may be fearful of experiencing harassment or discrimination within mental health services (70, 73). Indigenous (74, 75) and ethnic minority (76) young people also have more difficulty obtaining culturally sensitive services and may experience medical mistrust as a result of systemic racism (77). Homeless young people have reported difficulties with obtaining friendly services that involve them in decision-making and accommodate their transient locations (70). Young people who are socio-economically disadvantaged may experience logistical barriers such as having the time to seek help, finding transportation to services, and difficulty paying for needed services (78). While these represent some examples of additional challenges in accessing mental health care that specific youth groups can experience, it is important to remember that identities often intersect (e.g., a young person may be homeless and an ethnic, gender, and sexual minority). Young people with intersectional identities may experience increased vulnerability and barriers to care, which complicates service access and engagement (79, 80). The various barriers some youth groups experience when seeking services may result in higher rates of unmet need (70, 81-84).

1.2.2 Key help-seeking contacts and barriers to mental health care in high-income countries

Examinations of help-seeking contacts have revealed that young people are not the only ones who experience barriers; many of the individuals and organizations that they go to for help have difficulties assisting them in obtaining appropriate care (85). Complicating matters further, help-seeking behaviours are also influenced by sociodemographic, clinical, and cultural characteristics, which means that the routes young people take while seeking services vary greatly (59, 60, 86, 87).

Parents play a particularly important role in young people's help-seeking journeys. They are often the first to notice a problem or one of the first "informal" contacts with whom a problem is discussed (88-90). Not only are they critical to problem identification, but they have been found to be the strongest influence on accessing mental health care (91). They also often engage in help-seeking on behalf of their young family members (59). However, parents have reported difficulties identifying what constitutes a mental health problem worthy of intervention versus normal adolescent behaviour (92). Some do not know where to obtain services or may experience self-blame or stigma, contributing to struggles to obtain appropriate services for their children (93). While parents may remain influential, with variations by culture, younger children and teenagers rely more on these contacts due to their developmental stage and associated lack of autonomy (88, 89, 94).

With school being mandatory in most countries until approximately the age of 16, teachers and school counselors are another common help-seeking contact for young people (88, 95). After parents, they are often the first adults to identify indicators of mental health problems, including poor academic performance (96, 97). Mental health services are sometimes delivered in schools (school-based mental health services); these services are theorized to help overcome common barriers for young people, including stigma, and to improve access for traditionally underserved groups (98). Yet, some disparities in access have been found based on ethnicity (99-101). These studies are limited in number, generalizability, and in their ability to comment on reasons for these disparities, requiring further investigation (102). Some hypothesized reasons for these disparities include differences in youth help-seeking behaviours, subtypes of mental health symptoms, comfort with seeking services delivered in schools, as well as racially or culturally biased problem identification and referral (101-103). Schools have also been cited as important

contacts and sources of referral for offsite mental health services (104-106). However, teachers report lack of training and knowledge, fear of making things worse, insufficient funding, and availability of onsite mental health services as barriers to helping students on their pathway to care (107, 108).

General practitioners are a common first point of contact for help-seeking young people (59, 88). As previously mentioned, mental health service delivery in primary care is advantageous due to its ability to provide accessible care within communities, monitor mental health problems over a longer timeframe, and reduce stigmatization associated with seeking care from a specialist (31). Primary care settings are often within communities and may be more accessible. These environments can also be less stigmatizing, in part as they are primarily associated with the treatment of physical health problems. Unfortunately, while they are often the first point of professional contact, they are less frequently the referral source (59). General practitioners have reported feeling ill-equipped to identify and handle the mental health needs of young people (109), who may sometimes present with symptoms manifesting as physical health problems (110). While advocacy from parents has been shown to increase referrals to specialty services from general practitioners, parents are not always involved in help-seeking pathways (48). Lack of knowledge, time, and confidence in dealing with mental health problems, long wait lists for specialty services, and insurance and reimbursement restrictions (specific to the United States) represent key barriers to care for general practitioners (109, 111). This can be problematic under the gatekeeper model since general practitioners are relied upon heavily for referrals to specialty services. In psychosis, one study found that contact with a general practitioner is associated with longer referral delays (87), while some other evidence has found it is associated with shorter duration of untreated psychosis (112, 113). Outside of psychosis, one study found that contact

with a general practitioner was associated with longer duration of untreated illness (114) and another found it to be associated with longer wait times to services (115). Research has also found that ethnic and gender minority young people as well as those with greater distress are less likely to obtain referrals through their general practitioners compared to other sources (11, 116). This may become a source of health inequity, especially since, those who do not obtain care through general practitioners may be more likely to come into contact with services through more 'negative' routes (11, 87).

One such negative pathway is the emergency department and/or hospital (87). This help-seeking contact may represent an inability to obtain appropriate mental health care within the community (49) or the experience of more acute mental health problems (68). Though they are associated with shorter treatment delays (115), emergency departments and hospitals are also associated with high costs to health systems (49, 59) as well as poor satisfaction (117, 118) and worse service engagement (87). Young people have also described these services as traumatic (78). Experiences with coercive measures, abrupt quick diagnoses, and stigmatizing staff, who are not sensitive or trained in mental health presentations, have been reported by young people (117, 119, 120). With a lack of personnel specializing in youth mental health and screening tools applicable to this population, emergency departments are not always able to formulate appropriate treatment plans (121, 122). When attempting to refer young people to more appropriate services, lack of knowledge of community services for young people presents a large barrier (121, 122). Studies also report differences by ethnicity in the use of the emergency department/ hospital for mental health; one study in the United States identified that non-Hispanic-Black young people were more likely to have contact with emergency departments compared to non-Hispanic-White young people (90). A Canadian study found that emergency

services were more often the first contact for Asian young people or those of another ethnicity compared to White or Black young people (123). Another negative pathway into care is the legal or criminal justice system (87). This route is often associated with compulsory admissions and inpatient, as opposed to outpatient, mental health service referrals (124). One study from the United Kingdom found that ethnic minority young people were between two to six times more likely to arrive at specialty mental health services through this pathway compared to their White peers (124).

1.3 Open referral systems and self-referral

Acknowledging the importance of early intervention and the extant treatment delays for young people as a result of barriers to care, the last two decades have seen transformations to mental health systems in countries such as Australia (e.g., Headspace) (125), Ireland (e.g., Jigsaw) (126), and Canada (e.g., ACCESS Open Minds) (8). The application of a variety of strategies to increase service uptake for young people has been proposed and implemented. For example, creating youth mental health services targeting the entire age range of 11 to 25 years is theorized to improve continuity of care for young people who age out of child-adolescent services (8). These services may also be more developmentally appropriate for young adults than adult services (5). Providing services with a single point of access is thought to simplify mental health system navigation since a variety of mental health services can be obtained through one point of contact (5). Integrating mental health services into primary care allows for mental health services to be community-based and in less stigmatizing environments (31). It may also increase early detection and allow for long-term follow up of patients (31). Under this collaborative care model, in which multiple service providers may provide care to the same individual, general practitioners are not left unsupported and may engage in task sharing, leading to better patient

outcomes (127). The integration of other services such as vocational, occupational, housing, and financial services allows for a holistic approach to treatment and can promote wellbeing (128). In the spirit of early intervention, accepting young people into services irrespective of the type or severity of the mental health problem allows for promotion, prevention, and treatment efforts to occur within the same context (129). Further, youth and family involvement in the design and creation of services ensures that services are offered in youth-friendly spaces which may increase uptake (88).

A key consistent feature of youth mental health service reform is an open referral system, in other words, a system that allows referrals from both formal (e.g., general practitioners) and informal (e.g., family) sources, including the young person themselves (self-referral) (9, 129). Removing the need for gatekeepers, this intervention is thought to improve timely access to care, especially for those less likely to present to or be detected by a general practitioner (9). It can also help with reducing stigmatization through decreasing the medical view of mental health problems (129, 130). However, open referral systems have been criticized for increasing the number of "false positives" (i.e., referrals from those who may not need formal services or the offered formal services) (15, 130, 131). Specifically, there is fear that, in the absence of a gatekeeper, those who require services least may over burden mental health systems. However, some evidence has demonstrated that open referral systems are more sensitive to the needs of patients and can promote access for those less likely to obtain a referral through a general practitioner (15, 131, 132).

With respect to self-referral, some studies, conducted on adult populations, have also found that the experience of referring oneself can be overwhelming for those of low socioeconomic status and with more severe mental health problems (133). A recent systematic review investigating

self-referral pathways across a variety of health care settings, including physical and mental health, found that self-referrals may increase health inequities (15). Specifically, trends demonstrated that younger white women with higher education and those from less deprived backgrounds were more likely to refer themselves than other groups (15). While this is of concern, especially when there have been calls to scale up self-referral pathways, only six of the nineteen included studies looked at mental health service use and of these, only one focused on young people (15). The authors also concluded that the impact of self-referral on health inequities is highly context-specific and that examples of it narrowing health inequities exist when targeted effectively (15). They also note that self-referral could be particularly beneficial in mental health services where detection of mental health problems can be low in primary care (15, 130). Thus, further investigation into the use of the self-referral pathway by young people accessing mental health services is warranted.

1.3.1 Determinants of self-referral and its relation to treatment delays

Using Medline via OVID, a search was conducted on 8 November 2022. Broad search terms were used to identify all relevant records that discuss self-referrals, especially since the terminology for this route to care can differ by article (e.g., self-referral, referred themselves, came themselves, walked in, etc.). Search terms used included youth populations (i.e., youth, or young people or adolescent, or young adult); mental health services (i.e., mental health service or mental health services) and routes to or experiences with entering services (i.e., referral or pathway to care or service level barriers or barriers to access). This search resulted in the identification of 958 articles where title and abstract screening was conducted first, followed by full-text screening. Initial inclusion criteria were (1) the examination of individuals between the ages of 0-30, (2) the mention of a mental health service (including emergency departments), (3)

the examination of the association between at least one sociodemographic clinical characteristic and the referral source or the association between the referral source and wait times for services. Note that while the operational definition of young people/youth for this thesis was 11–25 years, the search was extended to an upper limit of 30 years old to capture the various definitions of youth that may exist in the literature, in line with the approach taken by MacDonald et.al. (2018). After title and abstract screening, 115 articles were identified on which full-text screening was conducted. A more restrictive set of inclusion criteria were then applied, requiring articles to have evaluated determinants of self-referral routes specifically or their impact on wait times to care. Qualitative studies and reviews were excluded. This resulted in the identification of seven relevant articles. This review was updated on 15 March 2024, using handsearching with one additional record included.

Eight studies were identified that examined determinants of and/or wait times associated with self-referral (see Table 1). Of the eight articles, three were conducted in the United Kingdom, two in the United States, one in Sweden, one in Canada, and one in Australia. The services which allowed self-referral included: a community-based mental health service (N=1), child and adolescent mental health services (N=4), and specialty mental health services (N=3). In three papers, self-referral was analyzed along with parent referrals, but these were still included as they had defined self-referral as being a referral from the person themselves, or the parent/caregiver (9, 11, 134). Articles that only examined parent referrals and did not mention self-referral (106, 135), excluded self-referrals from analyses due to the small number of young people using this route (124), or that did not analyze it independently of other routes to care (136-139) were not included in this review (i.e., these study types are not a part of the eight studies). Only one of the studies explicitly defined self-referral; in this case, self-referral meant

the referral came from the young person themselves regardless of prior help-seeking (140). For example, even if the young person was guided to the service by their parent, if they made contact themselves, it was considered a self-referral (140).

Six of the eight studies examined the determinants of self-referral, three of which explicitly aimed to investigate self-referral pathways. Demographic characteristics examined included: migrant status (n=2), age (n=3), sex (n=4), gender (n=1), ethnicity (n= 2), area-level deprivation (n=2), problem type (n=2), previous service use (n=1), contextual factors related to the problem (n=1), living arrangement (n=1), parental status (n=1), and occupational status (n=1).

The two studies that investigated migrant status, conducted in Australia and Sweden, had conflicting results. These studies used univariate analyses to investigate differences in self-referral pathway use. The Australian study by O'Donoghue et al. (2022) found that there were differences in referral source between Australian-born and migrant young people at a service for young people with ultra-high risk for psychosis. This association did not hold when migrant groups were stratified at the continental level (as opposed to looking at the total migrant population), but this could have been due to low sample size. More Australian-born young people self-referred compared to migrants (6.3% vs. 1.7%). But the authors did not conduct post hoc analyses to examine which referral sources differed from each other in terms of proportions of young people using them, so no conclusions about self-referral were made. The authors did comment on Australian-born young people being more likely to come to the Personal Assessment and Crisis Evaluation service via other mental health services and more migrant young people coming via community health services since the proportion of young people referred by these sources differed greatly between the migrants and Australian-born groups (140). On the other hand, the Swedish study by Ramirez et al. (2009) found that there were no

demographic differences between those who self-referred and those who were referred by a non-psychiatrist professional (141).

One of the three studies examining the association between self-referral and age found conflicting evidence within different regions in the United Kingdom. Specifically, Rock et al. (2020) conducted univariate analyses and found that in Buckinghamshire, there was no difference in the age of those who self-referred compared to those referred by a general practitioner to child and adolescent mental health services; in Oxfordshire, younger youth were more likely to self-refer (9). The only age difference observed in Buckinghamshire was that younger self-referrers were more likely to be rejected from obtaining services compared to older self-referrers (9). The same study from Sweden that examined immigration status, by Ramirez et al. (2009), found no differences in age at assessment comparing young people arriving via self-referral versus via non-psychiatrist professionals (i.e., psychiatric services, general practitioner, school mental health service, other mental health professionals) (141). A different study conducted in the United Kingdom by Edbrooks-Childs et al. (2019), which examined age differences using adjusted multinominal logistic regression with multilevel modelling, found that, 13-25-year-olds were more likely to self-refer compared to 6-12-year-olds (11).

Four of the five studies examined sex/gender differences in self-referral pathway use, three of which relied on univariate analyses to draw conclusions. Across these studies, only one study, conducted in the United States, by Neill. et al. (1977) found that females were more likely to refer themselves (134). The other studies, by Ramirez et al. (2009), Edbrooks-Childs et al. (2019), and Rock et al. (2020) found no sex differences in self-referral pathway use (9, 11, 141). Rock et al. (2020) also looked at the proportion of self-referred young people accepted into services and found that males who self-referred to child/adolescent mental health services in

Buckinghamshire were more likely to be rejected when self-referring, compared to females (9). A sixth study, by Eamon et al. (2019) used univariate analyses to compare referral pathways of cisgender males, cisgender females, transgender clients and gender diverse clients in a community-based youth mental health service (116). Comparing the proportion of clients referred by family/friends, health care providers, or themselves, Eamon et al. found that transgender clients and, subsequently gender diverse clients, were more likely to self-refer compared to cisgender males and cisgender females. When collapsing cisgender males and cisgender females into one category and comparing them to gender diverse clients, gender diverse clients were still more likely to self-refer. Finally, running the same analysis, comparing gender conforming and gender diverse young people, but this time comparing self-referral to other referral, with family/friend and health care provider collapsed into "other", gender diverse young people were more likely to self-refer.

Two studies conducted in the United Kingdom looked at the association of self-referral pathways with both ethnicity and area-level deprivation, one using only univariate analyses (Rock et al., 2020) and the other using multivariate analyses. Rock et al. (2020) found that in both Oxfordshire and Buckinghamshire, White British young people self-referred more than other young people (other ethnicities were not specified) who more often were referred by a general practitioner. Furthermore, young people coming from less deprived areas were more likely to self-refer than come via a general practitioner to child/adolescent mental health services in Oxfordshire. There were no differences found in referral source by area-level deprivation in Buckinghamshire but, among those who did self-refer, people from more deprived areas were more likely to be rejected from receiving services (9). Edbrooks-Childs et al. (2019) adjusted for sex, age, problem type and contextual factors and found that young people from Black, Asian,

and other ethnic minority groups were less likely to self-refer and more likely to be referred by primary care compared to their White, British peers. A sensitivity analysis adding area-level deprivation did not yield different conclusions. However, those from the most deprived areas were more likely to self-refer than be referred by a general practitioner, compared to those coming from the least deprived areas (11).

Edbrooks-Childs et al. (2019) also found that those with unclassified problem types had higher odds of self-referral (versus primary care referral) when compared to those with only one problem rated by clinician as being of moderate severity (11). Ramirez et al. (2009) found that those with any mood disorder were more likely to self-refer as opposed to being referred by a non-psychiatrist professional, while adjusting for the presence of any anxiety disorder, any eating disorder, and previous contact with mental health services. The findings from these studies point to the potential impact of problem type on self-referral pathway use. In the Edbrooks-Childs et al. study, those with no previous contact with mental health services were also more likely to self-refer in multivariate analyses (11). In univariatre analyses, there were no differences in living arrangements, parental status, or occupational status between those who self-referred and those who came via non-psychiatric professional referrals (141).

Among the two studies identified that looked at the influence of self-referral pathways on treatment delay, one (Ebrooke-Childs et al., 2020) examined wait times to initial assessment in child and adolescent mental health services in the United Kingdom and the other (Marino I., et al., 2019) looked at help-seeking duration of untreated psychosis (time from onset of psychosis to the first mental health service contact) in a coordinated specialty care program for psychosis in the United States. In the first study, the odds of waiting, 3-4 weeks, 5-18 weeks or over 18 weeks, compared to 0-2 weeks, for those who self-referred vs came in via a general practitioner

referral was investigated, adjusting for: area level deprivation, age, gender, ethnicity, contextual factors and mental health problem severity. This study found that self-referral was associated with shorter wait times; although, the odds of self-referral did not differ for those who waited over 18 weeks compared to 0-2 weeks (115). A bivariate regression conducted in the second study, found no difference in help-seeking delay for those who self-referred compared to those who came via a significant other, mental health provider, or other source. Self-referral was associated with longer delays when compared to family and teacher referrals. However, this finding did not hold in a multivariable model, where the authors employed backward selection (142).

1.3.2 Research gaps

Self-referral pathways to care are increasingly being allowed in youth mental health services and are seen as a feature of reform to improve accessibility. However, quantitative investigations on the determinants of this referral source as well as its impact on wait times to care remain limited. Of note, some authors of previous studies were unable to conduct analyses on self-referral routes because of low cell size. In these instances, some chose to exclude these participants from analyses entirely (124), while others analyzed them with other referral sources, making it impossible to come to independent conclusions about this route to care (136, 137, 139, 143). Limited available research and conflicting findings among the six articles that analyzed determinants of self-referral pathways make it difficult to arrive at conclusions about the accessibility of this route. Partly, this is because pathways to care are context-dependent and these studies were conducted with different study samples, in different countries, and across various services. Various other factors like varying definitions and the nature of methods used also impede our ability to draw inferences about self-referral pathways. Only one of the included

studies was conducted in Canada, which makes it difficult to understand how this pathway to care is used in the Canadian context.

Extant records compared self-referral to different referral sources; while the majority compared this route to general practitioners or primary care referrals, some only looked at differences in the proportion using this pathway and compared it to a wider range of sources (e.g., family, friends, significant others, teachers, any non-psychiatric mental health professional). Differences in the way that self-referral was defined also increases the heterogeneity of these articles, with some studies grouping self with family referrals and others examining it on its own. Since young people rely more heavily on their parents and friends compared to adult populations, examining them together may make sense. However, age is known to attenuate the involvement of parents or friends in the help-seeking process (88) and self-referrals may improve access for those who are less likely to involve others in their help-seeking, including parents (144, 145). Gender and sexual minority young people in particular could benefit from self-referral since fear of parental involvement and disclosure can be barriers to care in this population (146). Findings from Eamon et al. (2019) support the potential importance of self-referral for gender diverse groups who were more likely to self-refer compared to gender conforming young people (116). Further, even when parents are involved in help-seeking, disagreements on where and when to seek help may present as a barrier to care for some young people (91). These factors suggest a separate examination of self-referrals, defined as young people referring themselves, is needed.

The available literature was also limited in its use of statistical methodology. All but two of the eight studies exclusively conducted univariate analyses which, may highlight differences between groups but is incapable of examining the independent effects of more than one variable. More robust analyses are thus needed to draw more rigorous conclusions.

Only two studies evaluating the impact of self-referral pathways on treatment delays were identified. The first study evaluated the association between self-referral and the time from referral to initial assessment. However, this study was limited in that it only compared self-referral to general practitioner referrals. The second study examined the association between referral sources and the help-seeking duration of untreated psychosis. Yet, patients with psychosis may be different from those with other mental health problems in problem identification and previous service use.

Overall, our understanding of the use of self-referral pathways by young people is very limited. Studies have thus far focused on referral to specialized mental health services and have heavily relied on simple statistical analyses to make conclusions about determinants of its use. Further, the use of self-referral pathways among many young people who are known to have difficulty accessing mental health services has yet to be studied; namely, sexual minority, gender minority, socio-economically disadvantaged, and Indigenous young people. By addressing this gap in knowledge, a better understanding of the impact of self-referral pathways can be obtained, particularly, whether it improves access to services for young people who have been traditionally underserved and if it can improve wait times to care. Investigations may also help identify whether such a route is increasing health inequities. For example, if it is found that self-referrals improve wait times to care but are less likely to be used by certain groups, this could be a health inequity that should be addressed.

Chapter 2: Study context and objectives

ACCESS is a pan-Canadian youth mental health network funded as Canadian Institute of Health Research (CIHR)'s first Strategy for Patient-Oriented Research (SPOR) initiative to develop, implement, and evaluate a transformation of youth mental health services (147). With 14 sites across the country, one in the Northwest Territories, two in Alberta, one in Saskatchewan, one in Ontario, five in Quebec, three in New Brunswick, and one in Nova Scotia, ACCESS comprised linguistically, geographically, and culturally diverse communities with varying resource availability (147). These sites are located in six urban, two rural, and six Indigenous communities (147).

Previous publications have described the ACCESS service transformation model and study protocol in detail (8, 147). Briefly, ACCESS incorporated five key components into its transformation: early identification to increase referrals; rapid access to increase timeliness of the initial evaluation; appropriate care to increase provision of timely, developmentally and clinically appropriate care; the elimination of age-based transitions between services, and the engagement of young people and their families to increase acceptability of and engagement in services. ACCESS offered a range of services to young people, between the ages of 11-25 years old, irrespective of diagnosis or symptom severity. Once a referral was received, ACCESS aimed to offer young people an appointment within 72 hours for an initial evaluation with a non-physician professional, trained to both respond to help-seeking and evaluate young people with diverse needs (*henceforth referred to as the* ***first appointment***). It then aimed to provide service(s) that were developmentally appropriate, culturally sensitive, and responded to young people's presenting problems and preferences within 30 days of the first appointment. Co-designed by multiple stakeholders, including young people, their families, Indigenous

communities, researchers, and decision makers, ACCESS operated out of and advertised youth friendly primary care or community-based spaces. It also accepted referrals from any source, including self-referrals.

The objectives of the proposed study are to (1) compare the socio-demographic and clinical characteristics associated with self-referral versus other referral routes, among help seeking young people presenting to ACCESS sites; and (2) compare wait times to first appointment between young people who were self-referred and those who arrived via other referral routes to ACCESS sites.

Chapter 3: Methods

3.1 Study design and data source

This prospective cohort study uses data collected from 11 of the 14 sites in the original ACCESS network between March 2016 and December 2020 (147). Of the 14 sites, two sites in Inuit contexts, that were part of the ACCESS network, chose not to participate in the cohort study as they felt the evaluation protocol was not suited to their contexts. An additional site was excluded because data on key outcomes were not collected, and the sample size was small (n=30).
All young people, between the ages of 11-25 years old, seeking help for a mental health or substance-related problem at ACCESS were eligible to receive services and to be included in the study (147). Young people who received services at a site before its transformation were eligible if they had not received any services for six months or longer.

Data collection began at the young person's first appointment and ended once they stopped attending ACCESS. The length of participant follow-up varied based on individual needs. Self-report forms, clinical interviews, and records were used to obtain relevant participant information (147). Additionally, the sites recorded the number of young people referred to them each month. The number of initial evaluations or the number of consented young people was used as a proxy when the number of referrals was missing.

3.2 Ethics approval

Ethics approval for the present study was obtained from the Institutional Review Board of the Faculty of Medicine and Health Sciences at McGill University. The larger ACCESS service evaluation study acquired ethics approval from the Research Ethics Board of the Douglas Mental

Health University Institute, as well as from local research ethics and Indigenous community bodies. Also, guidelines for Research Involving the First Nations, Inuit and Métis Peoples of Canada from the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans and the Ownership, Control, Access and Possession principles were followed. Additional details regarding ethical considerations for the larger study have been previously published in the protocol for the larger study (147).

3.3 Study sites and participants

Between March 2016 and December 2020, 7,889 young people were referred to one of the 11 ACCESS sites included in the study. Of the 7,889 young people, 5,199 received an initial evaluation and were included in the cohort study. The sites were not implemented at the same time, which resulted in different durations of follow-up. Since most sites had 42 months of follow up, the sample data used in the analyses (*referred to as* ***analytical sample*** *hereafter*) was restricted to those participants who came to ACCESS in the first 42 months of program implementation. The analytical sample included 4,421 participants (see Figure 1).

3.4 Variables of interest

3.4.1 Referral source

Trained professionals recorded the referral source as one of the following categories: ‘Doctor/Nurse’, ‘Friend’, ‘Family member’, ‘School counselor/Teacher’, ‘Saw the clinic’, ‘Website’, ‘Advertising’, ‘Social media (e.g., Facebook, Twitter)’, ‘Someone who received services here’, ‘Kids Help Phone’ (a well-known pan-Canadian youth-targeting mental health-focused helpline), ‘Community organization’, ‘Social worker’, ‘Self-referred’, or ‘Other’. Those

who selected ‘Family member’ or ‘Other’ could further specify the referral source with a write-in (i.e., writing in the response instead of choosing one of the provided options).

Data cleaning and harmonization was completed with ongoing supervision, guidance, and inputs from Dr. Rebecca Fuhrer and Dr. Srividya Iyer, who have been involved in ACCESS from the inception of the project and have years of experience in mental health research. Write-ins were used to re-categorize the response from ‘Other’ into more specific categories on the list. In certain instances, it was clear that the response should have been selected from a previously established category such as ‘Self-referred’ or ‘School counsellor/Teacher’. However, some write-ins did not fit into any of the pre-defined categories (e.g., ‘Hospital’). In the latter circumstance, if the write-in occurred frequently enough, an additional category was created. The following additional categories were created based on these write-ins: ‘ACCESS Open Minds (any person who works at or for ACCESS)’, ‘Primary healthcare setting’, ‘Secondary healthcare setting’, ‘Tertiary healthcare setting’ (excluding hospitals and emergency departments), ‘Law enforcement’, ‘Emergency department or hospital’, and ‘Employment, social services and child welfare’. In some instances, write-ins could fit into multiple categories. For example, a write-in specifying that the referral source was a doctor from a community organization could be categorized as either ‘Doctor/Nurse’ or ‘Community organization’. Since the majority of write-ins specified the setting of the referral (e.g., community organization) over the person the referral was received from (e.g., doctor), categorizations prioritized setting over person.

Once these additional categories were established, the categories were combined. ‘Website’, ‘Social media’, and ‘Saw the clinic’ were combined under ‘Self-referred’ since these represented channels through which young people became aware of the service and then came in on their own. Those who selected ‘Someone who received services here’, ‘Friend’, or ‘Family’ were

collapsed into one category labelled ‘Family/Friend’ since there was overlap between these categories. ‘Kids Help Phone’ (a Canadian telephone, text-based and online support with whom ACCESS partnered) was integrated into the ‘Other’ category due to the small cell size. Finally, those whose write-in indicated a post-secondary institution were integrated under ‘School counsellor/Teacher’, but to make the label more representative of the category it was re-named ‘Educational institution’.

To check the validity of our referral source categories, data from the questions ‘How did the referral source hear about ACCESS’ and ‘How did the referral source contact ACCESS’ were then investigated. Similar to the referral source question, research assistants could select: ‘Doctor/Nurse’, ‘Friend’, ‘Family member’, ‘School counselor/Teacher’, ‘Saw the clinic’, ‘Website’, ‘Advertising’, ‘Social media’, ‘Someone who received services here’, ‘Kids Help Phone’, ‘Community organization’, ‘Social worker’, ‘Self-referred’, or ‘Other’. However, unlike the referral source question, participants could specify from whom the referral source heard about ACCESS, if they had selected ‘Community organization’, ‘Social worker’, ‘Self-referred’, or ‘Other’. Some research assistants provided more details about the referral source in these write-ins, which changed the categorization of the referral source. For example, if the referral source was a social worker, and the write-in for how the referral source heard about ACCESS mentioned that said social worker works in a CLSC (the primary care clinic in Quebec), the referral source was recoded to ‘Primary healthcare setting’. Similarly, write-ins for how the referral source contacted ACCESS sometimes provided more information which changed the referral source categorization.

After going through this process, the following categories were established for referral source: ‘Doctor/Nurse’, ‘Friend/Family member’, ‘Educational institution’, ‘Community organization’,

'Social worker', 'Self-referred', 'ACCESS Open Minds', 'Primary healthcare setting', 'Secondary healthcare setting' or 'Tertiary healthcare setting', 'Law enforcement', 'Emergency department or hospital', 'Employment, social services and child welfare', or 'Other'. Acknowledging that there was still considerable overlap between these categories, they were collapsed further (see Table 7 in the supplement for descriptions/examples of each category). Thus, for the purpose of analysis, in line with the first research aim (Aim I), self-referrals were compared to all other referral types and a binary, self-versus-other referral variable was created. Only referrals directly from young people were classified as 'Self-referred'.

3.4.2 Wait time

The date of referral (i.e., the first time the young person or some other referral source contacted the ACCESS site for help), the date of the ACCESS staff first successfully contacting the young person, the date of the first offered appointment and the date of the first appointment were recorded on the initial contact form completed by the evaluating clinician. Wait time to a first appointment, the main outcome for the second research aim (Aim II), was calculated in days as the time between the date of the referral to an ACCESS site and the date of the first appointment. The time (in days) to first appointment can be broken down into the following components: the time between the date of referral to an ACCESS site and the date of the first successful contact with young people; the time between the date of the first successful contact with young people and the date of the first offered appointment; and the time between the first offered appointment and the actual appointment. Figure 2 displays all relevant dates, in order of occurrence, as well as the associated wait times of interest to this study.

3.4.3 Sociodemographic characteristics

Socio-demographic factors were obtained via self-report, using a form that was informed by prior research and Canadian population surveys, and refined with inputs from young people. The following variables were of interest to this study: age, gender, ethnic and cultural origins, sexual orientation, presence of a reliable adult, ability to meet basic expenses, age-adjusted educational attainment, and engagement in education, employment, or training.

Age at first appointment was calculated by subtracting the year of birth from the year of the first appointment. For the analyses, age was considered a continuous variable.

Young people could indicate their gender identity under one of the following categories: 'Trans woman', 'Woman (cis woman)', 'Trans man', 'Man (cis man)', 'Genderfluid', 'I don't identify with these options, specify if desired', or 'Prefer not to answer'. Those who selected: 'Trans woman', 'Trans man', 'Gender fluid', 'I don't identify with these options', and 'Prefer not to answer' were combined into the larger category 'Gender diverse', in line with previous research. While it is recognized that these groups have distinct identities and experiences, the relatively small number of young people in each of these categories did not allow for a more nuanced investigation of gender. Furthermore, the groups included in this larger gender diverse category may experience some common barriers to mental health service access, such as fear of discrimination (148). 'Prefer not to answer' and 'I don't identify with these options, specify if desired' were included in 'Gender diverse' since the sample size was small and it was decided that those who selected these categories should not be treated as a non-response. Treating these participants as non-response would have resulted in a loss of information and there may have been key differences between those missing data completely versus though who did not want to

answer the question. Further, it is possible that non-cisgender young people selected this response because they only identify as male or female, instead of 'Trans woman','Trans man', or 'Gender fluid' (149). Many of the write-ins from 'I don't identify with these options, specify if desired' responses indicated that this was the case.

The 'Ethnic and cultural origins' variable was created using two questions. The first asked young people if they were Indigenous and if so, if they were 'First Nations status', 'First Nations non-status', 'Métis, Inuk (Inuit)', or 'Other', as per statistics Canada (150). The next part of the question asked young people to select the categories that best described them among: 'Arab', 'Black', 'Chinese', 'Filipino', 'Japanese', 'Korean', 'Latin American', 'South Asian', 'Southeast Asian', 'West Asian', 'White', or 'Other'. These questions were designed by ACCESS to categorize the young people into either 'Indigenous', 'Visible minority', or 'White', as was done by Statistics Canada's National Household Survey in 2011 (151). Any young person who either selected 'Indigenous' and/or who came from one of the four First Nations sites based in reserves that served only young people from the community was categorized as 'Indigenous'. Following Statistis Canada's procedures, and as has been done by multiple previous Canadian studies, young people who only selected 'White' were categorized as such, while those who selected categories other than 'White' (but not Indigenous) were categorized as 'Visible Minority' (151). Those who selected multiple ethinicities (but not Indigenous) were also categorized as 'Visible Minority'.

Sexual orientation was assessed with the question 'Which of the following best describes your sexual orientation?'. Young people could either select: 'Asexual', 'Bisexual', 'Gay', 'Heterosexual or straight', 'Lesbian', 'Not sure', 'Questioning', 'Queer', 'Two-spirited', 'Prefer not to answer this question', or 'Other (specify if desired)'. Those who selected 'Asexual',

‘Bisexual’, ‘Gay’, ‘Lesbian’, ‘Not sure’, ‘Questioning’, ‘Queer’, ‘Two-spirited’, ‘Prefer not to answer this question’, or ‘Other’ were collapsed into the larger category ‘Sexually diverse’. Similar to the gender variable, this decision was made both because these groups may experience similar barriers when accessing mental health care (152) and there was a small number of young people in each of the categories comprising the sexually diverse category.

Two questions from the sociodemographic form could be used as a proxy for social networks. The first inquired about the relationship status of the young person with levels including ‘Single’, ‘In a relationship (including married/common law)’, ‘Not in a relationship (separated/divorced and widowed)’, and ‘Prefer not to answer’. The second asked if a reliable adult was present for the young person, which was a dichotomous (yes/no) variable. The presence of at least one adult who cares for a young person has been shown to build self-esteem, improve life satisfaction, improve coping in times of distress, and promote a sense of belonging (153). It was also found to be a strong predictor of mental health problems among young people in a national survey in Ireland (153). Considering the young age range of the sample, for which relationship status may be less informative, and the higher response rate for the latter question, it was decided that ‘Presence or absence of reliable adults’ would be used as a proxy for social network.

Three questions on the sociodemographic information form captured young people’s income status. These questions included ‘Last year, my total household annual income (excluding roommates/friends) was greater than $32,000’, ‘If you live alone with friends or with roommates, was your personal income last year less than $10,000?’, and ‘With your current household income, do you have any difficulty meeting basic expenses such as food, shelter, and clothing?’. After looking at the proportion of missing data for these questions, as well as acknowledging that

many young people may not have known the annual income status of their household, it was decided that the binary variable which captures one's ability to meet basic expenses would be used as a proxy for socioeconomic status.

The acronym NEET, first used in the United Kingdom in 1996, stands for 'Not in education, employment, or training' and has been used as an indicator in many research, government, and cross-national publications (154). This is because, it may identify young people at the intersection of discouragement, joblessness, and marginalization (154). While this indicator captures a heterogenous group of nonvulnerable and vulnerable young people, it can identify young people at risk of low income and social exclusion as a result of difficulties transitioning from school to the labour market (154). Associations between various mental health problems in young people and NEET status have been identified in previous studies (including a systematic review and meta-analysis), although the direction of this association has not been established (155, 156). In this study, engagement in education, employment, or training was assessed with the question 'I am currently engaged in (check all that apply):' with options: 'Taking care of my basic needs', 'Paid employment (Hours per week)', 'Education (Hours per week)', 'Training to take up trade/job (Hours per week)', 'Other, please specify', 'Volunteering (Hours per week)', 'Care giving for child or dependent adult', 'Job seeking/looking for education opportunity', or 'Not in education, training or employment'. From this question, a binary variable was created. Anyone who selected either paid employment, education, or training were categorized as being engaged in employment, education, or training while everyone else was categorized as 'not in education, employment, or training (NEET)'. This categorization is consistent with that employed by OECD, Statistics Canada, and various country-specific government and international bodies (154, 157, 158).

Educational attainment was assessed by asking about the highest level of completed education with the following options: 'Primary school/elementary school', 'Junior high (outside Quebec)', 'High school (secondary school) diploma or equivalent', 'College', 'CEGEP or other non-university certificate or diploma', 'Registered apprenticeship or other trades certificate or diploma', 'Other (please specify)', 'Bachelor's degree', 'Master's degree', 'Doctoral degree', or 'None of the above'. Given the sample size for some of the response categories, some were combined. In line with standards approved in 2021 by Statistics Canada, the categories were first collapsed into 'Less than secondary (high school) graduation', 'Secondary school diploma or equivalent', 'Some postsecondary education', or 'Postsecondary certificate, diploma, or degree' (159). However, due to the age group of the sample, 'Some postsecondary education' and 'Post-secondary certificate, diploma or degree' were grouped together under 'Postsecondary education'. When 'Other' was selected and the choice explained, the response was re-categorized into one of the existing categories whenever possible. Those who selected 'Other' but did not specify were treated as non-response. The reason for this decision was twofold. First, many of the write-ins expressed that the highest level of education was unknown. Second, all young people should have been able to fit into one of the new categories. Those who selected 'None of the above' had not yet achieved any of the education levels, including completion of primary school and they were therefore combined under 'Less than secondary (high school) graduation'. Given the age range of the sample, and the fact that some school systems outside of Quebec count grade 7 and 8 as primary school level, it was not surprising that many young people fell into this category (~51%).

To acknowledge that some young people had not completed secondary education simply because they were not at an age where one typically completes high school, and they may differ from

those who did not complete high school at an age when they are expected to have completed high school, an age-adjusted educational attainment variable was created. First, an age indicator was made to distinguish between those who were old enough to have completed secondary school and those who were not. In Quebec, the average minimum age of graduating from high school is 17 while it is 18 in all other provinces. To be conservative and prevent the penalization of young people who perhaps took a little longer to complete secondary school, a two-year buffer was added. This meant that those who were 19 in Quebec or 20 in another province were expected to have completed secondary school based on their age. Next, new categories applying this age indicator were created: 'Less than secondary-school education, not at an age where secondary expected', 'Less than secondary-school education, at an age where secondary expected', 'Secondary-school education (High school or equivalent)', and 'Post-secondary'.

3.4.4 Clinical and functioning characteristics

Two variables of interest were: severity of mental health problem(s) (160) and level of social and occupational functioning, and both were obtained via clinician reports.

The transdiagnostic version of the Clinical Global Impressions scale was used to evaluate the severity of mental health problem(s) (161). This scale ranges from 1 to 7, with 1 representing 'Normal to no mental health problem' and 7 being 'Among the most extremely severe of mental health problems'. For the analyses, a dichotomized version of this variable was used. In line with the scale's anchors and the overall ACCESS study, those with scores 1 to 3 were categorized as having 'No-to-mild mental health problem(s)', while those with scores from 4 to 7 were considered to have 'Moderate-to-severe mental health problem(s)' (162).

Social Occupational Functioning Assessment Scale was used to evaluate the level of social and occupational functioning in the 30 days prior to the clinical assessment, without considering the severity of their symptoms (160, 163). This scale ranges from 0 to 100 with the lowest scores indicating poorer functioning (163). For the analyses, and in line with many other reports in the literature, a dichotomized version of the variable was used. Those with scores 61 to 100 were categorized as having 'None to mild difficulty with functioning' while those with scores between 1 to 60 were considered to have 'Moderate to significant difficulty with functioning' (164).

3.4.5 Service use characteristics

Two questions, both self-reported by young people, were used to ascertain previous mental health help-seeking/use. The first question asked if young people had been previously referred to ACCESS; those who had were also asked if they had been assessed. The second question asked young people to report whether they had received any mental health services in the 12 months prior to coming to ACCESS. These variables were combined to create one variable labelled 'Previous mental health help-seeking/use'. Those who had previously sought services at ACCESS were categorized as either 'Previous ACCESS assessment' or 'Previous ACCESS contact with no assessment'. For the remaining young people who reported that they had any previous mental health service seeking in the 12 months prior to their assessment at ACCESS, they were categorized as having 'Previous services use in the past year, but not at ACCESS'. The rest were deemed to have had 'No previous mental health service seeking/use in the past year'.

3.4.6 Time since implementation of ACCESS and COVID-19

To account for the fact that young people's engagement with ACCESS may have changed the longer it was since the program had been established, due to factors such as advertising, the

variable ‘Time at entering service post-ACCESS implementation’ was created. Each site at ACCESS implemented the ACCESS project on different dates, so this variable was created by taking the date of a young person's referral and determining the corresponding month since program implementation at that specific site. The variable was then categorized into 6-month intervals to allow for more meaningful conclusions to be drawn. When young people were missing their referral date, the date of first appointment was substituted followed by any service date at baseline.

The COVID-19 pandemic started during the study period. The pandemic had the potential to impact many factors being studied, both for the system and for the young person. To examine the potential impacts, an additional variable, ‘Arrived pre- or post-COVID-19 pandemic’ was created to distinguish between those who arrived at ACCESS prior to 1 March 2020. This was the month that the COVID-19 pandemic was declared, and it is theorized that referral pathways as well as wait times to services may have significantly differed after this period. Jigsaw, a study at an integrated youth mental health service in Ireland, found that the mode of referral, some demographic characteristics of young people attending the service, wait times (in days) to first appointment, and referrals coming from parents differed pre and post pandemic (165). Young people whose referral date was before 1 March 2020, were categorized as ‘Arrived at ACCESS pre-pandemic’ and those who came after were categorized as ‘Arrived at ACCESS post-pandemic’. When young people were missing their referral date, the date of first appointment was substituted followed by any service date at baseline.

3.5 Statistical analyses

3.5.1 Statistical analyses: Aim I – determinants of self-referral

To assess the first aim which seeks to understand the social, clinical, and service use determinants of the self-referral pathway, a logistic regression, with a random intercept for site to account for within site correlation, was used. The covariates included in the model were: age (in years), gender, ethnic and cultural origins, sexual orientation, presence of a reliable adult, ability to meet basic needs, education, employment or training, age-adjusted educational attainment, severity of mental health problem(s), level of social and occupational functioning, previous mental health service seeking/use, and time at entering service post-ACCESS implementation (in 6-month increments). The intraclass correlation was calculated to estimate the amount of variance attributable to site. Variance inflation factors were calculated to check for multicollinearity and outliers. Predictive performance was assessed using 10-fold cross validation.

3.5.2 Statistical analyses: Aim II- impact of self-referral on wait times to first appointment

To assess whether times between referral and first appointment differ between those who self-referred versus those who came in via other referral sources, a Kaplan-Meier curve and an accelerated failure time model were used. The Kaplan-Meier curve described differences by referral source in the probability of having a first appointment after a delay of any given number of days following referral. Accelerated failure time models are flexible and parametric models that measure how covariates of interest either accelerate or decelerate time to an event of interest (166). While initially a Cox proportional hazards model was considered, the proportional hazards assumption was violated and an accelerated failure time model, which does not make this

assumption, was chosen as an appropriate alternative (166). Consequently, an accelerated failure time model, with a random intercept for site, was run to obtain adjusted time ratios (TR) between self- and other referral sources, accounting for site-level differences. Covariates in this model were: age (in years), gender, ethnic and cultural origins, sexual orientation, presence of a reliable adult, ability to meet basic needs, NEET status, age-adjusted educational attainment, severity of mental health problem(s), level of social and occupational functioning, previous mental health service seeking/use, and time at entering service post-ACCESS implementation (in 6-month increments). Four models assuming lognormal, loglogistic, exponential, and Weibull distributions were used. The Akaike information criterion from these models was then compared to determine which distribution obtained the most appropriate model fit.

3.5.3 Investigating and dealing with missingness

Missing data is a problem in most cohort studies and for a variety of different reasons. To explore the scope of missing data in the sample, the proportion of missingness for each variable was calculated. A multiple logistic regression, including all variables, coded as missing vs. not missing was also used to determine if patterns in missingness existed. If less than 5% of data were missing or if there were no detectable patterns in missingness, the data would have been assumed to be missing completely at random and complete case analysis would have been performed. However, since a higher proportion (>5%) of the data was missing and there were observable patterns in the missingness, data could not be assumed to be missing completely at random. Accordingly, data could have been considered either missing at random or not missing completely at random. While no formal test to distinguish between these two assumptions currently exists, data were gathered on each participant for a wide range of social, clinical, and service use variables, so it was assumed that the probability of missing data would depend only

on observed participant data. Therefore, data were assumed to be missing at random. In making this assumption, the data could be imputed using multiple imputation.

Multiple imputation was chosen over single imputation since it can account for variability in predicting missing values (167). Specifically, multivariate imputation by chained equations (MICE) was employed, with the mice package in R, since it can handle complex data with multiple variable types (168). The imputation analysis was run using all available data from the cohort study.

In selecting variables to be imputed, cut-offs based on the proportion of missing data for a given variable were not applied. There is no consensus on how much missing data is too much for imputation and Madley-Dowd et al. argue that it should not be used to guide variable selection (169). Instead, a conceptual approach was taken. As is routinely done when imputing with MICE, all variables involved in the analyses were included in the imputation model. Additional auxiliary variables, hypothesized to be related to missingness, were also identified and included to improve accuracy (170). All composite variables needed for the sake of the analysis were created post-imputation. In other words, age-adjusted educational attainment was created after imputing age and educational attainment, separately. The same was done for the 'Previous mental health service seeking/use' variable which combined the variables 'Previous non-ACCESS mental health service seeking' and 'Previous ACCESS service seeking'.

Chapter 4: Results

Between March 2016 and December 2020, 5,199 out of 7,889 young people referred, had at least one appointment for an initial evaluation at one of the 11 included ACCESS sites.

4.1 Missing data

Missingness among the variables ranged from 6%-67%. Missing data in the sample were expected since the data were collected via clinical records, self-report forms, and clinical interviews in real-world settings that were not in academic centres, and many of which had not participated earlier in research. Assuming the data to be missing at random, multivariate imputation by chained equations was used. Sixty datasets were imputed to help mitigate potential bias caused by variables with high proportions of missingness, while balancing computational efficiency (171). The number of iterations was increased until convergence was achieved; in the end, imputation was performed with 60 iterations. The correlation between each variable pair was calculated and if over 0.1, these variables were used to predict one another in the model. 'Time from referral to first appointment' was not predicted by or a predictor of 'Time from contact with youth to first appointment', as these variables were collinear. The method of imputation varied depending on the type of variable; continuous variables, binary variables, categorical variables, and ordinal variables were imputed using predictive mean matching, logistic regression, polynomial regression, and ordered logistic regression, respectively. The sequence of block visitation was set from left to right of the data frame.

All time-to-event variables, such as 'Time to first appointment', were converted to cumulative baseline hazards pre-imputation (172). Since predictive mean matching makes predictions from existing, observed data for a given variable, the imputed cumulative baseline hazards could be

converted back to times post-imputation for analyses. Following imputation, the logic of the time variables was verified. Since there were no cases in the data pre-imputation where the time from referral to offered appointment was greater than the time from referral to first appointment, when this appeared in the data post-imputation, these times were set to equal. The imputations were checked for logged events, for which there were none. Convergence was assessed by plotting the mean value of each imputed dataset against the iteration (168). Density plots were used to compare the pre-imputed data to the post-imputed data for all continuous variables (168). Similar comparisons were made for the categorical, binary, and ordinal variables. The result of these plots suggested that the imputation was successful.

The sociodemographic, clinical, and service use characteristics of the 5,199 young people pre- and post-imputation are displayed in Table 2. The complete case characteristics are also displayed in this table. The sample was restricted to 42 months post-imputation because the date of ACCESS implementation varied by site and consequently the length of follow up, but most sites had 42 months of follow up. After limiting the sample to reflect those who came to ACCESS in the first 42 months of program implementation, the analytical sample was reduced to 4,421 participants. Figure 1 outlines how the analytical sample was derived. The imputation did not exclude those who came to access after 42 months of program implementation as there was no reason to believe that participants who came before versus after 42 months differed from one another based on their characteristics or outcomes. Further, including all possible information in the imputation may improve its accuracy. Supplemental analyses restricting the imputation to 42 months prior to running the main analyses resulted in the same conclusions for Aim I and Aim II.

Table S 2 in the supplement displays the missing data by referral source for the analytical sample (N=4,421) and Table S 3 in the supplement compares participant characteristics for those with complete data for all variables involved in the first and second aim (N=4,421).

4.2 Sample characteristics

Table 3 shows the post-imputation participant characteristics of the analytical sample of 4,421 for those who self-referred compared to those who did not and reports the p-values of pooled Pearson's Chi-squared tests used to compare the distributions of these two samples on these characteristics.

Of the 4,421-young people, 39.3% self-referred while 60.7% arrived via a different referral route. The proportion of young people self-referring differed by site, ranging from 6-75%. The average age of the total sample was 19.40 years old (standard deviation=3.39). Relative to the other response options for each of the following characteristics, the overall sample had a higher proportion of cis women (53.9%), young people that were White (54.5%), heterosexual (60.9%), had a reliable adult present (80.2%), had no difficulty meeting their basic needs (60.8%), were in education, employment, or training (64.8%), had completed secondary school (40.1%), had a moderate-to-severe mental health problem(s) (64.3%), had no-to-mild difficulties with functioning (51.4%), and had previously sought mental health services, but not at ACCESS (53.8%). The largest proportion of young people came in between months 25-30 after sites initiated the ACCESS model (17.9%), with the smallest proportion coming in during the first 6 months (8.6%). Most came prior to 1 March 2020, the month the COVID-19 pandemic begun (98.5%). Pooled Pearson's Chi-squared tests revealed significant differences in terms of age, ethnic or cultural origins, presence of a reliable adult, NEET status, age-adjusted educational

attainment, level of social and occupational functioning, and time at entering service post-ACCESS implementation between those who self-referred compared to those arriving via other referral pathways.

Table 4 displays the mean and median wait times, in days, from referral to first appointment across each variable. Wait times from referral to the first appointment were zero for those who self-referred whereas those with another referral source waited a median of 6 days (interquartile range=0.00-18.96). For the covariates, wait times were longer among youth who were: younger, i.e., 11-15 years old (median days=12.09, interquartile range= 2.99-29.85), cis-women (median days=1.55, interquartile range=0.00-13.72), Indigenous (median days=3.43, interquartile range= 0.00-19.59) heterosexual (median days=1.00, interquartile range=0.00-13.10), who had a reliable adult present (median days=1.23, interquartile range=0.00-13.10), had no difficulty meeting basic needs (mean days=1.88, interquartile range=0.00-14.02), were engaged in education, employment or training (median days=2.80, interquartile range=0.00-14.78), were too young to have achieved secondary education (median days= 6.91 days, interquartile range=0.00-19.68), had no-to-mild mental health problem(s) (median days= 1.52 days, interquartile range=0.00-11.88), had moderate-to-significant difficulties with functioning (median days=1.00, interquartile range=0.00-12.74), previously had an ACCESS assessment (median days=8.02, interquartile range=0.00-25.15) or came in the first 6 months of each site's implementation of ACCESS (median days= 4.59, interquartile range=0.00-17.31).

4.3 Predictors of self-referral pathway use

The results of the pooled, adjusted logistic regression with random intercept, as shown in Table 5, revealed that the odds of self-referral increased per one-year increase in age (OR:1.10, 95%

CI:1.06-1.14) and per six-month increase in time post-ACCESS implementation (OR: 1.09, 95% CI: 1.05-1.14). Those who had not achieved a secondary diploma were more likely to self-refer compared to those who were too young to have achieved a secondary diploma (OR: 1.42, 95% CI: 1.02-1.98). Young people who had previously received an ACCESS assessment were more likely to self-refer than those with no previous service use (OR: 2.28, 95% CI: 1.61-3.24). Sexual minority young people were less likely to self-refer compared to heterosexual young people (OR: 0.81, 95% CI: 0.67-0.98) and young people with moderate-to-significant difficulties with functioning were less likely to self-refer compared to those with no-to-mild difficulties (OR: 0.81, 95% CI: 0.65-0.99). The site variable accounted for 20% of the variance in referral source based on the results of the adjusted pooled intraclass correlation coefficient. The variance inflation factor also consistently estimated low correlation between variables suggesting the absence of multicollinearity in the model. The 10-fold cross validation found the model's predictive performance to be satisfactory with the area under the curve ranging between 0.81 and 0.82 by imputed dataset.

4.4 Time to first appointment for self- vs other referrals

Regardless of referral source, and averaged across the imputed datasets, just over half of young people's first appointments occurred the same day as their referral (n~2,212), 75% were seen within 11 days (n~3,300) and 90% were seen within 35 days (n~3,952). Figure 3 presents the pooled Kaplan Meier curves that show that on the day of referral, the probability of receiving a first appointment is approximately 79% for self-referrers and 32% for young people using other referral routes. By day 11, the probability increases to approximately 90% for those self-referring and 65% for young people using other referral routes. While on day 35, the probability of obtaining a first appointment is approximately 95% for self-referrers and 86% for those using

other referral routes. The probability of receiving a first appointment is higher for self-referrers compared to those using other referral routes consistently until around day 211, at which point the probability is approximately the same regardless of referral source. However, on average, only 26 participants had not received their first appointment by day 211.

The results of the adjusted accelerated failure time model with time from referral to first appointment as the dependent variable are shown in Table 6. This analysis revealed that wait times to first appointment were, on average, shorter among young people who self-referred compared to those with other referral sources (TR:0.70, 95% CI: 0.65-0.76). They were also shorter for those coming later in the course after ACCESS was implemented, although this association was weak (TR:0.98, 95% CI:0.97-1.00). On the other hand, wait times to first appointment were longer for those who had a moderate-to-severe mental health problem(s) (TR:1.10, 95% CI: 1.01-1.19), had a previous ACCESS assessment (TR: 1.21, 95% CI: 1.02-1.44) or had previous service use but not at ACCESS (TR: 1.12, 95% CI: 1.03-1.22) (see Table 6).

4.4.1 Exploratory analyses of components comprising the time from referral to first appointment

As outlined in Figure 2, the wait time from the referral to the first appointment can be broken down into the time from the referral to successful contact with youth, the time from successful contact with youth to offered appointment, and the time from offered appointment to first appointment. To understand which of these components is affected by referral source (self-versus other), three additional accelerated failure time models were run with each of the times as the dependent variable.

Table 7 displays the results of the pooled, adjusted accelerated failure time model, including all the same covariates from the main analysis but with time from referral to successful contact with youth as the outcome. Those who self-referred had shorter wait times from referral to successful contact with youth compared to those referred through other sources (TR:0.64, 95% CI:0.60-0.68). Those who were not in education, employment, or training also had shorter wait times (TR:0.93, 95% CI: 0.86-1.00) as well as those who arrived at sites later in the course after ACCESS was implemented (TR:0.98, 95% CI:0.96-1.00), although these associations were weak. Young people who arrived at ACCESS after 1 March 2020, the month when the COVID-19 pandemic was declared, experienced longer wait times (TR:1.33, 95% CI:1.06-1.67).

Table 8 displays the results of the adjusted accelerated failure time model, including all the same covariates from the main analysis, but with time from successful contact with youth to offered appointment as the outcome. The time from contacting the youth to the first offered appointment did not vary by referral source. Those with a moderate-to-severe mental health problem(s) were more likely to experience longer wait times to first offered appointment (TR: 1.07, 95% CI: 1.01-1.13). A weak association was found with those who had previously contacted ACCESS but had not been assessed, waiting longer than those with no previous service seeking/use (TR:1.15, 95% CI:1.00-1.34). Those who arrived at sites later in the course after ACCESS had been implemented also waited longer for an appointment to be offered after the youth had been contacted, although this association was weak (TR:1.01, 95% CI: 1.00-1.02).

Table 9 displays the results of the adjusted, accelerated failure time model, including all of the same covariates from the main analysis but with time from offered appointment to first appointment as the outcome. This analysis found that there was no difference in the time from offered appointment to first appointment based on referral source. Those who entered the service

later after ACCESS implementation had longer periods from offered appointment to first appointment, although this association was weak (TR:1.01, 95% CI:1.00-1.02).

4.5 Post hoc analysis- interaction between Clinical Global Impressions-Youth Mental Health score and referral source and its impact on time from referral to first appointment

In view of the results for the second aim, investigating the time from referral to first appointment, it was of interest to better understand the finding that those with a moderate-to-severe mental health problem(s) were more likely to experience longer wait times to the first appointment. The same accelerated failure time model from the main analysis, with time from referral to first appointment as the outcome, was used but with the addition of an interaction term between Clinical Global Impressions scale score (this time coded continuously for a more nuanced investigation) and referral source. This analysis was conducted to see if the source of referral modified the relationship between the severity of mental health problem(s) and the time to first appointment. The interaction term was statistically significant, and Figure S1 shows that the predicted median wait time for a first appointment was consistently higher among those arriving via other referrals compared to self-referrals; but, while the increase in severity of a mental health problem was associated with lower predicted median days to first appointment among those who self-referred, the opposite was true for those with a different referral source.

Chapter 5: Discussion

The aims of this study were to investigate clinical and sociodemographic determinants of the self-referral pathway and its impact on wait times to the first appointment at youth mental health services that were part of the ACCESS Open Minds network. More than one third of young people who connected with ACCESS had self-referred. Enhanced primary/community, broad-spectrum youth mental health services reform initiatives in Ireland and Australia have reported similar rates of self-referral (~30% and over 40%, including family/friend, respectively), which suggests that, when made available, many young people rely on this route to care (173, 174). Yet, to our knowledge, this study is the first youth mental health services reform initiative to investigate the determinants of self-referral pathway use and its impact on timely access to care.

Self-referral was associated with shorter wait times to first appointment, highlighting the importance of this route to care. Nonetheless, two thirds of the sample came to services through other referral routes, which demonstrates that service gatekeepers, such as parents and general practitioners, remain important sources of referral in youth mental health services. There were variations in the proportion of young people self-referring by site (from 6-75%), highlighting that context may shape pathways to care. For example, the only method for accessing services at the site with the highest proportion of self-referral was 'walk-in'. This may have facilitated young people coming in on their own, although referrals from other sources were still seen at this site. This site was also in a large social services organization in the downtown of a large city, which also may have facilitated self-referrals. The site with the lowest proportion of self-referral covers a large rural population in a large**,** widespread region. The region has no one central or main area and poor public transportation, which may have hindered self-referrals. Youth may have needed to rely on others to help facilitate referrals to health and social services like ACCESS.

Interestingly, the two other sites with low self-referral rates were urban sites but based in large institutions with multiple services and access pathways and procedures, rather than stand-alone youth hubs. Future research needs to examine more closely how individual and organizational factors influence pathways to care, both independently and in interaction with each other. Variations in the use of the self-referral pathway suggest that youth mental health services need to have multiple portals of entry including, but not limited to, self-referral**.**

5.1 Determinants of self-referral pathways

Considering that self-referral pathways have been theorized to improve service uptake for traditionally underserved groups, it was interesting that, for the most part, more vulnerable young people (i.e., gender diverse, visible minority, or Indigenous young people, those not in education, employment, or training, and who did not have a reliable adult present) were not more or less likely to use the self-referral pathway compared to their peers. Thus far, there is limited and, at times, conflicting evidence on who is more likely to self-refer to mental health (9, 11, 116, 134, 140, 141). While its increased uptake by traditionally underserved young people would have strengthened the perceived value of integrating self-referral pathways in youth mental health services, the finding that more vulnerable groups do not differ in referral routes to ACCESS compared to their peers still allays fears that self-referral could widen health inequalities by making mental health care more accessible to those who are already more likely to engage with services (130).

While this was the general pattern of findings, it is still concerning that some youth groups were less likely to self-refer. Sexual minority young people were less likely to use this route compared to heterosexual young people. Still, approximately 39% of young people in the sample identified

as a sexual minority, which indicates that, though this group was less likely to access services through this pathway, they still did engage with ACCESS in higher proportions than their proportion in the overall population (175). Other youth mental health services reform initiatives have also seen relatively high proportions of sexual minority young people (176, 177). So increased service use in this group may be attributed to practices such as the creation and advertising of co-designed, inclusive, LGBTQI2S+ affirming, youth-friendly spaces (176, 177).

Those who had moderate-to-significant difficulties with functioning were also less likely to self-refer. Self-referral pathways put more responsibility on service users to navigate mental health service systems, which could be more difficult for someone with reduced functioning (15). Such young people may require more support when accessing services (15). It is also possible that those with more severe functioning difficulties are more likely to be identified as needing help by others who then refer them to services (142). Alternatively, this finding could support the concern that self-referral pathways increase service uptake by those with less severe presentations (130). This is, however, less likely considering that there was an approximately equal proportion of those with no-to-mild difficulties with functioning and those with moderate-to-significant difficulties with functioning in the overall ACCESS sample. There were also more individuals attending ACCESS with a moderate-to-severe mental health problem(s) compared to no-to-mild mental health problem(s), and those with milder mental health problems were no more likely to self-refer than those with a moderate-to-severe mental health problem(s).

Some youth groups were more likely to self-refer, which also merits reflection. Having a previous assessment at ACCESS was associated with higher odds of self-referral. This is contradictory to the findings of Ramirez,et.al. (2009), who found that those with no previous mental health service contact were more likely to self-refer to a specialty mental health service in

Sweden (141). However, these services likely serve very different demographics of young people, which may explain the difference. In the case of ACCESS, those with previous assessments at ACCESS may have been more acquainted with ACCESS services; those who had previously attended the service would have known that they could obtain care at ACCESS sites and may have been less likely to need assistance with service navigation compared to those who had never used mental health services, and particularly ACCESS services. Similarly, those coming later during program implementation were more likely to self-refer. These young people may have been exposed to more outreach and word-of-mouth publicity about ACCESS, including from peers who used its services, and may have therefore been more aware of the ACCESS services and its ability to accept self-referrals.

A somewhat intriguing finding is that those with less than a secondary education were more likely to self-refer compared to those who were too young to have completed secondary education. Young people who did not have a secondary education at an age when they would have been expected to may not have had the capacity to navigate traditional systems or may have been less connected to social networks that could detect and refer them to mental health services. Many ACCESS sites offered welfare and supported employment and education services either through co-location or through linkages, that may have been particularly attractive to young people with less than a secondary education.

Currently available studies examining the determinants of self-referral to youth mental health services is very limited and heterogeneous. Thus, comparing the results of this study to previously published works is difficult. To our knowledge, other similar youth mental health services in other countries, such as Jigsaw in Ireland, Headspace in Australia, and Youth Space in Birmingham, have not looked at the determinants of self-referral. Only one study was identified

that examined self-referrals and was conducted in Canada. While it was conducted in a setting comparable to ACCESS, Youth Wellness Center (described as accessible, youth friendly and community-based), it relied on univariate tests to draw conclusions about determinants of self-referral and focused only on gender differences (116).

5.2 Timeliness of the first appointment and its association with referral source

A major finding of this study was that those who self-referred were more likely to obtain their first appointment sooner than those who used other referral routes; this can be attributed to the reduced time it takes to contact young people after a referral is received. More specifically, self-referral removes the need for ACCESS to first reach out to and successfully contact an external referral source, before trying to contact the youth. Self-referring at ACCESS can include walking into the service directly to ask for help; hence, for some, help may have been given at the time of referral (e.g., see the high likelihood of obtaining a first appointment on the day of referral among those who referred themselves). We found no evidence to suggest that self-referring had any impact on the time it took services to offer an appointment to young people after they were successfully contacted or the time it took for the first appointment to occur after it was offered. These findings highlight the way in which self-referral pathways are able to improve timely access to care and the importance of adopting such a route to care in youth mental health services. However, given this study found differential use of the self-referral pathways, this route to care should be particularly promoted among those less likely to refer themselves in order to prevent the exacerbation of health inequities and to ensure all youth receive timely access to care. In addition, efforts should also be made to reduce delays in access to services for those who use other referral sources.

Consistent with what was reported in a previous publication with the ACCESS sample (under review), those with a moderate-to-severe mental health problem(s) are more likely to experience longer wait times to the first appointment. A post-hoc accelerated failure time model for time to first appointment with an interaction between severity of mental health presentations and referral source demonstrated that while the median wait time to first appointment was consistently lower among those who self-referred, it decreased as the severity of mental health problem(s) increased. The opposite was observed for those using other referral sources in that the median wait time increased as severity increased. While conclusions cannot be made about why the severity of mental health problem(s), influenced appointment offers once the young person was successfully contacted, the results of the interaction analysis emphasize the role that self-referral pathways can play in improving timely access to care for those with a more severe problem(s) and the need for targeted interventions to improve their uptake by these young people. A possible explanation is that the same factors underlie both being referred by another referral source (as opposed to self-referral) and delays to both offered and actual appointments among those with a severe mental health problem(s), even after the treating team had successfully contacted the young person. For example, some young people with more serious problems may be disorganized, not call back to coordinate or follow up about their appointments; may have higher levels of stigma and reluctance to seek help; or they may lack the resources to advocate for themselves effectively (178). These factors may be associated with both referral source and delays to appointment.

5.3 Strengths and limitations

This study is, to our knowledge, the first to investigate the determinants of self-referral pathway use and its impact on wait times to first appointment for young people seeking mental health

services in Canada. Given that, globally, there remains a lack of quantitative evidence supporting the notion that self-referral pathways can improve accessibility to care, this study helps shed light on the impact of such a route to care in practice. Previous literature on this topic has mainly investigated determinants of self-referral pathway use via univariate analyses which are unable to adjust for confounding factors. They were also limited in the way that they handled missing data. This study not only used a large, diverse sample of help-seeking young people, but also employed multivariate imputation and conducted more robust statistical analyses using multiple logistic regression and accelerated failure time models that accounted for within site correlations and adjusted for various other factors that influence wait times. This meant conclusions could be drawn about the associations between each determinant of interest and referral source, and the association between source of referral and wait times could be measured while accounting for confounding bias.

However, results should still be interpreted with caution as this study is not without limitations. For one, referral source was dichotomized into self- vs other referrals. The other referral category is quite heterogeneous, and it may not have been ideal to combine referrals from sources such as community organizations and emergency departments. This has been a limitation in other studies and future investigations could conduct more nuanced analyses which allow for self-referral to be compared with specific gatekeepers (141). While differential use of self-referral pathways was identified, we cannot explain the reason for this. An article with similar findings argued that more research into untangling this, such as gaining an understanding of young people's attitudes toward self-referral is warranted (11). Additionally, self-referral was defined in terms of the young people seeking help themselves at an ACCESS site, but this could have been preceded by other help-seeking contacts prior to the self-referral, some of which may have been initiated by

other referral sources. The 'Previously sought mental health services' variable may have controlled for this partially; however, it is possible that young people sought help from informal sources who then told them to self-refer. In fact, one study found that many of the young people who self-referred were directed by their parents (179). Furthermore, we were unable control for the number of help-seeking contacts prior to referral, as this information was not collected from the young people. So, while self-referral is associated with more direct access, it is important to remember that only wait times from referral to first appointment were explored. Since research in psychosis has found that both help-seeking and referral delays are associated with longer duration of untreated psychosis, future studies could benefit from looking more deeply into the various components of treatment delays. Our results could also have been impacted by selection and information bias as most data for this study were collected during young people's initial evaluation, which had begun at their first appointment. We do not have information on the demographic or clinical characteristics of the young people who were referred to ACCESS but, either chose not to partake in the study or did not attend their first appointment. It is possible that these young people differed significantly from the analytical sample by the source of referral and/or their demographic and clinical characteristics. Additionally, time-varying demographic and clinical characteristics, such as ability to meet basic needs, difficulty with functioning, and problem severity, may only reflect the state of the young person at the time of the first appointment, and not at the time of referral. As such, it is possible that these demographics are not determining the referral source. However, considering the median time to first appointment was less than half a day, this information bias may have been mitigated. Sociodemographic information was also collected via self-report which could have been subjected to bias; recall bias in particular may have impacted results but considering all information was collected in the

first appointment it is not expected to have biased results greatly, if at all. Previous service seeking was also collected via self-report and asked young people to report on service use in the year prior to attending ACCESS. This may have been impacted by recall bias. Confounding could have also played a role as service area-level of deprivation has been shown to attenuate the relationship between factors like ethnicity and referral route (11). While a strength of our study may have been the use of "ability to meet basic expenses" as a proxy for individual-level deprivation, future work could focus on controlling for both and using more objective measures, such as postal code of young people, which was not available for the current study. Caution should also be used when generalizing the findings of this study. This study focused on self-referral pathways to ACCESS but pathways to care are both setting and context-specific, so these findings may not be generalizable to other youth mental health services, particularly outside Canada.

Chapter 6: Conclusions

In conclusion, this study was successful in identifying determinants of self-referral pathways and the impact of self-referral (versus other) pathways on timely access to care for young people presenting to ACCESS. A third of the ACCESS sample referred themselves to the service and this route to care was associated with shorter wait times to first appointment. This underscores the potential importance of such a route to care in youth mental health service reforms in Canada. Nonetheless, most young people arrived at ACCESS through other routes and there was large variability in self-referral use by site. Including multiple portals of entry, as a part of youth mental health service reforms in Canada, is therefore important. Additionally, some young people were less likely to self-refer. While further investigations may be needed to understand why some routes are associated with lower wait times compared to others, findings support the need for interventions that improve the uptake of self-referral pathway use among these groups and decrease wait times for those using other referral routes.

Tables and Figures

Table 1. *Identified articles from literature review investigating determinants of self-referral and its impact on treatment delays (N=8)**

Article	Study aim	Study Sample	Mental health service and setting	Self-referral comparison	Determinants of self-referral examined	Wait times associated with self-referral examined	Relevant findings
Eamon, et al., 2019 (116)	To compare service access pathways of transgender and gender diverse young people attending a youth mental health clinic to cisgender young people and to examine ways to address the needs of transgender and gender diverse young people in the broader context of mental health care	Clients (ages 17-25) of a Youth Wellness Center who presented between 2015-2018.	Youth Wellness Center, which is described as youth friendly, accessible, and community-based, in Canada	Health care provider, family, friend, self	Gender (cisgender male vs. cisgender female vs. transgender, cisgender male vs. cisgender female vs. gender diverse, gender conforming vs. gender diverse)	N/A	Chi square tests revealed that: transgender clients were more likely to self-refer compared to cis gender males or cis gender females, who may be more likely to be referred by a family/ friend or health care provider.; gender diverse clients were more likely to self-refer compared to cis-gender male or female clients, who may be more likely to be referred by a family/ friend or health care provider; gender diverse clients were more likely to self-refer compare to gender-conforming clients, who may be more likely to be referred by a family/ friend or health care provider; gender diverse clients were more likely to self-refer compared to gender-conforming clients, who may be more likely to come through other pathways.

Rock, et al., 2020 (9)	Evaluate the incorporation of a single point of access to care in two child and adolescent mental health services.	This study used a mixed methods study design and thus had multiple samples. The relevant study sample included young people (age range not explicitly stated and N's not provided) in Buckingham shire, the United Kingdom, and Oxfordshire, in the United Kingdom, who were referred to child and adolescent mental health services after the implementati on of a single point of access in 2015/16 and 2018/19 respectively.	Child and adolescent mental health services in the United Kingdom.	Self-referral (self, parent, carer) compared to general practitioner referral	Ward deprivation (measured by the index of multiple deprivation), age, gender/sex (female vs. male), ethnicity (white British vs other- not explicitly stated)	N/A	In Buckinghamshire, chi square tests showed that the difference in the number of referrals from general practitioner's vs self was significantly different for white British youth compared to other youth; more white British youth used self-referral. Among those who self-referred in Buckinghamshire, t tests found younger youth as well as those from more deprived areas were more often rejected from receiving child and adolescent mental health services. Chi square tests also found that males who self-referred were more likely to be rejected from receiving services compared to females. In Oxfordshire, a t test and chi square test revealed that younger youth and those from less deprived areas were more often referred through self/parent/carer referred versus coming via a general practitioner, respectively. Chi square tests showed that white British youth more often self-referred vs using a general practitioner compared to other youth.

Edbrooks-Childs, et al., 2019 (11)	Investigate whether referral routes to youth mental health are different by ethnicity.	14,588 young people (<25 years) accessing mental health services in the United Kingdom with complete data on key characteristics for analysis.	Youth mental health services in the United Kingdom.	Self-referral (self, carer, National Health Service direct) compared to primary care referral	Ethnicity (white other, Mixed, Asian, Black, other ethnicity, not stated each vs. white British), gender/sex (female vs. male), age (0-12, 0-5 each vs 13-25), problem type (behavioral, unclassified, severe, emotional, self-harm, other each vs. self-management advice), contextual factors (home life, school, community, engagement), service area deprivation (measured by normalized Income Deprivation Affecting Children Index with average scores translated into established band categories)	N/A	Adjusted multinominal logistic regression revealed that there were no differences in the odds of self-referral compared to primary care referral by sex, or contextual factors. 6–12-year-olds were less likely to self-refer compared to 13-25-year-olds but there was no difference between 0–5-year-olds and 13-25-year-olds. Those with unclassified problem types were more likely to self-refer compared to the self-management advice group (comprised of young people with a maximum of one moderate clinician rated problem). There were no other differences in the odds of self-referral by other problem types. Asian, Black, and other ethnicity youth were less likely to self-refer compared to white British youth. In a sensitivity analysis, which added area level deprivation to the model, no differences from the findings above were found. Young people coming from the most deprived areas were more likely to self-refer compared to youth coming from the least deprived areas. Yet, young people from the least deprived areas were more likely to self-refer compared to those coming

							from the second least deprived areas.
Ramirez, et al., 2009 (141)	Determine if people referred by professional providers to specialized mental health care in Sweden differ from self-referred people.	200 young adults (18–25-year old's) who: came to Flogsta Outpatient Clinic in the Department of Psychiatry of Uppsala Hospital between 2002-2004, had an initial assessment, were living in the catchment area of the service, and agreed to participate.	Speciality mental health service in Sweden.	Self-referral compared to any non-psychiatrist professionals (psychiatric services, general practitioner, school mental health service, other mental health professional)	gender/sex (male vs female), living arrangement (alone vs others), parental status (nonparent vs parent), occupational status (any vs none), immigrant status (native of Sweden vs. immigrant), Age at assessment, problem type (any mood disorder, any anxiety disorder, any substance use disorder, any eating disorder, any psychotic disorder, somatoform disorder, adjustment disorder, personality disorder), previous contact with mental health services (no previous use, child and adolescent psychiatry, psychiatry, general practitioner, school health service, other mental health service)	N/A	Chi square analysis revealed no demographic differences between those who self-referred and those referred by a non-psychiatrist professional. But these analyses did find that self-referral was more common for those with a mood disorder or a specific phobia. Logistic regression with referral source as the outcome and variables: any mood disorder, any anxiety disorder, any eating disorder, and previous contact with mental health services found that those with any mood disorder or no previous contact with professionals, for a mental health concern, were more likely to self-refer.
O'Donoghue, et al., 2022 (140)	Examine whether pathways to care, the presence and	461 young people (15–24-year old's), at ultra-high	Specialty mental health service in Australia.	Self-referral, Family, Friends, Crisis services,	Immigration status (Australian born vs. first generation Immigrant)	N/A	Chi square analysis revealed that the source of referral to the Personal Assessment and Crisis Evaluation service was different between Australian

	severity of depressive symptoms, types, and severity of attenuated positive symptoms, and global functioning at time of presentation to an At-Risk mental state clinic differs between Australian born youth and first-generation migrant groups.	risk for psychosis attending the Personal Assessment and Crisis Evaluation service at Orygen, Melbourne, Australia between 2012-2016.		Community Health services, Emergency Department, Police, Other mental health servie			born youth compared to migrant youth. While a higher proportion of Australia born youth at ultra-high risk self-referred, further analyses were not conducted to make conclusions about statistical differences in self-referral by migrant status. The paper does conclude that more Australian born young people at clinical high risk are referred by other mental health services and that more ultra-high-risk migrants were referred by community health services. The chi square analysis was not significant when stratifying the migrant groups at the continental level and comparing to Australian born youth. However, this may be due to low subgroup sample sizes.
Neill, et.al., 1977 (134)	Examine association between demographic characteristic and the source of referral, clinical presentation, and diagnoses.	161 children (age range not provided but mention 0-18 and over 18) referred to hill health centre and hill field station, Connecticut, United States, in 1971-1972	A community owned medical outpatient child mental health service in the United States.	Self-referral (self or family)	Sex (male vs. female)	N/A	Chi square analysis shows that females were more likely to be self-referred/referred by family compared to males.

Ebrooke-Childs, et al., 2020 (115)	Examine if severity of mental health problem influences wait time to services (initial assessment).	21 419 young people (<26 years) with complete demographic, clinical and service use data and who attended a child and adolescent mental health service in the United Kingdom between 2011 and 2015.	Child and adolescent mental health service in the United Kingdom.	Self-referral (does not explicitly state but assumed to include Family/carer given age of sample) compared to general practitioner referral	N/A	Wait times to services (time from referral to event/contact): assessed at: 3-4 weeks v 0-2 weeks, 5-18 weeks v 0-2 weeks, >=19 weeks v 0-2 weeks)	Multilevel multinominal logistic regression revealed that the odds of waiting 3-4 weeks or 5-18 weeks compared to 0-2 weeks for an initial assessment was higher for those referred by a general practitioner compared to those who self-referred. There was no difference in the odds of waiting over 18 weeks compared to 0-2 weeks by referral source. This model adjusted for: deprivation, age, gender, ethnicity, contextual factors, and mental health problem severity.
Marino, et al., 2020* (142)	Describe characteristics of the pathway to coordinated specialty care, investigate determinants of DUP and help-seeking DUP (onset to first contact with service).	779 young people (16-30 years old) who had non-affective psychosis for less than 2 years and attended 1 of 19 OnTrackNY programs in the United States between 2013-2017.	Coordinated specialty care program for those with early psychosis in the United States.	Self-referral compared to family, significant other or friend, teacher, mental health provider, and other referrals	N/A	Help-seeking duration of untreated psychosis (time from onset of psychosis to first mental health service contact)	Bivariate regression with site as a random effect, showed that those who self-referred to the source of first service contact did not experience different help-seeking DUP compared to those referred via significant others/friends, mental health providers, or other sources. However, they had longer help-seeking DUP compared to family members, and teachers. The association did not hold after back selection in a multivariable model with a 0.05 significance level.

* DUP= Duration of Untreated Psychosis (time from onset of psychosis to the time appropriate treatment is acquired), N/A= Not Applicable
**Note, in this study the source of referral is not to the coordinated specialty care program but to the first mental health service contact (ER visit, psychiatric hospitalization, outpatient mental health contact or other). As such, only the help-seeking DUP (time from onset of psychosis to first mental health service contact) is reported. The overall DUP (time from onset of psychosis to OnTrackNY program admission) is not reported on since the source of referral to OnTrackNY is not evaluated.

Table 2. *Participant characteristics upon entry to ACCESS Open Minds sites* *

	Complete data across variables in this table (N=851)	Pre-imputation (N=5199)	Post-imputation (N=5199)
Referral Source			
n	851	4979	5199
Self-referral	178 (20.9%)	1932 (38.8%)	2027 (39.0%)
Other Referral	673 (79.1%)	3047 (61.2%)	3172 (61.0%)
Time from referral to first appointment			
n	851	4469	5199
Mean (SD)	14.25 (32.51)	11.77 (31.9)	13.88 (34.9)
Age (years)			
n	851	4888	5199
Mean (SD)	19.11 (3.2)	19.22 (3.4)	19.31 (3.4)
11-15	103 (12.1%)	681 (13.9%)	693 (13.3%)
16-18	260 (30.6%)	1401 (28.7 %)	1458 (28.0%)
19-21	285 (33.5%)	1450 (29.7%)	1562 (30.0%)
22-25	203 (23.9%)	1356 (27.7%)	1486 (28.6%)
Gender			
n	851	4815	5199
Cis woman	483 (56.8%)	2647 (55.0%)	2843 (54.7%)
Cis man	290 (34.1%)	1875 (38.9%)	2027 (39.0%)
Gender-diverse	78 (9.2%)	293 (6.1%)	329 (6.3%)
Ethnic or cultural origins			
n	851	3429	5199
Indigenous	195 (22.9%)	963 (28.1%)	1177 (22.6%)
Visible minority	193 (22.6%)	818 (23.9%)	1184 (22.8%)
White	464 (54.5%)	1648 (48.1%)	2838 (54.6%)
Sexual orientation			
n	851	2530	5199
Heterosexual or straight	526 (61.8%)	1534 (60.6%)	3172 (61.0%)
Sexual minority	325 (38.2%)	996 (39.4%)	2027 (39.0%)
Presence of a reliable adult			
n	851	1695	5199
Reliable adult present	735 (86.4%)	1410 (83.2%)	4175 (80.3%)
No reliable adult present	116 (13.6%)	285 (16.8%)	1024 (19.7%)
Ability to meet basic needs			
n	851	2455	5199
No difficulty meeting basic needs	623 (73.2%)	1471 (59.9%)	3262 (62.7%)
Difficulty meeting basic needs	228 (26.8%)	984 (40.1%)	1937 (37.2%)

Education, employment, or training			
n	851	3076	5199
In education, employment, or training	614 (72.2%)	2081 (67.7%)	3389 (65.2%)
Not in education, employment, or training (NEET)	237 (27.8%)	995 (32.3%)	1810 (34.8%)
Educational attainment			
n	851	3624	5199
Less than secondary (high school) graduation	377 (44.3%)	1868 (51.5%)	2658 (51.1%)
Secondary school diploma or equivalent	378 (44.4%)	1427 (39.4%)	2053 (39.5%)
Post-secondary	96 (11.3%)	329 (9.1%)	488 (9.4%)
Severity of mental health problem(s)			
n	851	3763	5199
No-to-mild mental health problem	349 (41.0%)	1341 (35.6%)	1937 (37.3%)
Moderate-to-severe mental health problem	502 (59.0%)	2422 (64.4%)	3262 (62.7%)
Level of social and occupational functioning			
n	851	3762	5199
No-to-mild difficulty with functioning	514 (60.4%)	1886 (50.1%)	2694 (51.8%)
Moderate-to-significant difficulty with functioning	337 (39.6%)	1876 (49.9%)	2505 (48.2%)
Previous non-ACCESS mental health service seeking			
n	851	2987	5199
No service seeking in past year	365 (42.9%)	1286 (43.1%)	2191 (42.1%)
Previous service seeking in past year	486 (57.1%)	1701 (56.9%)	3008 (57.9%)
Previous ACCESS service seeking			
n	851	3945	5199
No previous contact with ACCESS	763 (89.7%)	3493 (88.5%)	4689 (90.2%)
Previous ACCESS evaluation	51 (6.0%)	291 (7.4%)	324 (6.2%)
Previous contact with ACCESS but no evaluation	37 (4.3%)	161 (4.1%)	186 (3.6%)
Time at entering service post-ACCESS implementation			
n	851	5199	5199
Months 1-6	64 (7.5%)	380 (7.3%)	380 (7.3%)
Months 7-12	65 (7.6%)	481 (9.3%)	481 (9.3%)
Months 13-18	130 (15.3%)	669 (12.9%)	669 (12.9%)
Months 19-24	112 (13.2%)	666 (12.8%)	666 (12.8%)
Months 25-30	133 (15.6%)	793 (15.3%)	793 (15.3%)
Months 31-36	120 (14.1%)	754 (14.5%)	754 (14.5%)
Months 37-42	227 (26.7%)	1456 (28.0%)	1456 (28.0%)
Arrived pre-or post-COVID-19 pandemic			
n	851	5199	5199
Arrived at ACCESS pre-pandemic	796 (93.5%)	4519 (86.9%)	4519 (86.9%)
Arrived at ACCESS post-pandemic	55 (6.5%)	680 (13.1%)	680 (13.1%)

*Notes:

- *The sample of 851 includes all young people from the 11 participating sites who received a first appointment between March 2016 and December 2020 who had complete data across all variables.*
- *The sample of 5199 includes all young people from the 11 participating sites who received a first appointment evaluation between March 2016 and December 2020.*
- *All Ns post imputation represent the average across 60 imputed datasets and are rounded to the nearest whole number*
- *Referral source: other referral source pre-imputation is comprised of: ACCESS Open Minds (n=32), Community organization (n=564), Primary/secondary/Tertiary Educational Institution (n=290), Employment, social services and child welfare (n=24), Primary care setting (n=114), Secondary/tertiary care setting (n=88), ER/ED/Hospitalization (n=17), Family/Friend (n=703), Social worker in an unspecified setting (n=205) , Doctor or nurse in an unspecified setting (n=980), Law enforcement (police, probation officer, restorative justice) (n=30), Other (n=33). Descriptions of each of these categories can be found in the supplement. The proportion of young people self-referring differed by site from ~6% to ~77%.*
- *Age: Two sites, Edmonton and University of Alberta, only served those between 16 and 25 years.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options, and prefer not to answer.*
- *Ethnic or cultural origins: Visible minority pre-imputation included: Arab (n=77, 9.4%), Black (n=186, 22.7%), Chinese (n=60, 7.3%), Filipino (n=46, 5.5%), Japanese (n=4, 0.5%), Korean (n=3, 0.4%), Latin American (n=91, 11.1%), South Asian (n=103, 12.6%), Southeast Asian (n=25, 3.1%), West Asian (n=18, 2.2%), other ethnicity (n =146, 17.9%), multiple ethnicities (n=59, 7.2%). Pre imputation, 7.8%, and post imputation, 12.6%, of Indigenous young people accessed services from non-Indigenous sites.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous non-ACCESS mental health service seeking: this represents the seeking or use of no ACCESS mental health services in the 12 months prior to the first appointment.*
- *The variable Arrived pre-or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 3. *Comparison of participant characteristics for those who self-referred and those who did not during the first 42 months of program implementation*

	The total analytical sample (n=4421)	Self-referral (n=1738)	Other referral (n=2683)	P-value for Pearson's χ^2
Age (years)				
Mean (SD)	19.40 (3.39)	20.39 (2.73)	18.75 (3.61)	
11-15	554 (12.5%)	45 (2.6%)	509 (19.0%)	**<0.001**
16-18	1224 (27.7%)	423 (24.3%)	801(30.0%)	
19-21	1351 (30.6%)	649.5 (37.4%)	702 (26.2%)	
22-25	1292 (30.6%)	621 (35.7%)	671 (25.0%)	
Gender				
Cis woman	2383 (53.9%)	931 (53.5%)	1452 (54.1%)	0.90
Cis man	1748 (39.5%)	674 (38.8%)	1074 (40.0%)	
Gender-diverse	290 (6.6%)	134 (7.7%)	157 (5.8%)	
Ethnic or cultural origins				
Indigenous	992 (22.4%)	414 (23.8%)	578 (21.5%)	**0.01**
Visible minority	1017 (23.0%)	355 (20.4%)	662 (24.7%)	
White	2412 (54.5%)	969 (55.7%)	1443 (53.8%)	
Sexual orientation				
Heterosexual or straight	2693 (60.9%)	1071 (61.6%)	1622 (60.5%)	0.46
Sexual minority	1728 (39.1%)	667 (38.4%)	1061 (39.5%)	
Presence of reliable adult				
Reliable adult present	3548 (80.2%)	1336 (76.8%)	2212 (82.5%)	**0.04**
No reliable adult present	873 (19.8%)	403 (23.2%)	471 (17.5%)	
Ability to meet basic needs				
No difficulty meeting basic needs	2690 (60.8%)	1040 (59.8%)	1650 (61.5%)	0.33
Difficulty meeting basic needs	1731 (39.2%)	698.2 (40.2%)	1033 (38.5%)	
Education, employment, or training				
In education, employment, or training	2863 (64.8%)	1024 (58.9%)	1839 (68.6%)	**<0.001**
Not in education, employment, or training (NEET)	1558 (35.2%)	714 (41.1%)	843 (31.4%)	
Age-adjusted educational attainment				
Less than secondary, not at an age where secondary expected	1561 (35.3%)	369 (21.2%)	1191 (44.4%)	**<0.001**
Less than secondary, at an age where secondary expected	668 (15.1%)	257 (14.8%)	411 (15.3%)	
Secondary (Highschool or equivalent)	1772 (40.1%)	882 (50.7%)	891(33.2%)	
Post-secondary	420 (9.5%)	230 (13.2%)	189 (7.1%)	
Severity of mental health problem(s)				
No-to-mild mental health problem	1579 (35.7%)	588 (33.8%)	991 (36.9%)	0.07
Moderate-to-severe mental health problem	2842 (64.3%)	1150 (66.2%)	1692 (63.1%)	
Level of social and occupational functioning				

No-to-mild difficulty with functioning	2272 (51.4%)	1030 (59.2%)	1242 (46.3%)	**<0.001**
Moderate-to-significant difficulty with functioning	2149 (48.6%)	708 (40.8%)	1441 (53.7%)	
Previous mental health service seeking				
No previous service seeking in the past year	1668 (37.7%)	678 (39.0%)	990.0 (36.9%)	0.28
Previous ACCESS assessment	226 (5.1%)	89 (5.1%)	136.9 (5.1%)	
Previous ACCESS contact with no assessment	147 (3.3%)	45 (2.6%)	102 (3.8%)	
Previous service seeking in the past year, but not at ACCESS	2380 (53.8%)	926 (53.3%)	1454 (54.2%)	
Time at entering service post-ACCESS implementation				
Months 1-6	380 (8.6%)	85 (4.9%)	295 (11.0%)	**<0.001**
Months 7-12	481 (10.9%)	138 (7.9%)	343 (12.8%)	
Months 13-18	669 (15.1%)	228 (13.1%)	441 (16.5%)	
Months 19-24	666 (15.1%)	268 (15.4%)	398 (14.9%)	
Months 25-30	793 (17.9%)	345 (19.9%)	447 (16.7%)	
Months 31-36	754 (17.1%)	380 (21.9%)	374 (13.9%)	
Months 37-42	678 (15.3%)	294 (16.9%)	384 (14.3%)	
Arrived pre- or post-COVID-19 Pandemic				
Arrived at ACCESS pre-pandemic	4356 (98.5%)	1720 (98.9%)	2635.9 (98.3%)	0.07
Arrived at ACCESS post-pandemic	65 (1.5%)	18 (1.1%)	47 (1.7%)	

*Notes:

- *The total analytical sample of 4421 represents the sample of 5199 from Table 1, excluding those who came to ACCESS after the 42nd month of site-specific program implementation (n=778)*
- *See Table 9 in the supplement for a description of the analytical sample with complete data across the variables presented in this table (n=787)*
- *All Ns post imputation represent the average across 60 imputed datasets and are rounded to the nearest whole number.*
- Precents may not add to 100 due to rounding to one decimal place.
- *Referral source: the proportion of young people self-referring varied by site from ~6% to 75%.*
- *Age: Two sites, Edmonton and University of Alberta, only served those between 16 and 25 years.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well*

as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.

- *The variable Arrived pre-or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1, 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 4. *Wait-time from referral to first appointment: sociodemographic and clinical characteristics of the sample (N=4421)*

	n (%)	Mean days from referral to first appointment (SD)	Median days from referral to first appointment (IQR)
Total analytical sample	4421 (100%)	14.23 (36.49)	0.30 (0.00-11.92)
Referral Source			
Self-referral	1738 (%)	7.26 (30.93)	0.00 (0.00-0.00)
Other referral	2683 (%)	18.74 (39.01)	6.00 (0.00-18.96)
Age (years)			
11-15	554 (12.5%)	26.3 (45.45)	12.09 (2.99-29.85)
16-18	1224 (27.7%)	13.77 (30.78)	3.00 (0.00-13.29)
19-21	1351 (30.6%)	11.35 (34.56)	0.00 (0.00-7.00)
22-25	1292 (30.6%)	12.48 (37.98)	0.00 (0.00-6.99)
Gender			
Cis woman	2383 (53.9%)	15.78 (38.77)	1.55 (0.00-13.72)
Cis man	1748 (39.5%)	12.97 (34.00)	0.00 (0.00-10.07)
Gender-diverse	290 (6.6%)	9.08 (30.12)	0.00 (0.00-6.00)
Ethnic or cultural origins			
Indigenous	992 (22.4%)	20.07 (47.51)	3.43 (0.00-19.59)
Visible minority	1017 (23.0%)	15.91 (35.88)	1.16 (0.00-14.34)
White	2412 (54.5%)	11.12 (30.65)	0.00 (0.00-8.00)
Sexual orientation			
Heterosexual	2693 (60.9%)	14.75 (36.42)	1.00 (0.00-13.10)
Sexual minority	1728 (39.1%)	13.42 (36.47)	0.00 (0.00-9.49)
Presence of reliable adult			
Reliable adult present	3548 (80.2%)	15.00 (37.36)	1.23 (0.00-13.10)
No reliable adult present	873 (19.7%)	11.11 (32.24)	0.00 (0.00-6.83)
Ability to meet basic needs			
No difficulty meeting basic needs	2690 (60.8%)	15.89 (37.94)	1.88 (0.00-14.02)
Difficulty meeting basic needs	1731 (39.2%)	11.64 (33.80)	0.00 (0.00-7.70)
Education, employment, or training			
In education, employment, or training	2863 (64.8%)	16.47 (38.47)	2.80 (0.00-14.78)
Not in education, employment, or training (NEET)	1558 (35.2%)	10.11 (31.96)	0.00 (0.00-6.00)
Age-adjusted educational attainment			
Less than secondary, not at an age where secondary expected	1561 (35.3%)	18.67 (37.85)	6.91 (0.00-19.68)
Less than secondary, at an age where secondary expected	668 (15.1%)	12.37 (36.63)	0.00 (0.00-7.15)
Secondary (Highschool or equivalent)	1772 (40.1%)	10.70 (33.53)	0.00 (0.00-6.32)
Post-secondary	420 (9.5%)	15.57 (40.52)	0.00 (0.00-10.00)

Severity of mental health problem(s)			
No-to-mild mental health problem	1579 (35.7%)	13.3 (34.8)	1.52 (0.00- 11.88)
Moderate-to-severe mental health problem	2842 (64.3%)	14.7 (37.3)	0.00 (0.00- 11.78)
Level of social and occupational functioning			
No-to-mild difficulty with functioning	2272 (51.4%)	14.19 (38.64)	0.00 (0.00-10.98)
Moderate-to-significant difficulty with functioning	2149 (48.6%)	14.27 (34.02)	1.00 (0.00-12.74)
Previous mental health service seeking			
No previous service seeking in the past year	1668 (37.7%)	13.74 (36.09)	1.19 (0.00-11.77)
Previous ACCESS assessment	226 (5.1%)	26.00 (47.47)	8.02 (0.00-25.15)
Previous contact with ACCESS with no assessment	147 (3.3%)	19.19 (31.14)	7.76 (0.00-21.51)
Previous service seeking in the past year, but not at ACCESS	2380 (53.8%)	13.16 (35.55)	0.00 (0.00-8.94)
Time at entering service post-ACCESS implementation			
Months 1-6	380 (8.6%)	23.04 (50.37)	4.59 (0.00-17.31)
Months 7-12	481 (10.9%)	20.90 (45.91)	4.32 (0.00-15.98)
Months 13-18	669 (15.1%)	12.44 (28.68)	0.00 (0.00-10.47)
Months 19-24	666 (15.1%)	12.91 (37.22)	0.00 (0.00-12.98)
Months 25-30	793 (17.9%)	11.40 (34.09)	0.00 (0.00-10.92)
Months 31-36	754 (17.1%)	12.63 (34.30)	0.00 (0.00-7.15)
Months 37-42	678 (15.3%)	12.70 (28.53)	0.54 (0.00-10.20)
Arrived pre- or post-COVID-19 Pandemic			
Arrived at ACCESS pre-pandemic	4356 (98.5%)	14.06 (36.47)	0.07 (0.00-11.25)
Arrived at ACCESS post-pandemic	65 (1.5%)	25.42 (35.73)	12.72 (0.00-37.28)

*Notes:

- *The total analytical sample of 4421 represents the sample of 5199 from table 1, excluding those who came to ACCESS after the 42nd month of program implementation (n=778).*
- *See Table 9 in the supplement for a description of the analytical sample with complete data across the variables presented in this table (n=764). Note: the loss of 23 young people between aim one and aim two is due to missing data on the time to first appointment.*
- *All Ns post imputation represents the average across 60 imputed datasets and are rounded to the nearest whole number.*
- *Means and standard deviations (SD), as well as medians and interquartile ranges (IQR), were calculated on each of the 60 imputed datasets and pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options, and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*

- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived at ACCESS pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 5. *Estimated effect of sociodemographic, clinical, and service use factors on referral source (N=4421)*

Variable	Adjusted Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Age (years)	**1.10**	**1.06-1.14**	**<0.001**
Gender			
Cis woman	Ref.		
Cis man	0.91	0.77-1.07	0.25
Gender-diverse	0.96	0.70-1.31	0.79
Ethnic or cultural origins			
White	Ref.		
Visible minority	1.08	0.86-1.35	0.52
Indigenous	0.93	0.72-1.22	0.61
Sexual orientation			
Heterosexual	Ref.		
Sexual minority	**0.81**	**0.67-0.98**	**0.03**
Presence of reliable adult			
Reliable adult present	Ref.		
No reliable adult present	1.16	0.84-1.60	0.37
Ability to meet basic needs			
No difficulty meeting basic needs	Ref.		
Difficulty meeting basic needs	1.14	0.91-1.43	0.25
Education, employment, or training			
In education, employment, or training	Ref.		
Not in education, employment, or training (NEET)	1.13	0.85-1.49	0.41
Age-adjusted educational attainment			
Less than secondary, not at an age where secondary expected	Ref.		
Less than secondary, at an age where secondary expected	**1.42**	**1.02-1.98**	**0.04**
Secondary (Highschool or equivalent)	1.28	0.99-1.65	0.06
Post-secondary	1.45	0.98-2.15	0.06
Severity of mental health problem(s)			
No-to-mild mental health problem	Ref.		
Moderate-to-severe mental health problem	0.95	0.78-1.16	0.62
Level of social and occupational functioning			
No-to-mild difficulty with functioning	Ref.		
Moderate-to-significant difficulty with functioning	**0.81**	**0.65-0.99**	**0.04**
Previous mental health service seeking			
No previous service seeking in the past year	Ref.		
Previous ACCESS assessment	**2.28**	**1.61-3.24**	**<0.001**
Previous contact with ACCESS with no assessment	1.14	0.73-1.78	0.57
Previous service seeking in the past year, but not at ACCESS	0.98	0.79-1.22	0.88

Time at entering service post-ACCESS implementation			
Per 6-month increase in time since program implementation	**1.09**	**1.05-1.14**	**<0.001**
Arrived pre- or post-COVID-19 Pandemic			
Arrived at ACCESS pre-pandemic	Ref.		
Arrived at ACCESS post-pandemic	0.66	0.32-1.39	0.28

*Notes:

- *OR =Odds ratio*
- *The presented results of logistic regression adjusted for all covariates listed in the table.*
- *The adjusted logistic regression analysis with multilevel modelling was run on each of the 60 imputed data sets and results were pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options, and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived at pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 6. *Estimated effect of referral source, sociodemographic, clinical, and service use factors on time from referral to first appointment (N=4221)* *

	Adjusted Time Ratio (TR)	95% Confidence Interval (CI)
Referral Source		
Other Referral	Ref.	
Self-referral	**0.70**	**0.65-0.76**
Age (years)	1.00	0.98-1.01
Gender		
Cis woman	Ref.	
Cis man	0.99	0.93-1.06
Gender-diverse	0.99	0.87-1.13
Ethnic or cultural origins		
White	Ref.	
Visible minority	0.99	0.90-1.09
Indigenous	1.01	0.90-1.13
Sexual orientation		
Heterosexual	Ref.	
Sexual minority	0.98	0.89-1.07
Presence of reliable adult		
Reliable adult present	Ref.	
No reliable adult present	0.95	0.85-1.06
Ability to meet basic needs		
No difficulty meeting basic needs	Ref.	
Difficulty meeting basic needs	1.00	0.90-1.10
Education, employment, or training		
In education, employment, or training	Ref.	
Not in education, employment, or training (NEET)	0.94	0.86-1.02
Age-adjusted educational attainment		
Less than secondary, not at an age where secondary expected	Ref.	
Less than secondary, at an age where secondary expected	0.99	0.86-1.14
Secondary (Highschool or equivalent)	0.97	0.87-1.08
Post-secondary	1.02	0.87-1.20
Severity of mental health problem(s)		
No-to-mild mental health problem	Ref.	
Moderate-to-severe mental health problem	**1.10**	**1.01-1.19**
Level of social and occupational functioning		
No-to-mild difficulty with functioning	Ref.	
Moderate-to-significant difficulty with functioning	0.99	0.91-1.08
Previous mental health service seeking		

No previous service seeking in the past year	Ref.	
Previous ACCESS assessment	**1.21**	**1.02-1.44**
Previous contact with ACCESS with no assessment	1.14	0.94-1.39
Previous service seeking in the past year, but not at ACCESS	**1.12**	**1.03-1.22**
Time at entering service post-ACCESS implementation		
Per 6 months increase in time since program implementation	0.98	0.97-1.00
Arrived pre- or post-COVID-19 Pandemic		
Arrived at ACCESS pre-pandemic	Ref.	
Arrived at ACCESS post-pandemic	1.16	0.90-1.49

*Notes:

- *The presented results of the accelerated failure time model adjusted for all covariates listed in the table.*
- *The adjusted accelerated failure time model with multilevel modelling was run on each of the 60 imputed data sets and results were pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options, and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 7. *Estimated effect of referral source, sociodemographic, clinical, and service use factors on time from referral to first successful contact with young people (N=4421)* *

	Adjusted Time Ratio (TR)	95% Confidence Interval (CI)
Referral Source		
Other Referral	Ref.	
Self-referral	**0.64**	**0.60-0.68**
Age (years)		
Gender		
Cis woman	Ref.	
Cis man	0.98	0.92-1.04
Gender-diverse	1.01	0.90-1.12
Ethnic or cultural origins		
White	Ref.	
Visible minority	1.03	0.95-1.11
Indigenous	1.04	0.94-1.15
Sexual orientation		
Heterosexual	Ref.	
Sexual minority	0.96	0.90-1.04
Presence of reliable adult		
Reliable adult present	Ref.	
No reliable adult present	1.02	0.94-1.11
Ability to meet basic needs		
No difficulty meeting basic needs	Ref.	
Difficulty meeting basic needs	0.95	0.87-1.04
Education, employment, or training		
In education, employment, or training	Ref.	
Not in education, employment, or training (NEET)	**0.93**	**0.86-1.00**
Age-adjusted educational attainment		
Less than secondary, not at an age where secondary expected	Ref.	
Less than secondary, at an age where secondary expected	0.92	0.82-1.04
Secondary (Highschool or equivalent)	0.93	0.84-1.02
Post-secondary	0.96	0.84-1.10
Severity of mental health problem(s)		
No-to-mild mental health problem	Ref.	
Moderate-to-severe mental health problem	1.04	0.97-1.11
Level of social and occupational functioning		
No-to-mild difficulty with functioning	Ref.	
Moderate-to-significant difficulty with functioning	1.04	0.97-1.12
Previous mental health service seeking		

No previous service seeking in the past year	Ref.	
Previous ACCESS assessment	1.04	0.90-1.21
Previous contact with ACCESS with no assessment	1.05	0.88-1.25
Previous service seeking in the past year, but not at ACCESS	1.06	0.98-1.13
Time at entering service post-ACCESS implementation		
Per 6 months increase in time since program implementation	**0.98**	**0.96-1.00**
Arrived pre- or post-COVID-19 Pandemic		
Arrived at ACCESS pre-pandemic	Ref.	
Arrived at ACCESS post-pandemic	**1.33**	**1.06-1.67**

*Note:

- *The presented results of the accelerated failure time model adjusted for all covariates listed in the table.*
- *The adjusted accelerated failure time model with multilevel modelling was run on each of the 60 imputed data sets and results were pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 8. *Estimated effect of referral source, sociodemographic, clinical, and service use factors on time from contact with young people to first offered appointment (N=4421)**

	Adjusted Time Ratio (TR)	95% Confidence Interval (CI)
Referral Source		
Other Referral	Ref.	
Self-referral	0.99	0.93-1.04
Age (years)		
Gender		
Cis woman	Ref.	
Cis man	0.99	0.95-1.04
Gender-diverse	0.99	0.90-1.08
Ethnic or cultural origins		
White	Ref	.
Visible minority	1.02	0.95-1.10
Indigenous	0.99	0.92-1.06
Sexual orientation		
Heterosexual	Ref.	
Sexual minority	0.98	0.92-1.05
Presence of reliable adult		
Reliable adult present	Ref.	
No reliable adult present	0.95	0.88-1.03
Ability to meet basic needs		
No difficulty meeting basic needs	Ref.	
Difficulty meeting basic needs	1.00	0.93-1.07
Education, employment, or training		
In education, employment, or training	Ref.	
Not in education, employment, or training (NEET)	0.99	0.93-1.05
Age-adjusted educational attainment		
Less than secondary, not at an age where secondary expected	Ref.	
Less than secondary, at an age where secondary expected	0.98	0.89-1.09
Secondary (Highschool or equivalent)	0.99	0.91-1.07
Post-secondary	0.97	0.86-1.09
Severity of mental health problem(s)		
No-to-mild mental health problem	Ref.	
Moderate-to-severe mental health problem	**1.07**	**1.01-1.13**
Level of social and occupational functioning		
No-to-mild difficulty with functioning	Ref.	
Moderate-to-significant difficulty with functioning	0.98	0.92-1.04

Previous mental health service seeking		
No previous service seeking in the past year	Ref.	
Previous ACCESS assessment	1.09	0.96-1.23
Previous contact with ACCESS with no assessment	**1.15**	**1.00-1.34**
Previous services seeking in the past year, but not at ACCESS	1.05	0.99-1.11
Time at entering service post-ACCESS implementation		
Per 6 months increase in time since program implementation	**1.01**	**1.00-1.02**
Arrived pre- or post-COVID-19 Pandemic		
Arrived at ACCESS pre-pandemic	Ref.	
Arrived at ACCESS post-pandemic	0.98	0.79-1.22

*Note:

- *The presented results of the accelerated failure time model adjusted for all covariates listed in the table.*
- *The adjusted accelerated failure time model with multilevel modelling was run on each of the 60 imputed data sets and results were pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Table 9. *Estimated effect of referral source, sociodemographic, clinical, and service use factors on time from offered appointment to first appointment (N=4421)**

	Adjusted Time Ratio (TR)	95% Confidence Interval (CI)
Referral Source		
Other Referral	Ref.	
Self-referral	0.97	0.93-1.02
Age (years)	1.00	0.99-1.01
Gender		
Cis woman	Ref.	
Cis man	0.98	0.94-1.02
Gender-diverse	0.98	0.90-1.06
Ethnic or cultural origins		
White	Ref	.
Visible minority	0.98	0.93-1.03
Indigenous	1.01	0.95-1.08
Sexual orientation		
Heterosexual	Ref.	
Sexual minority	1.00	0.96-1.05
Presence of reliable adult		
Reliable adult present	Ref.	
No reliable adult present	0.99	0.94-1.05
Ability to meet basic needs		
No difficulty meeting basic needs	Ref.	
Difficulty meeting basic needs	1.03	0.97-1.09
Education, employment, or training		
In education, employment, or training	Ref.	
Not in education, employment, or training (NEET)	0.99	0.94-1.04
Age-adjusted educational attainment		
Less than secondary, not at an age where secondary expected	Ref.	
Less than secondary, at an age where secondary expected	1.06	0.97-1.15
Secondary (Highschool or equivalent)	1.04	0.97-1.11
Post-secondary	1.07	0.97-1.18
Severity of mental health problem(s)		
No-to-mild mental health problem	Ref.	
Moderate-to-severe mental health problem	1.02	0.97-1.07
Level of social and occupational functioning		
No-to-mild difficulty with functioning	Ref.	
Moderate-to-significant difficulty with functioning	0.99	0.94-1.04

Previous mental health service seeking		
No previous service seeking in the past year	Ref.	
Previous ACCESS assessment	1.11	0.99-1.23
Previous contact with ACCESS with no assessment	1.03	0.91-1.16
Previous services seeking in the past year, but not at ACCESS	1.03	0.99-1.08
Time at entering service post-ACCESS implementation		
Per 6 months increase in time since program implementation	**1.01**	**1.00-1.02**
Arrived pre- or post-COVID-19 Pandemic		
Arrived at ACCESS pre-pandemic	Ref.	
Arrived at ACCESS post-pandemic	0.91	0.77-1.06

*Note:

- *The presented results of the accelerated failure time model adjusted for all covariates listed in the table.*
- *The adjusted accelerated failure time model with multilevel modelling was run on each of the 60 imputed data sets and results were pooled using Rubin's Rule.*
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*
- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous*
- *ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Figure 1. *Flow chart describing study sample and analyzable sample*

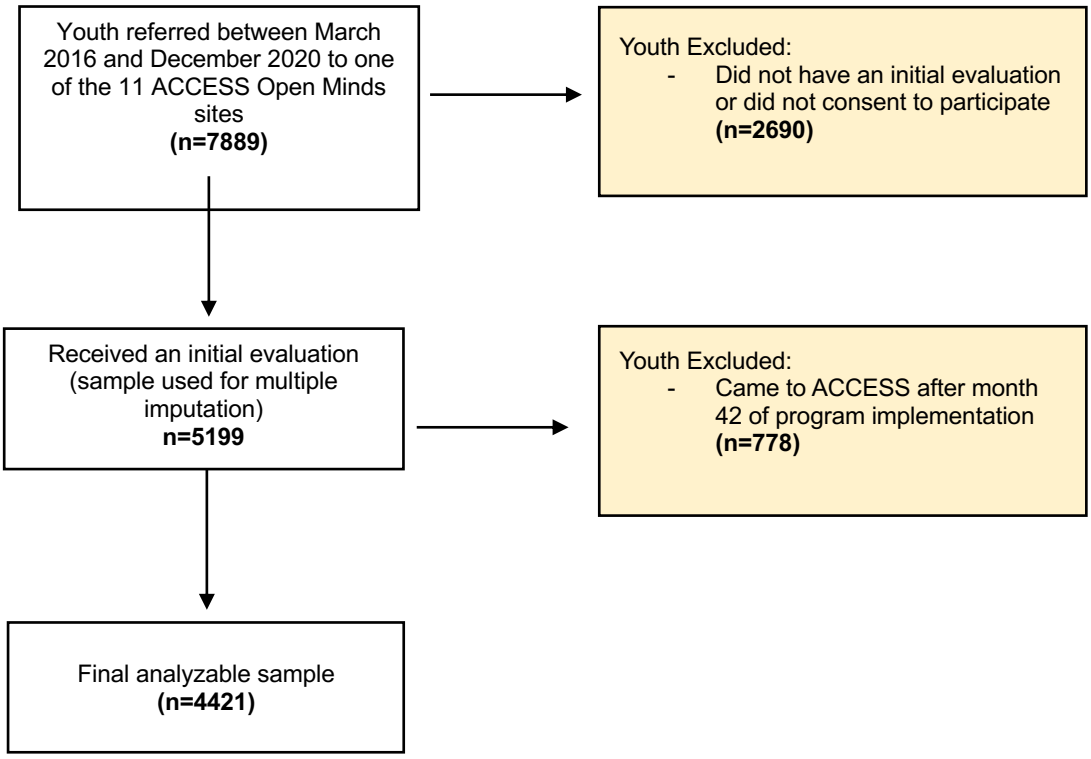


Figure 2. *Wait time from referral to first appointment*

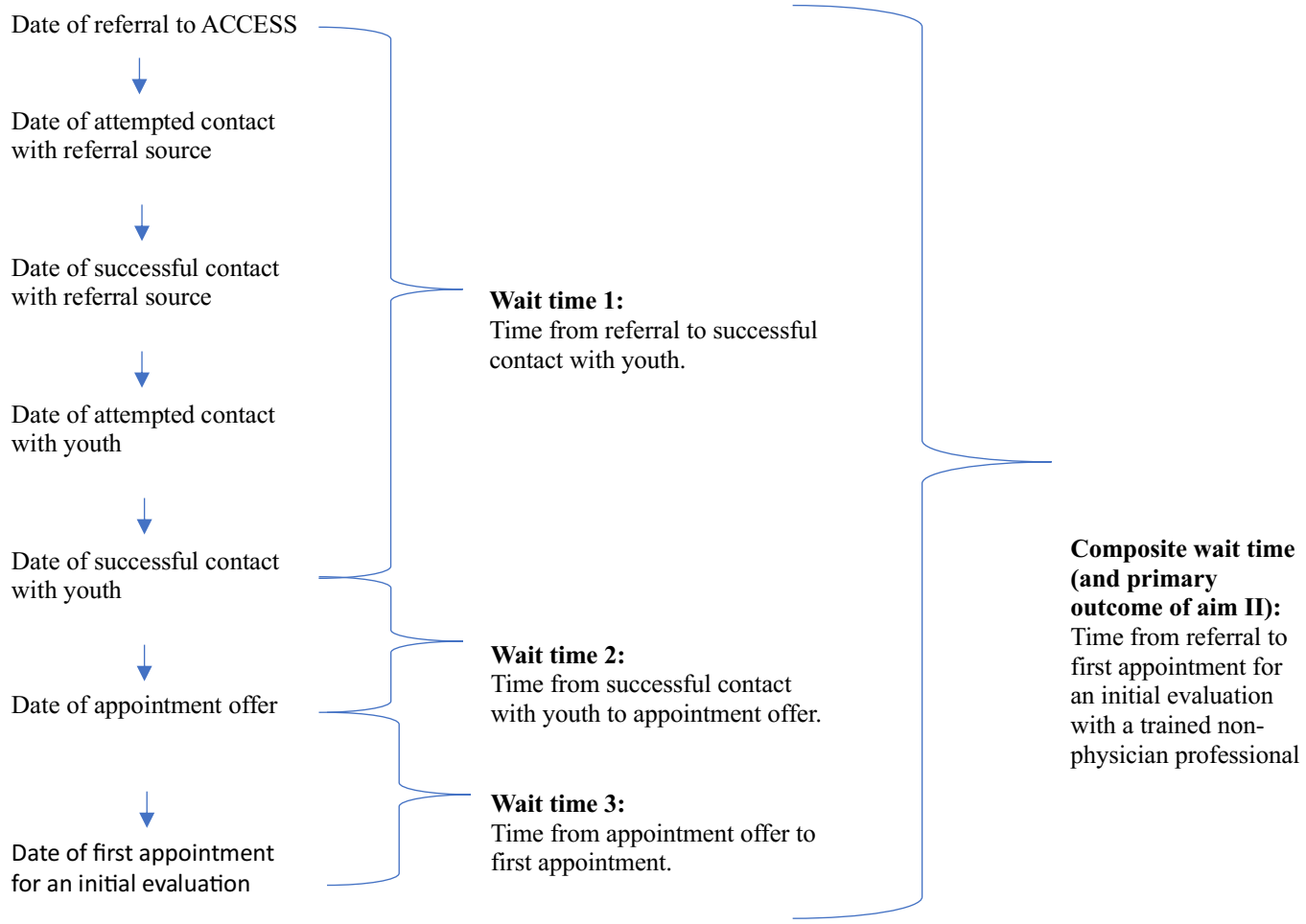
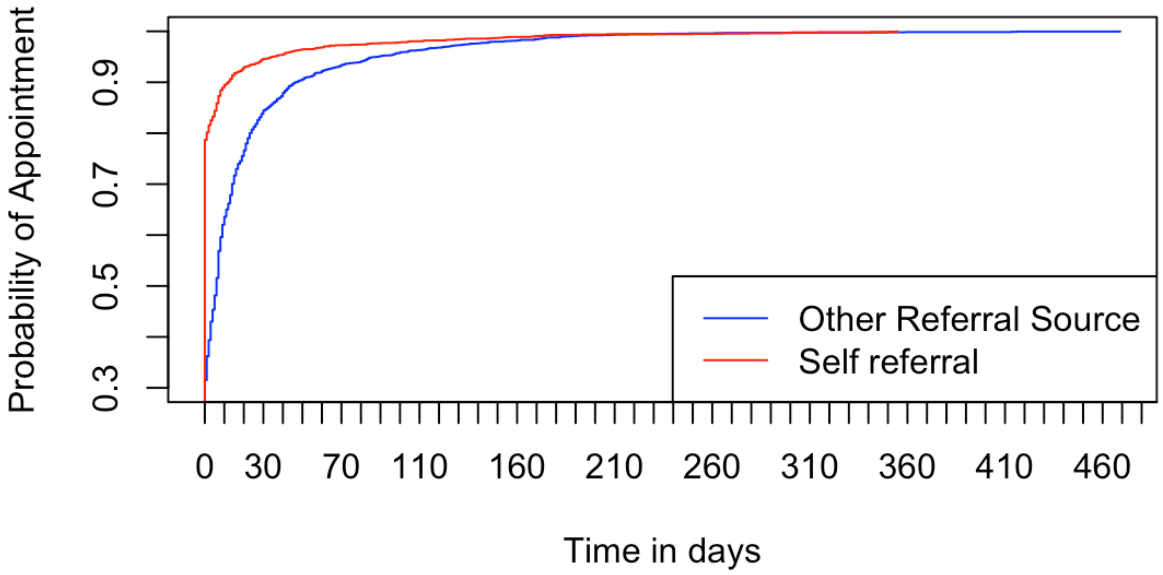


Figure 3. *Kaplan Meier curve depicting the probability of first appointment over time stratified by referral source.**



*Notes:

- *All 4421 young people presented in this graph were considered 'at risk' of having their first appointment; 1738 self-referred and 2683 had another referral*
- *Survival probabilities were calculated on each of the 60 imputed datasets and pooled using Rubin's Rule.*

Supplemental Material

Table S 1. *Description of categories within the 'other referral' category*

Category	Description/examples
ACCESS Open Minds	Referral coming from anyone working at an ACCESS OM site (e.g., ACCESS peer navigation worker, ACCESS research assistant, ACCESS counsellor)
Community organization	Unspecified community organization, specific community organization (e.g., Dans la rue/a soup kitchen, shelter and school for homeless young people, bridging the gap program, community social work team, court support worker)
Educational institution	Referral coming from a primary, secondary, or post-secondary school environment (e.g., School counsellor/teacher, campus food bank, campus sexual assault center, student services)
Employment, social services, and child welfare	Department of youth protection: Batshaw, child and family services, foster care worker, Ontario works, Alberta works, group home, youth center
Primary care setting	CLSC, Guichet Access Santé Mentale Jeunesse, CAFÉ
Secondary/tertiary care setting	Mental health professional in unspecified setting (e.g., therapist, psychoeducator, psychiatrist, sexologist), addictions services/ workers/ counselors, ISD, PEPP, Clinique JAP
Emergency room/emergency department /Hospitalization	Any referral coming from the emergency department or after hospitalization barring those linked to specialty tertiary services
Family/friend	Family, friends, carers, partners, previous ACCESS service users
Social worker in unspecified setting	Any social worker coming from an unspecified setting
Doctor/nurse in unspecified setting	Any doctor or nurse coming from an unspecified setting
Law enforcement	Police officer, probation officer, detention center, restorative justice worker

Table S 2. *Missingness among all variables across the analytic sample (N=4421)*

	Missing referral source (n=198)	Self-referral (n=1650)	Other referral (n=2573)
Time from referral to first appointment (days)			
Available (n=3898)	117	1568	2213
Missing (n=523)	81	82	360
Age (years)			
Available (n=4420)	190	1469	2561
Missing (n=201)	8	181	12
Gender			
Available (n=4150)	148	1443	2559
Missing (n=271)	50	207	14
Ethnic or cultural origins			
Available (n=3048)	109	1218	1721
Missing (n=1373)	89	432	852
Sexual orientation			
Available (n=2373)	69	110	1204
Missing (n=2048)	129	550	1369
Presence of reliable adult			
Available (n=1471)	58	269	1144
Missing (n=2950)	140	1381	1429
Ability to meet basic needs			
Available (n=2215)	68	1010	1137
Missing (n=2206)	130	640	1436
Education, employment, or training			
Available (n=2648)	97	516	2035
Missing (n=1773)	101	1134	538
Age-adjusted educational attainment			
Available (n=3211)	101	1186	1924
Missing (n=1210)	97	464	649
Severity of mental health problem(s)			
Available (n=3319)	108	1188	2023
Missing (n=1102)	90	462	550
Level of social and occupational functioning			
Available (n=3333)	111	1186	2036
Missing (n=1088)	87	464	537
Previously sought mental health services			
Available (n=2431)	68	454	1909
Missing (n=1990)	130	1196	664

Time of entering service post-ACCESS implementation			
Available (n=4421)	198	1650	2573
Missing (n=0)	N/A	N/A	N/A
COVID-19 Pandemic			
Available (n=4421)	198	1650	2573
Missing (n=0)	N/A	N/A	N/A

Table S 3. *Comparing participant characteristics for those with complete data for all variables involved in aim I and aim II, respectively*

	Complete case sample for aim I (N=787)	Complete case sample for aim II (N=764)
Referral Source		
Self-referral	157 (19.9%)	157 (20.5%)
Other referral	630 (80.1%)	607 (79.5%)
Time to first appointment		
Mean (SD)	N/A	14.73 (34.15)
Age (years)		
Mean (SD)	19.22 (3.22)	19.20 (3.22)
11-15	95 (12.1%)	93 (12.2%)
16-18	224 (28.5%)	220 (28.8%)
19-21	266 (33.8%)	257 (33.6%)
22-25	202 (25.7%)	194 (25.4%)
Gender		
Cis woman	448 (56.9%)	430 (56.3%)
Cis man	263 (33.4%)	260 (34.0%)
Gender-diverse	76 (9.7%)	74 (9.7%)
Ethnic or cultural origins		
Indigenous	177 (22.5%)	176 (23.0%)
White	419 (53.2%)	406 (53.1%)
Visible minority	191 (24.3%)	182 (23.8%)
Sexual orientation		
Heterosexual or straight	479 (60.9%)	469 (61.4%)
Sexual minority	308 (39.1%)	295 (38.6%)
Presence of reliable adult		
Reliable adult present	679 (86.3%)	657 (86.0%)
No reliable adult present	108 (13.7%)	107 (14.0%)
Ability to meet basic needs		
No difficulty meeting basic needs	567 (72.0%)	553 (72.4%)
Difficulty meeting basic needs	220 (28.0%)	211 (27.6%)
Education, employment, or training		
In education, employment, or training	556 (71.9%)	550 (72.0%)
Not in education, employment, or training (NEET)	221 (28.1%)	214 (28.0%)
Age-adjusted educational attainment		
Less than secondary, not at an age where secondary expected	260 (33.0%)	257 (33.6%)
Less than secondary, at an age where secondary expected	74 (9.4%)	72 (9.4%)
Secondary (Highschool or equivalent)	354 (45.0%)	334 (45.0%)
Post-secondary	99 (12.6%)	91 (11.9%)

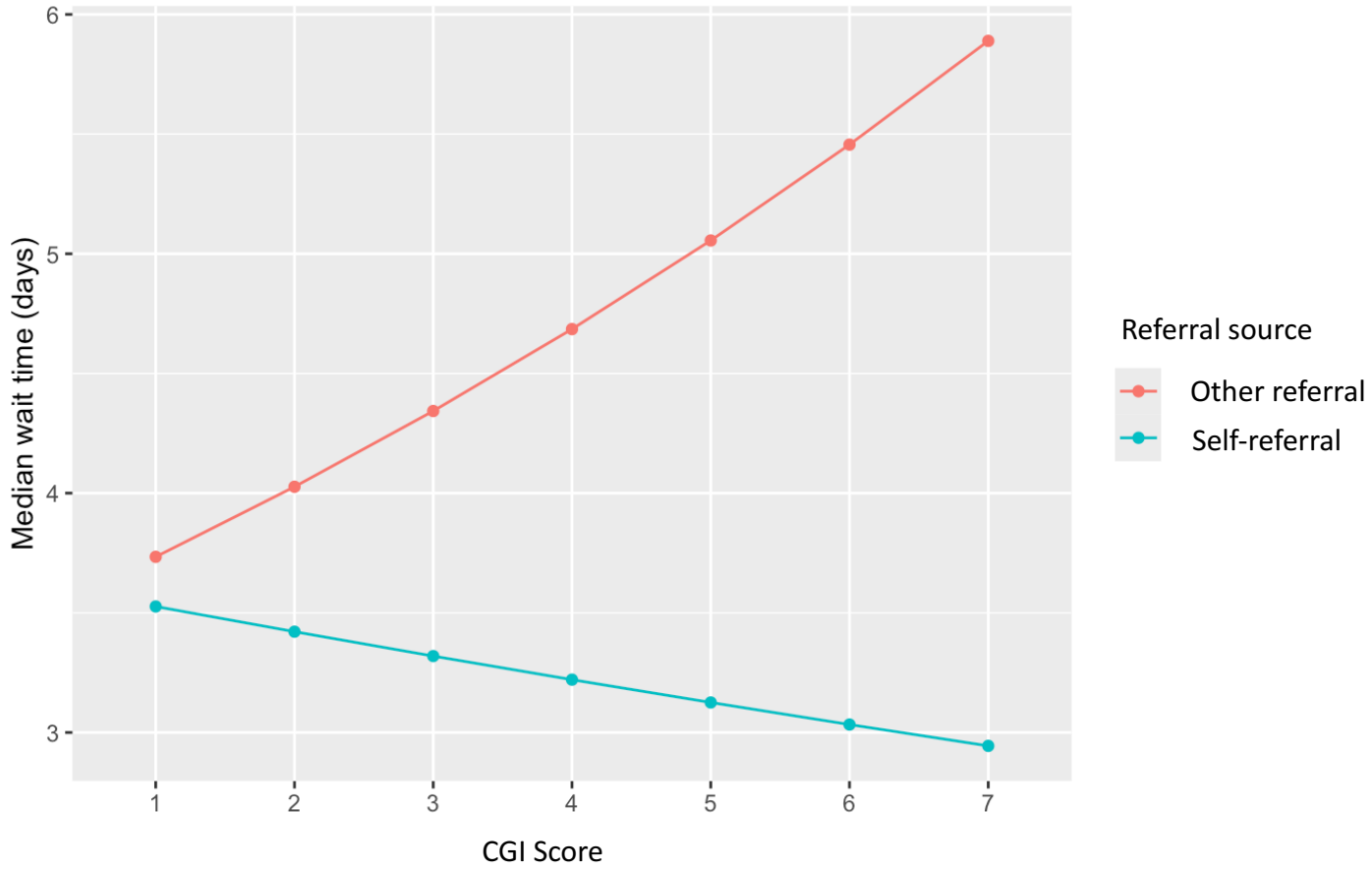
Severity of mental health problem(s)		
No-to-mild mental health problem	316 (40.2%)	310 (40.6%)
Moderate-to-severe mental health problem	471 (59.8%)	454 (59.4%)
Level of social and occupational functioning		
No-to-mild difficulty with functioning	492 (62.5%)	474 (62.0%)
Moderate-to-significant difficulty with functioning	295 (37.5%)	290 (38.0%)
Previous mental health service seeking		
No previous service seeking in the past year	301 (38.2%)	298 (39.0%)
Previous ACCESS assessment	53 (6.7%)	44 (5.8%)
Previous contact with ACCESS with no assessment	33 (4.2%)	32 (4.2%)
Previous service seeking in the past year, but not at ACCESS	400 (50.8%)	390 (51.0%)
Time at entering service post-ACCESS implementation		
Months 1-6	70 (8.9%)	64 (8.4%)
Months 7-12	72 (9.1%)	65 (8.5%)
Months 13-18	132 (16.8%)	130 (17.0%)
Months 19-24	115 (14.6%)	114 (14.9%)
Months 25-30	139 (17.7%)	136 (17.8%)
Months 31-36	121 (15.4%)	121 (15.8%)
Months 37-42	138 (17.5%)	134 (17.5%)
Arrived pre- or post-COVID-19 Pandemic		
Arrived at ACCESS pre-pandemic	773 (98.2%)	754 (98.7%)
Arrived at ACCESS post-pandemic	14 (1.8%)	10 (1.3%)

*Note:

- *While the available analytical sample includes 4421 young people, 3619 participants were missing at least one of the covariates: age, gender, ethnic and cultural origins, sexual orientation, presence of a reliable adult, ability to meet basic expenses, education, employment or training, age-adjusted educational attainment, severity of mental health problem(s) (measured by transdiagnostic Clinical Global Impression scale), level of functioning (measured by the Social and Occupational Functioning Scale), previous mental health service seeking, time at entering service post-ACCESS implementation, Arrived pre- or post-COVID-19 pandemic. An additional 15 people were missing data on the referral source, yielding a complete case analysis sample of 787 (4421-3619-15), for aim I; 38 participants were missing both data on the referral source and the time from referral to first appointment, resulting in a complete case analysis sample of 764 for aim II.*
- Precents may not add to 100 due to rounding to one decimal place.
- SD= standard deviation
- *Gender: gender diverse is comprised of: Trans woman, Trans man, Gender fluid, I don't identify with these options and prefer not to answer.*
- *Ability to meet basic needs: basic needs include access to food, shelter, and clothing.*
- *Age-adjusted educational attainment: this variable was created post imputation using information from the variables: age and educational attainment, which are displayed in table 1. The age at which secondary education is expected to be achieved varies by province (17 in Quebec and 18 across the other provinces). A two-year buffer was added as to not penalize those who may have taken longer to complete their secondary education. As a result, in Quebec those 19 years old+ were expected to have achieved a secondary diploma, while those in all other provinces were expected to have completed this milestone by the age of 20.*
- *Severity of mental health problem(s): measured by Clinical Global Impression of Severity scale, scores between 4 – 7 are indicative of moderate-to-severe mental health problems.*

- *Level of social and occupational functioning: measured by the Social and Occupational Functioning Assessment Scale, scores under 61 are indicative of moderate to significant difficulties with functioning.*
- *Previous mental health service seeking: This variable was created post imputation using information from the variables: Previous non-ACCESS mental health service seeking and Previous ACCESS service seeking (displayed in table 1). Those who had both previously sought non-ACCESS mental health services as well as ACCESS services were categorized under previous ACCESS service seeking (n=258). Of those with previous non-ACCESS mental health service seeking in the past year, 158 had been evaluated at ACCESS and 100 had contacted ACCESS but had not been evaluated.*
- *The variable Arrived pre- or post-COVID-19 Pandemic is used to distinguish between young people who arrived at ACCESS prior to March 1 2020, the month the global COVID-19 pandemic was declared, and those who arrived after this date.*

Figure S 1. *Predicted median wait time from referral to first appointment by referral source and Clinical Global Impressions (CGI) score**



**Note:*

- *Among the 1738 young people self-referred, 61 had a CGI score of 1, 145 had a CGI score of 2, 383 had a CGI score of 3, 667 had a CGI score of 4, 415 had a CGI score of 5, 63 had a CGI score of 6, 5 had a CGI score of 7. Among the 2683 young people referred by a different source, 76 had a CGI score of 1, 297 had a CGI score of 2, 618 had a CGI score of 3, 938 had a CGI score of 4, 576 had a CGI score of 5, 154 had a CGI score of 6, 24 had a CGI score of 7 (all ns are rounded to nearest whole number as they represent the average across 60 imputed datasets).*

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