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CADTH Health Technology Review

Peer Support Programs for Youth Mental Health — Project Protocol

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

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Abbreviations

CI	confidence interval
ECHTA	Equity Checklist for Health Technology Assessment
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HTA	health technology assessment
LGBTQ+	lesbian, gay, bisexual, transgender, queer (or questioning), and others
MA	meta-analysis
PRISMA-P	Systematic Reviews and Meta-Analyses Protocols
RCT	randomized controlled trial
SR	systematic review

Introduction and Rationale

Youth mental health has been a growing public health concern. Before the COVID-19 pandemic, youth aged 15 to 24 were the least likely of all people living in Canada to report excellent or very good mental health.[1] Compared to other high-income countries, Canada ranked 31 out of 38 countries on measures of well-being (feeling positive and being in good mental health) and 35 out of 38 countries on teen suicide rates with Indigenous youth having the highest rates.[2] Exacerbated by COVID, estimated rates of youth who are affected by a mental health challenge have jumped to over 60%.[3] Youth considered marginalized, including members of the lesbian, gay, bisexual, transgender, queer (or questioning), and others (LGBTQ+) community; youth who are Indigenous; you who are racialized; youth who are refugees and newcomers; young people with a disability; and youth living in rural areas are particularly vulnerable to mental health challenges,[1,3] and have been disproportionately affected by the COVID-19 pandemic.[3]

According to a survey of 14,000 public school students by a research team based out of the Centre for Addictions and Mental Health in Toronto, 1 in 3 youth said that there was a time in the past year where they wanted to talk to someone about a mental health problem but did not know where to turn.[4] It is estimated that fewer than 20% of children and youth who are affected by mental illness will receive appropriate treatment.[5] Barriers to accessing mental health services are both social and structural. The fear of, or experiences of, stigma are a significant deterrent to care seeking, particularly to those already marginalized. Mental health services themselves are often complex and difficult to navigate,[3,6] with limited public (either publicly insured or provided) services that typically have lengthy wait lists, with many other services covered only by private insurance or out of pocket.[6] For those services now offered online or virtually due to the COVID-19 pandemic, limited internet, computer, or smartphone access and the physical need for privacy are barriers affecting youth seeking virtual or remote care for their mental health.[3] As a result of the limited availability of mental health services, youth have increasingly sought mental health care from emergency departments and hospitals. Over a 10-year period between 2008-2009 and 2018-2019, there was a 61% increase in visits to emergency departments for mental health and a 60% increase in hospitalizations for mental health for children and youth in Canada aged 5 to 24.[7] Youth aged 15 to 17 have the highest rate of visits to emergency departments and hospitalization for mental health disorders among children and youth.[7] Emergency department visits for mental health care are an established indicator of poor access to mental health services.[7]

As a result, many health care systems across Canada are planning or implementing wide-scale change or making system-level investments in mental health care for youth. These include new models of care (e.g., stepped care, integrated youth care, Youth Wellness Hubs) to improve timely access to support for youth seeking care.[8] It is in these conversations around further investments in mental health for youth that peer support programs are being considered as a promising option.

Peer support programs provide a peer service user with support from a peer support worker. The basis of support is the relationship between peers, which is founded on and draws from their shared lived experience. In the case of peer support for youth mental health, typically lived experience means the peer worker is a youth who is in a positive state of recovery from mental health challenges or has supported someone in recovery from mental health challenges and has the skills and aptitude to provide peer support.[9,10] Participation in peer support programs is typically voluntary and does not require a referral or formal diagnosis to receive care.

Peer support is based on a recovery model of mental health, which means that rather than seeking a cure, the focus is on supporting an individual in recovering quality of life and achieving their full potential.[9] Some aspects of recovery include an individual's ability to connect with their community, to forge or maintain personal relationships, and to feel hopeful about their future. A variety of theories underlie the mechanism of peer support in which the peer service user can learn from the information, modelled behaviour, or encouragement and empowerment provided from their relationship with the peer support worker.[11]

However, as with many clinical psychological interventions, there are ethical and social concerns. Most of those explicitly expressed have to do with the relationship between the peer support worker and the peer service user, with concerns around the privacy of the information shared by both peers; the boundaries between the peer service user and peer worker, meaning the recognition of a potential or actual power imbalance and the need for professional relationships; and the potential harms to the peer support worker or peer service user should inadequate training or supports be available to them.[12] Peer support programs can also potentially widen existing inequities in access to services and burden of mental health should they not be inclusive, meaning that they must be culturally safe and accessible, and able to meet the needs of peer service users and peer workers who are members of marginalized or vulnerable communities.[12]

Peer support exists on a spectrum from informal to formal, and ranges from peers self-organizing to meet their own needs to highly structured programs that include training, paid peer support workers, and case management. Across Canada, formal peer support programs for youth mental health are delivered out of community non-governmental organizations and health care facilities. They can be stand-alone programs or be integrated into a larger program and work as a complement to existing mental health services. Peer support programs can also be used to help peer support service users transition between levels or types of health care or services, to help peer service users access or bridge to other services, and provide service organizations with input from youth through the involvement of peer support workers. Peer support is viewed as an intervention that has the potential to increase access to mental health services for youth by introducing additional access points in the form of youth peer support workers and other mental health care services through reduced stigma for mental health service providers who are themselves typically youth and who share lived experience of mental health.[9]

Despite the interest in using peer support programs to provide mental health care for young people, the effectiveness of peer support programs for young people is not well-established.[11] Moreover, there is a recognized need to use available information and evidence to support building programs that are inclusive and meet policy objectives (e.g., support transitions in care), as well as to design on-going evaluations. Service and health care organizations face the challenge of making decisions on how to recruit, train, and maintain peer support workers, and ministry and regional funders want to ensure value on their investment into programs. CADTH will undertake a health technology assessment (HTA) to provide evidence to support decision-making around peer support programs for youth mental health.

For clarity, CADTH has adopted the following definitions in this HTA:

- **Formal peer support programs** are those programs delivered by formal or structured community or health clinic-based organizations that offer peer support to youth peer service users by trained peer support workers who share lived experience relating to mental health. Peer service users are youth (aged 12 to 25) who are seeking support for a primary concern relating to their mental health. Peer support can be offered on a 1:1

basis or on a group basis, and may be delivered virtually (e.g., video conferencing, mobile applications, web platforms or online chat, phone) or in person. Programs that focus primarily on supporting youth around substance use or addictions, and those that aim to help youth prevent mental health conditions or issues are out of scope for this project. There are also many peer-led and mutual support programs meant to help with recovery from substances, which aim to support harm reduction or abstinence and may require different mechanisms and approaches with their own evidence base; these are likewise outside the scope of this review.[13]

- **Youth** is defined as being between 12 and 25 years of age, as is consistent with the typical age range of youth currently served by the youth mental health and wellness hubs that are established and expanding across Canadian jurisdictions. Importantly, this age range covers the period when mental health issues often first appear.[6]
- **Mental health challenge** refers to any condition or issue (either self-identified or formally diagnosed), which includes, but is not limited to, anxiety, depressive symptoms, and eating disorders. This terms excludes a primary presentation of substance use and addictions.

Decision Problems

Policy and program decision-makers across Canada are designing and implementing services for youth mental health and are considering the potential role of formal peer support programs. To inform potential decisions about the adoption and implementation of peer support programs for youth mental health, decision-makers have expressed the need to understand their clinical effectiveness and safety, as well as their potential impact on health care resources. Additionally, to meet the needs of youth in Canada, it is recognized that peer support programs need to provide care that is inclusive; that is, meets the needs of all youth, including those who may experience marginalization or disadvantage. To this end, decision-makers have expressed the importance of including considerations of equity to ensure peer support programs are accessible and relevant to youth who are marginalized or disadvantaged when thinking about the possibility of designing and implementing peer support programs.

To support potential design and implementation, policy and program decision-makers have expressed an interest in understanding how to evaluate peer support programs. Evaluation is seen as an opportunity to enhance the evidence base around peer support programs for youth mental health and to understand how to design programs to maximize their benefits, minimize their harms, and set standards for program design. Given that peer support programs are a complex intervention with wide variation in their design, including potential influence from local context, decision-makers have expressed a need to understand what evaluations of peer support programs for youth mental health have been conducted and what methods or approaches can be considered for future evaluations.

Objective

The objective of this HTA is to support decision-making around adopting, implementing, and evaluating formal peer support programs for youth mental health. To do this, CADTH will:

- assess the clinical effectiveness and safety of peer support programs for youth mental health
- identify and describe existing and recommended methods for the evaluation of peer support programs for youth mental health, including completed evaluations conducted in Canada and internationally, and summarize findings of completed evaluations in Canada

- engage both youth peer support workers and youth peer support service users who have received or delivered peer support for mental health as part of CADTH's patient engagement activities.

A final report will document all the analyses produced and patient engagement activities conducted as part of this project.

Research Questions

The following research questions will address the decision problems and objectives of the HTA. Details on the specific populations, interventions, comparators, and outcomes are included in Table 1 and Table 2.

Systematic Review of Clinical Effectiveness and Safety

1. What is the clinical effectiveness of peer support programs compared to interventions without peer support for the management of mental health concerns among youth?
2. What is the safety of peer support programs compared to interventions without peer support for the management of mental health concerns among youth?

Program Evaluation Scan

3. What completed evaluations and evaluation method guidelines for peer support programs for youth mental health exist in Canada and internationally?
4. What are the characteristics and components used in the evaluations and method guidelines for peer support programs for youth mental health, and how are they measured?
5. What are the findings of the completed evaluations in Canada?

Equity Considerations

To bring considerations of equity to this HTA and support the development of inclusive peer support programs, this project drew on the conceptions of health equity articulated by Braveman et al. (2017).[14] "Health equity means that everyone has a fair and just opportunity to be as healthy as possible. Achieving this requires removing obstacles to health—such as poverty and discrimination and their consequences, which include powerlessness and lack of access to good jobs with fair pay; quality education, housing, and health care; and safe environments" (p. 4).[14]

The Equity Checklist for HTA (ECHTA)[15] was used to iteratively guide our consideration of equity in this HTA. During protocol development, we used the scoping prompts to conceptualize equity in ways that are relevant and meaningful for peer support programs for youth mental health.[15] Equity, as it relates to peer support programs, requires recognizing the existing inequitable distribution of poor mental health among youth who are systematically disadvantaged, as well as the need for equitable access to inclusive and desirable peer support programs for youth who are systematically disadvantaged.

Specific groups of youth who are disadvantaged who experience an inequitable burden of mental health challenges and access to inclusive mental health services were identified using PROGRESS-Plus,[16] the available published and grey literature on peer support, discussions with clinical and content experts, and through existing descriptions of peer support programs explicitly designed to target or serve youth who are disadvantaged. These

groups of youth include but are not limited to youth members of the LGBTQ+ community, youth who are Métis and Indigenous, youth who are Black or of colour, youth members of newcomer communities, youth experiencing homelessness or street involvement, youth with disabilities, and youth living in rural and remote communities.

Peer support programs often explicitly intend to be inclusive and provide support to youth who are disadvantaged. There is broad acknowledgement that ensuring inclusivity requires, among other things, training, hiring, and supporting peer support workers who are themselves members of groups that are disadvantaged. This is because the peer user and peer worker need to share meaningful lived experiences, which includes being a youth with mental health challenges who is socially disadvantaged.[9] Moreover, inclusive care is enhanced by involving youth who are disadvantaged as peer workers and services users to help inform and influence program and policy development.[17,18]

Peer support is also seen as a means of addressing or reducing stigma around mental health, specifically in youth who are described as being more open to seeking services and support from other youth as opposed to adults.[9] As stigma is a complex phenomenon that can exacerbate and be exacerbated by other forms of systematic discrimination,[19] peer support programs that are inclusive and support youth who are disadvantaged are necessary to meaningfully address the diverse forms of stigma experienced by youth with mental health challenges.

We have described how equity considerations will be incorporated into each section of this HTA in the next section. The prompts provided by the ECHTA will be used to guide the focused discussion and reflection in the development and conduct of each individual component, and in the writing of the shared discussion section of the final report.

Addressing the Decision Problem

This HTA will address the decision problems in the following ways:

A systematic review (SR) of the clinical effectiveness and safety will address decision-makers' need for evidence around the impact of peer support programs on patient and health systems outcomes. Considerations of equity in this review will be informed by the recommendations of the Campbell and Cochrane Equity Methods Group.[20,21] We will include a wide variety of study designs (beyond randomized trials), in acknowledgement that non-randomized studies may be the only sources of evidence available and may provide important insights into the benefits and harms of peer support among populations that are disadvantaged. We have ensured that outcomes that are important to decision-makers, clinical experts, and service users have been included through consultation with these groups at the scoping and protocol development phase, and this will continue throughout the conduct of the review. Subgroup analyses based on factors stratifying health outcomes across the population, identified through PROGRESS-Plus,[16,22] will be conducted as appropriate. In doing so, we acknowledge that pooled analyses may mask differential effects across specific population groups. This is important to ensure that the intervention does not inadvertently increase inequities across the population. The evidence, or lack thereof (evidence gaps), identified in the clinical SR could help inform areas of prioritization, tailoring of programs, and focus to ensure an equitable distribution of youth peer support programs.

An environmental scan of the methods and approaches used to evaluate peer support programs in Canada and internationally, and a summary of completed evaluations in Canada will address decision-makers' need for information around how to evaluate peer support programs. Considerations of equity will include identifying and describing the

features of program evaluation methods that may address and capture inclusivity goals; these include, but are not limited to, a reduction of discrimination and stigma of peer support programs. This can include any form of unequal and unjust systemic forms of social exclusion and marginalization within the program evaluation process. When possible, we will report whether and how program evaluations include youth who are disadvantaged as support service users and peer support providers. Additionally, we will seek out information related to how evaluations may inform the design or implementation of peer support programs that eliminate or reduce social and health inequities relevant to youth mental health for both support service users and peer support providers.

Patient engagement with peer support service users and peer support workers who have participated in peer support programs for youth mental health will help ensure this HTA is relevant to youth with mental health challenges. Considerations of equity will inform patient engagement activities by involving youth who are disadvantaged who may be disproportionately affected by decisions made about the design and implementation of peer support programs for mental health who can help inform the development of inclusive programs. Peer support service users and peer support workers we engage may include members of the LGBTQ+ community, youth who are Métis and Indigenous, youth who are racialized, youth who are refugees and newcomers, young people with disability, and youth living in rural areas.

Additionally, a shared discussion section will ensure the integration of the findings from the separate components of this HTA to inform the decision problems, including reflections on considerations of equity.

Methods

To inform the preparation of this protocol, preliminary scoping searches of the existing published literature, including primary studies, HTAs, and SRs, were conducted. This protocol was written a priori, using appropriate reporting guidelines (i.e., the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols [PRISMA-P][23] and Guidance for Reporting Involvement of Patients and the Public[24]).

The protocol for the review of clinical effectiveness and safety was prospectively registered in PROSPERO on December 20, 2021. Any deviations from the protocol, as well as the rationale and timing of these deviations, will be disclosed in the final report, and updates will be made to both the PROSPERO submission and the project protocol on the CADTH website, as appropriate.

Systematic Review of Clinical Effectiveness and Safety

The following research questions will address the decision problems and objectives of the clinical SR:

1. What is the clinical effectiveness of peer support programs compared to interventions without peer support for the management of mental health concerns among youth?
2. What is the safety of peer support programs compared to interventions without peer support for the management of mental health concerns among youth?

Study Design

An SR will be conducted to address research questions 1 and 2. A predefined protocol (as described herein), which is guided by standard SR methodology, will be conducted for the review (see the Methods section).[25]

This protocol for the SR was informed by an informal scoping search of existing literature and a CADTH Reference List.[26] As the name indicates, a CADTH Reference List is a published report that lists some of the relevant evidence regarding a specific health care topic. A reference list regarding the clinical effectiveness and safety of structured peer support interventions for the management of mental health concerns among young people (aged 10 to 25) was published in January 2021. Relevant HTAs, SRs, primary studies, and evidence-based guidelines published from January 2010 to December 2020 were searched for. Given that the CADTH report was produced to inform scoping, it had a broader inclusion criteria than the present review. Young people aged 10 to 25 and all structured peer support programs were eligible for inclusion and all mental health conditions were considered.[26] In the CADTH report, 2 SRs[27,28] and 1 non-randomized study[29] comparing the clinical effectiveness of various peer support interventions for the management of mental health concerns in young people were identified.[26] No HTAs or evidence-based guidelines were identified.

One of the SRs (Rose-Clarke et al. [2019][28]) considered a wide range of peer-facilitated community-based interventions for several physical and mental health conditions in adolescents in low- and middle-income countries. The authors considered various peer-facilitated strategies, such as peer counselling, peer education, and peer activism. The review included 7 studies and found mixed results regarding the effectiveness of peer-facilitated interventions in improving adolescent mental health. The second SR (Ali et al. [2015][27]) considered online peer-to-peer support using tools such as online chat rooms and collaborative virtual environments for youth with mental health conditions. The overall results were mixed and highlighted the lack of high-quality studies. In both SRs, the peer-facilitated and peer-to-peer support interventions did not fulfill the definition of formal peer support provided by trained youth with lived experience. Finally, 1 non-randomized study compared youth who are LGBTQ+ who attended Hatch-Youth (a group level peer intervention) for less than 1 month to those who attended for more than 1 month. The study found that longer participation in Hatch-Youth was associated with decreased depressive symptomatology, increased self-esteem, and improved coping ability.[29] Two other SRs, published recently, examined the effectiveness of group[13] and 1:1[30] peer support interventions for adults with mental health concerns. The literature highlighted the inconsistencies in the definition of "peer support" used by studies. Heterogeneity in population (spectrum of mental health disorders), intervention (varying definitions of peer support), and outcomes (varied depending on the mental health condition) were notable.

There is a lack of up-to-date syntheses of evidence assessing the effectiveness and/or safety of formal peer support programs in youth. It does not appear that an overview of SRs or an update of existing SRs would be an appropriate or feasible method to inform the research questions of the current review, as existing reviews are not up-to-date and do not match the review focus; therefore, a de novo SR of relevant primary studies examining the effectiveness and/or safety of formal peer support programs compared to other interventions without peer support would be of help to Canadian decision-makers. This approach allows for the assessment of the various population, intervention, comparator, outcome elements in a manner suitable to address the research questions.

The purpose of this SR is to synthesize the evidence regarding the clinical effectiveness and safety of formal peer support programs compared to interventions without peer support for the management of mental health concerns among youth.

Literature Search Methods

The literature search for clinical studies will be performed by an information specialist using a peer-reviewed search strategy according to the *PRESS Peer Review of Electronic Search Strategies* checklist.[31] The complete search strategy is presented in Appendix 1.

Published literature will be identified by searching the following bibliographic databases: MEDLINE All (1946–) via Ovid, Embase (1974–) via Ovid, the Cumulative Index to Nursing and Allied Health Literature via EBSCO, and PsycInfo via Ovid. All Ovid searches will be run simultaneously as a multi-file search. Duplicates will be removed using Ovid deduplication for multi-file searches, followed by manual deduplication in Endnote. The search strategy will comprise both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts will be peer support and youth with mental health concerns. Clinical trials registries will be searched: the US National Institutes of Health's ClinicalTrials.gov, WHO's International Clinical Trials Registry Platform search portal, Health Canada's Clinical Trials Database, and the European Union Clinical Trials Register.

CADTH-developed search filters will be applied to limit retrieval to HTAs, SRs, meta-analyses (MAs), or network MAs, and any types of clinical trials or observational studies. The search will also be limited to English- and French-language documents published between January 1, 2006, and December 2021. Conference abstracts will be excluded from the search results.

Regular alerts will update the database literature searches until the publication of the final report. The clinical trials registries search will be updated prior to the completion of the stakeholder feedback period.

Grey literature (literature that is not commercially published) will be identified by searching sources listed in relevant sections of the *Grey Matters: A Practical Tool For Searching Health-Related Grey Literature* checklist,[32] which includes the websites of regulatory agencies, HTA agencies, clinical guideline repositories, SR repositories, patient-related groups, and professional associations. Google will be used to search for additional internet-based materials. These searches will be supplemented by reviewing bibliographies of key papers and through contacts with experts and industry, as appropriate. The grey literature search will be updated prior to the completion of the stakeholder feedback period. See Appendix 1 for more information on the grey literature search strategy.

Selection and Eligibility Criteria

The study eligibility criteria for the SR can be found in the following table.

Table 1: Selection Criteria for Systematic Review Research Questions

Inclusion	Exclusion
Population	
Youth (between 12 and 25 years of age) with mental health concerns (including but not limited to depression, anxiety, suicidality, eating disorders, post-traumatic stress disorder) either self-identified or formally diagnosed **Subgroups of interest:** • Age • PROGRESS-Plus factors,[16,22] including, but not limited to, place of residence; race, ethnicity, culture, language; gender and sex; and socioeconomic status • Mental health condition (e.g., depression, eating disorders) • Type of peer support (e.g., 1:1 versus group; in person versus virtual)	• Age < 12 years or > 25 years • Substance use disorders or addictions as the primary concern and reason for delivering or accessing peer support • Neurodevelopmental disorders such as attention-deficit/hyperactivity disorder, autism, and learning disabilities as as the primary concern and reason for delivering or accessing peer support
Intervention(s)	
Formal peer support programs[a]	• Peer support programs that do not fulfill the definition (e.g., do not include formal training, shared lived experience) • Support in the form of peer communication, peer-to-peer support (mutual support), or support helplines
Comparator(s)	
Interventions without formal peer support (e.g., informal or unstructured peer support interventions, support helplines, self-help group); no intervention (including wait-list); no comparator	Not applicable
Outcomes	
Question 1: Any outcomes in the following domains, irrespective of the follow-up duration and outcome ascertainment method • personal recovery (e.g., self-efficacy, HRQoL, coping strategies, client goal achievement, empowerment) • clinical effectiveness (e.g., recovery rates, burden of symptoms) • health care resource utilization (e.g., hospitalizations, ED visits, need for other interventions) • social outcomes (e.g., employment, education, stable housing, social support, social isolation). **Question 2:** Any outcomes in the following domains, irrespective of the follow-up duration and ascertainment method: • treatment emergent adverse events (e.g., worsening of symptoms), over-dependence, withdrawal or discontinuation from the program, compliance, other harms (e.g., stigmatization, increased shame).[b]	Not applicable

Inclusion	Exclusion
Study design(s)	
Comparative randomized and non-randomized study designs, including: • randomized controlled trials • non-randomized controlled clinical trials • cohort studies (controlled or uncontrolled) • case-control studies • before-and-after studies (controlled or uncontrolled) • interrupted time series studies (controlled or uncontrolled).	• Cross-sectional studies • Case reports • Case series • Qualitative studies and qualitative evidence from mixed-methods studies • Evidence syntheses • Protocols and trial registers • Editorials, letters, and commentaries • Studies of any design published as conference abstracts, presentations, thesis documents, or preprints
Time frame	
2006 to present[c]	Before 2006

ED = emergency department; HRQoL = health-related quality of life.

[a] Formal peer support programs are those delivered by formal community or health care–based organizations that offer peer support to peer service users by trained peer support workers who share lived experience relating to mental health.

[b] If the included studies report on outcomes assessed in peer support workers, those findings will be extracted and summarized.

[c] Kirby report,[33] the first national report on the mental health system of Canada, was published in 2006. The recovery model necessary for peer support, proposed by the report was widely accepted and the report led to significant changes in Canadian mental health strategies.[34]

Screening and Selecting Studies for Inclusion

The following will be considered when selecting studies for inclusion:

- All studies must meet the eligibility criteria outlined in Table 1.
- For this review, youth are defined as individuals between 12 and 25 years of age. This age range overlaps with that of youth mental health hubs (which often include peer support) in several Canadian provinces, and the time period when mental health concerns often first appear.
- There are no restrictions placed on sex or gender, ethnicity, comorbidities, setting, or severity of symptoms.
- Studies of wider populations (i.e., including children and/or adults) will be included if:
  - findings for youth can be isolated (e.g., in subgroup analyses)
  - greater than or equal to 80% of the sample consists of youth
  - the mean plus or minus 1.5 standard deviation age falls between 12 and 25 years.
- Mental health conditions refer to those that are either self-identified or formally diagnosed, including, but not limited to, depression, anxiety, suicidality, eating disorders, and post-traumatic stress disorder.
- Formal peer support programs use trained peer support workers who have shared lived experience relating to mental health.
- Peer support workers can be of any age.
- Peer support can be offered on a 1:1 basis or on a group basis, can be in person or virtual (e.g., zoom or telephone chat), synchronous or asynchronous.
- Service users are those who are youth (aged 12 to 25) and who are seeking peer support for a primary concern relating to their mental health.

- Studies that have a larger scope than only youth with mental health concerns (e.g., studies of youth with both mental health concerns and substance use disorders) will be included if relevant findings related to peer support primarily for mental health concerns are reported in isolation (e.g., in a subgroup).
- Peer service users can receive concurrent interventions (e.g., psychotherapy, pharmacotherapy).
- All instruments and all time points are eligible for inclusion for outcomes.

Exclusion criteria:

- Studies not meeting the eligibility criteria outlined in Table 1
- Duplicate publications
- Studies published in a language other than English or French

This review will be limited to studies published in English or French. While there is evidence[35,36] that suggests excluding non-English publications from evidence synthesis does not bias conclusions, publications in French will also be included as CADTH has the capacity for reviewing in both languages. In the event that multiple publications are identified for the same study, they will all be included and cited; however, only unique data will be extracted without duplication and the publications will be considered as a single study in the analysis. The first publication of a study will be considered as the primary publication, while subsequent publications will be considered as associated publications.

Study Selection

The SR management software DistillerSR (Evidence Partners, Ottawa, Canada) will be used to facilitate study selection. The DistillerSR's continuous reprioritization feature (DAISY) will be used to expedite screening but not to automatically exclude any records. Prior to beginning screening, 2 reviewers will conduct a pilot round by independently screening 100 randomly selected articles in duplicate, after which they meet to resolve disagreements. Additional pilot rounds will be run as needed; for example, if there are major disagreements or changes to the selection criteria. Once reviewers are satisfied with their understanding of the selection criteria, the 2 reviewers will independently screen the titles and abstracts of all the retrieved citations for relevance to the SR research questions following a liberal-accelerated approach, whereby a single reviewer is required to include a study and 2 to exclude.[37,38] If any potentially relevant studies published as summaries (e.g., conference abstracts, presentations) or in trial registries are identified, or further information is needed to determine the relevance of any study, authors will be contacted for clarification and/or to confirm whether a full-text publication is available. Authors will be contacted by email twice, 1 week apart, before abandoning attempts at retrieving further information. Reference lists of key papers (i.e., the included studies and relevant SRs identified by the search) will be scanned by 1 reviewer to determine which may move forward to full-text screening. Full texts of titles or abstracts that are judged to be potentially relevant by a single reviewer will be retrieved and independently assessed for possible inclusion based on the pre-determined selection criteria outlined in Table 1. Discrepancies between reviewers at the full-text level will be discussed until consensus is reached, involving a third reviewer, if required. The study selection process will be presented in a PRISMA flowchart. A list of studies selected for inclusion in the SR will be posted to the CADTH website for stakeholder review for 10 business days, and feedback and any additional studies identified for potential inclusion will be reviewed following the previously outlined process. Studies meeting the selection criteria for the review that are identified through alerts prior to the completion of the stakeholder

feedback of the draft report will be incorporated into the analysis. Relevant publications identified after the stakeholder feedback period will be described in the discussion, with a focus on comparing their results with those obtained from the synthesis of earlier reports included in the review. Excluded full-text studieswill be documented, along with the reason for their exclusion.

Data Extraction

Data will be extracted directly into a review-specific Microsoft Excel workbook. The form will be piloted before beginning full data extraction to ensure that it is usable and that it completely and reliably captures the items of interest, while avoiding redundancies. In the pilot round, reviewers will independently extract data from 2 to 3 included studies independently, then meet to resolve disagreements through discussion and by referring to the source publications of interest. Additional pilot rounds will be run as needed, until reviewers are satisfied with the contents and usability of the form (especially in the event of major changes). Formal data extraction will then be performed by 1 reviewer, and independently checked for accuracy and completeness by a second reviewer. Disagreements will be resolved through discussion until consensus is reached or through involvement of a third reviewer, if required. Relevant information to be extracted will include details of the study characteristics, methodology (e.g., study design), population, intervention, comparator, results, and conclusions regarding the outcomes and the subgroups of interest listed in Table 1.

Attempts will be made to contact corresponding authors to obtain or clarify relevant data, if those data are needed for data synthesis, or to clarify conflicting relevant data in the included studies. Authors will be contacted twice over a period of 2 weeks, before attempts to obtain further information will be abandoned. Relevant data will be deemed missing if numerical data supporting qualitative statements or findings presented in figures are absent. If the authors do not provide the requested numerical data related to findings presented in a figure, the best numerical estimates based on the figure will be extracted by a single reviewer using Web Plot Digitizer software and verified for accuracy by a second reviewer. Furthermore, if data are not reported for an outcome, no assumptions will be made about its presence or absence. Relevant data will be deemed conflicting if there are discrepancies within the study (e.g., between the abstract and the main text of a publication) or between different publications of the same study. If the authors do not provide clarifications for the conflicting information, all data will be reported and the most conservative data available will be incorporated into data synthesis.

Critical Appraisal

All reviewers involved in the risk of bias appraisal will independently pilot the selected tools across 2 to 3 included studies and meet to resolve disagreements, to ensure a mutual understanding of the tool and methodological intricacies across studies. After piloting, risk of bias will be assessed in duplicate by 2 independent reviewers. Any disagreements in the risk of bias for the domain-level and overall assessments will be resolved through discussion, with involvement of a third reviewer if consensus cannot be reached. In evaluating the risk of bias in the included studies, the risk of bias tools will be considered as guides and additional insight beyond the instruments' signalling items (e.g., other concerns about design or conduct) will be applied if necessary. Studies will not be excluded from the review based on the results of the critical appraisal. However, the critical appraisal results and how they affect

study findings will be used to inform the assessment of the certainty in the body of evidence for each outcome comparison.

Outcome-level risk of bias of relevant randomized controlled trial (RCTs), based on the effect of assignment to the intervention (i.e., intention-to-treat effect), will be evaluated using the revised Cochrane risk-of-bias tool for randomized trials.[39] This assessment tool facilitates the evaluation of potential biases across 5 domains: the randomization process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result. A judgment of low risk of bias, high risk of bias, or some concerns will be assigned for each domain. The overall risk of bias of each trial will be rated and designated as low risk of bias, some concerns, or high risk of bias based on the domain-level determinations. The overall risk of bias of each trial generally corresponds to the worst risk of bias in any of the domains. However, if a study is judged to have "some concerns" about risk of bias for multiple domains, it might be judged as at high risk of bias overall. Where possible, attempts will be made to predict the direction of the potential bias. A rationale will be provided for decisions about the risk of bias for both the domain-level and overall assessments.

Outcome-level risk of bias in non-randomized studies will be assessed using the Risk of Bias In Non-randomized Studies – Interventions.[40] This tool was chosen for ease of comparison to assessments of risk of bias for the included RCTs. The Risk of Bias In Non-randomized Studies – Interventions facilitates the assessment of risk of bias across 34 potential items in 7 domains: confounding, selection bias, measurement of interventions, deviations from intended interventions, missing data, measurement of outcomes, and selection of reported results. Each item is answered "yes," "probably yes," "probably no," "no," and "no information," with "yes" indicating low concern of a risk of bias, and "no" indicating significant concern. Risk of bias per domain per study will be assessed and used to assign an overall judgment of "low," "moderate," "serious," "critical," or "no information" to each study.[40] Where possible, attempts will be made to predict the direction of the potential bias. A rationale will be provided for decisions about the risk of bias for both the domain-level and overall assessments.

Attempts will be made to contact corresponding authors to obtain or clarify missing or unclear information relevant to the risk of bias appraisal. Authors will be contacted twice over a period of 2 weeks before attempts to obtain further information will be abandoned.

Data Analysis and Synthesis

A narrative summary of study characteristics will be provided in tables, together with descriptions in the main text for details and clarity. The study and patient characteristics will be considered in the analysis of the effectiveness and safety measures within and across the studies to determine the likelihood of clinical benefits (i.e., clinical effectiveness) or harm.

A narrative summary of the results of the methodological assessments for each included study will be provided. Specifically, tables will be developed to present the answers to the questions within the critical appraisal tools and a narrative description of the strengths and limitations of the included studies and body of evidence will be provided within the main text of the report to give the reader an overview of the methodological quality of the literature.

Narrative Synthesis

Narrative synthesis will be conducted as per existing guidance by Popay et al. (2006).[41] Within- and between-study relationships will be evaluated, and the findings related to the direction and magnitude of observed effects, trends, and deviations will be discussed by

outcome comparison. When possible, outcome measures used across the studies will be standardized for ease of comparison. When this is not possible, outcomes will be reported in the measurement units used by the study authors. Findings will be interpreted with due consideration for the differences in the instruments of assessment across the studies. Data from different populations or different time points will not be combined (unless deemed appropriate), and will be described separately and compared. Data on specific subgroups of interest reported within studies will be narratively described and compared, if appropriate. If relevant, visual displays will be used to present the findings (e.g., forest plots but without pooling).

Quantitative Synthesis

The outcome data of the included studies will be pooled in MAs if data are sufficiently homogeneous in their clinical and methodological characteristics, as determined in consultation with clinical and methods experts. If the included studies are deemed too heterogeneous to combine, the findings will instead be synthesized narratively (see Narrative Synthesis section), and the rationale for not pooling will be provided.

If deemed appropriate, MAs will be conducted for each outcome comparison of interest reported across multiple studies via pairwise MA using the Der Simonian and Laird random effects model[42] in ReviewManager (v.5.3, the Cochrane Collaboration, Copenhagen, Denmark). The findings will be presented in forest plots. If data from certain studies cannot be entered into the MA (e.g., the right data are not reported and cannot be estimated or computed via standard methodology,[43] imputed,[44] and/or obtained from study authors), they will be presented narratively alongside the MA and compared descriptively to the findings of corresponding MAs. Results from randomized and non-randomized studies will not be pooled in analysis. Instead, separate MAs will be conducted for these 2 types of study designs.

Dichotomous data will be summarized as risk ratios or odds ratios with corresponding 95% confidence intervals (CIs). When the event rate in at least 1 study is 0, the risk difference and 95% CI will be presented. Continuous data will be analyzed using either mean differences or standardized mean differences with 95% CIs. If both unadjusted and adjusted effects are reported, the unadjusted effects will be used in MAs of RCTs, and adjusted effects for non-randomized studies. If multiple adjusted estimates of effects are reported, the one that is judged to minimize the risk of bias due to confounding will be used in MAs.

Statistical heterogeneity will be assessed using graphical presentations (e.g., forest plots) and the I^2 statistic, which quantifies the variability in effect estimates due to reasons other than chance (i.e., sampling error).[44] Statistical heterogeneity will be interpreted considering guidance from Higgins and colleagues,[45] which defines potentially unimportant, moderate, substantial, and considerable heterogeneity as I^2 values of 0% to 40%, 30% to 60%, 50% to 90%, and 75% to 100%, respectively. Heterogeneity across studies will be explored using a priori subgroups of interest if adequate studies are available for each group to form meaningful comparisons. Subgroup analysis will be interpreted with caution, considering their plausibility, statistical differences in effects, and magnitude of these differences, using available guidance.[46,47] If sufficient evidence is available for any outcome of interest (i.e., data from at least 8 to 10 studies), meta-regression analyses may also be considered to investigate the association between studies' effect estimates and potential effect modifiers (subgroup characteristics).

As appropriate, sensitivity analysis will be performed to understand the robustness of the synthesized findings, by removing certain studies (e.g., those at high risk of bias), or

exploring the impact of different outcome definitions and analysis decisions made during the review process (e.g., imputations of missing data). If, after subgroup and sensitivity analysis, there remains substantial heterogeneity in the pooled effect, the findings may be presented narratively.

For MAs including at least 8 to 10 studies varying in size, the potential for reporting bias will be assessed visually using funnel plots, and objectively using Egger's regression test and/or Begg's rank correlation test, as appropriate.[48-54]

Certainty of the Evidence

The overall certainty of the evidence for each outcome comparison will be assessed by 2 independent reviewers using the methods outlined by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) working group.[55,56] Discrepancies between reviewers will be discussed until consensus is reached, involving a third reviewer, if required. First, absolute effects will be calculated by applying the risk ratio from the MA to the median event rate in the comparison group in the studies. The GRADE approach will then be applied, starting with RCTs as high certainty evidence and non-randomized studies as low certainty evidence. The certainty in treatment effect estimates will then be rated up or down for serious or very serious concerns related to study limitations (risk of bias), inconsistency in effects across studies, indirectness of the evidence, imprecision of the pooled effect, and publication bias. Rarely, and if no other serious concerns are identified, the certainty of the evidence may be rated up for large effect size, dose-response gradient, and/or when all plausible confounding would decrease the apparent effect.[56,57] GRADE assessments for the findings from RCTs and from non-randomized studies will be conducted separately, and any differences in the assessments for these 2 types of study designs will be described. Ultimately, the GRADE approach results in an assessment of the certainty of a body of evidence in 1 of 4 grades:[58]

- High: There is high certainty that the true effect lies close to that of the estimate of the effect.
- Moderate: There is moderate certainty in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- Low: Certainty in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
- Very low: There is very little certainty in the effect estimate; the true effect is likely to be substantially different from the estimate of effect.

If MAs are not conducted for any particular outcome, the certainty of evidence will be assessed using published guidance on the application of GRADE in the absence of a single estimate of effect.[59] The results of GRADE assessments will be reported in summary of findings tables, which will include footnotes with transparent justifications of all decisions to rate up or rate down the certainty of the evidence for any given outcome comparison. When providing summaries of the evidence in the text, the following informative statements, as suggested by the GRADE working group, will be used: "may increase/decrease" for low certainty evidence, "probably" or "likely increase/decrease" for moderate certainty evidence, "increase/decrease" for high certainty evidence, and "very uncertain" for low certainty evidence.[60]

Reporting of Findings

The SR will be prepared in consideration of relevant reporting guidelines (e.g., PRISMA statement,[50] PRISMA harms,[61] Meta-analysis of Observational Studies in Epidemiology reporting checklist,[54] and Synthesis Without Meta-analysis guideline[62]) and will meet the criteria outlined in the A Measurement Tool to Assess Systematic Reviews 2 checklist.[63]

Program Evaluation Scan

To help inform the decision problem, the following questions related to evaluating peer support programs for youth mental health will be addressed:

1. What completed evaluations and evaluation method guidelines for peer support programs for youth mental health exist in Canada and internationally?
2. What are the characteristics and components used in the evaluations and method guidelines for peer support programs for youth mental health, and how are they measured?
3. What are the findings of the completed evaluations of peer support programs for youth mental health in Canada?

Study Design

An environmental scan will be conducted to identify established evaluations of peer support programs for youth mental health in Canada and internationally, including a description of the characteristics, methods, standards, and guidelines used to inform these evaluations, and a summary of the findings of program evaluations in Canada. The findings of this environmental scan will be based on a limited literature search and targeted stakeholder consultations.

Literature Search Methods

The search for literature describing program evaluation aspects will be performed by an information specialist using a peer-reviewed search strategy according to the *PRESS Peer Review of Electronic Search Strategies* checklist.[31] The search strategy will be available on request.

Published literature will be identified by searching the following bibliographic databases: MEDLINE All (1946–) via Ovid, Embase (1974–) via Ovid, PsycInfo via Ovid, Scopus, and the Cumulative Index to Nursing and Allied Health Literature via EBSCO. All Ovid searches will be run simultaneously as a multi-file search. Duplicates will be removed using Ovid deduplication for multi-file searches, followed by manual deduplication in Endnote. The search strategy will be comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts will be peer support programs and youth with mental health concerns.

The search will also be limited to English- and French-language documents published between January 1, 2006, and December 2021. Conference abstracts will be excluded from the search results. Regular alerts will update the search until the publication of the final report.

Grey literature (literature that is not commercially published) will be identified by searching sources listed in relevant sections of the *Grey Matters: A Practical Tool For Searching Health-Related Grey Literature* checklist,[32] which includes the websites of regulatory agencies, HTA agencies, clinical guideline repositories, SR repositories, patient-related groups, and professional associations. Google will be used to search for additional internet-based materials. These searches will be supplemented by reviewing bibliographies of key papers and through contacts with experts and industry, as appropriate. See Appendix 1 for more information on the grey literature search strategy.

Selection Criteria

Literature that identifies evaluation of peer support programs for youth mental health in Canada and internationally, particularly related to the characteristics, guidelines used to inform evaluation methodology, and overall findings of these evaluations will be included. Identified literature will be screened for selection, and those that meet the inclusion criteria (Table 2) will be synthesized and summarized within the report.

Table 2: Inclusion Criteria for Information Screening

Criteria	Description
Population	Youth (between 12 and 25 years of age) support users with mental health concerns (including, but not limited to, depression, anxiety, suicidality, eating disorders, post-traumatic stress disorder) either self-identified or formally diagnosed; trained peer support providers
Intervention	Formal peer support programs[a]
Settings	Settings of care including health care facilities and community-based care programs in rural, remote, and urban areas in Canada
Types of information	• Information on identified completed program evaluations and guidelines used to inform evaluation methodology • Information on the description of the components and characteristics of identified program evaluations and method guidelines, including information on evaluation measurements • Information on the findings of completed program evaluations in Canada

[a] Formal peer support programs are those delivered by formal community or health care–based organizations that offer peer support to peer service users by trained peer support workers who share lived experience relating to mental health.

Screening and Selecting Articles for Inclusion

Literature will be screened and selected for inclusion based on the described eligibility criteria by 1 reviewer. DistillerSR (Evidence Partners, Ottawa, Canada) management software will be used to facilitate literature screening and selection. First, titles and abstracts will be reviewed to identify potential papers; then, the full text of all potentially relevant reports will be retrieved for definitive determination of eligibility. Literature that includes evaluation of participants that fall outside of the specified included age range (i.e., 12 to 25 years old) will be considered for inclusion if the findings can be isolated to youth (e.g., subgroup analyses), most of the sample (i.e., > 80%) consists of youth, or the mean age of the populations falls between 12 and 25 years with a plus or minus 1.5 year standard deviation. Literature about peer support program evaluations and evaluation methods that include a larger scope than only youth with mental health concerns (e.g., literature about programs addressing both mental health concerns and substance use disorders) will be included if relevant program evaluation methods guidelines aim to evaluate youth mental health concerns and substance use separately, and findings related to program evaluations primarily for mental health concerns are reported in isolation (e.g., in a subgroup).

Additionally, no restrictions will be placed on sex or gender, race or ethnicity, comorbidities, setting, or severity of symptoms.

Data Extraction

Data collection will be performed by 1 reviewer. The data will be extracted to a Microsoft Word or Excel spreadsheet, and will include bibliographic details (i.e., authors, year of publication, and country of origin) of included papers, identification of completed program evaluations and guidelines used to inform evaluation methodology, descriptions of evaluation characteristics and method guidelines, and findings for peer support programs for youth mental health care in Canada.

Consultation Methods

Targeted consultations will be sought with stakeholders involved in peer support programs for youth mental health care to supplement information and fill gaps in knowledge based on the literature. Stakeholders involved in program evaluation or program management will be targeted for a semi-structured interview to inform the environmental scan. Stakeholders will be purposively identified through CADTH's network of liaison officers situated across Canada; clinical, program development and evaluation experts within the field of youth mental health; and other referrals from informants during consultations. Prior to any engagement in consultations, the participant's informed consent will be obtained to share their information and comments with CADTH staff and use the consultation information as part of the analysis for the environmental scan. At the beginning of each consultation, each participant will be informed that the information shared will be collected for the purpose of informing the environmental scan, and that they can raise concerns at any time. If participants would like to withdraw at any point for any reason, and would like to withdraw information, we will work with them to remove the information that they have shared, including places in the analysis that are reflective of their input. It may not be possible to remove individual contributions from the final summarized findings. In this circumstance, we will discuss whether some of the participant's information could be used while ensuring complete anonymity of all information and identifiable concepts, ideas, or illustrative quotes. One researcher will conduct the consultations via phone or video conference, or by email if phone or video conference is not possible. Interview questions will be based on the objectives and research questions of the environmental scan and may include questions related to identification of completed evaluations and information related to methods guidelines used; their components, characteristics, and measurements used for evaluation in Canada and internationally; and the findings of evaluations completed in Canada. To help inform the environmental scan, we will aim to complete a minimum of 4 targeted stakeholder consultations before the completion of all summarized findings. Upon completion of the environmental scan, participants of the targeted stakeholder consultations will have an opportunity to provide feedback regarding the relevance and accuracy of information obtained during the consultations.

Data Analysis

The analysis of data collected from each of the data sources (i.e., literature review, targeted stakeholder consultations) for the evaluation of peer support programs for youth mental health care will be performed by 1 reviewer. A descriptive analysis will be conducted to respond directly to the research questions and produce a narrative summary that reflects the completed consultations and the literature search. The literature search will be conducted before conducting the targeted consultations. A description of the literature search results,

including the number of relevant publications and their sources, will be provided. Literature search findings will be supplemented using the consultation data. For the consultation data, first, informants will be described according to information provided using descriptive statistics (e.g., number and proportion of informants who are associated with program evaluation in remote, rural, and urban areas). Next, to respond to the first research question, a list and description of evaluations and guidelines for evaluation methodology being used in Canada and internationally for peer support programs for youth mental health will be developed. To respond to the second research question, the components and characteristics of the identified evaluations and evaluation methods guidelines will be summarized using narrative summaries. Additionally, information related to how these evaluations are measured will be summarized. Considerations related to the safety of support service users and peer support providers within the context of program evaluation will be captured and reported when information is available. To respond to the third research question, findings for evaluations completed in Canada will be summarized using descriptive statistics and narrative summaries, depending on the data available.

Patient Engagement

CADTH involves patients, families, and patient groups to improve the quality and relevance of its assessments, ensuring that those affected by the assessments have an opportunity to contribute to them. CADTH has adopted a Framework for Patient Engagement in HTA.[64] The framework includes standards for patient involvement in individual HTAs and is used to support and guide all activities involving patients.

For this HTA on peer support programs for youth mental health, the belief that peer users and peer support workers have knowledge, perspectives, and experiences that are unique and contribute to essential evidence for HTA will guide patient engagement activities.

Invitation to Participate and Consent

CADTH will engage at least 2 youth with experience using peer support and 2 youth with experience offering peer support to serve as patient advisors. Participants will receive an honorarium for their time. Participants will also have the option to have discussions one-on-one or with a peer support worker present, to offer emotional support.

These individuals with lived experience are not meant to represent all youth in Canada who engage with peer support; rather, CADTH is interested in learning from a diversity of experiences and perspectives. Given the disproportionate rate of youth who experience mental health concerns because of systemic forms of social exclusion and marginalization, the hope is to engage with people who can speak to the diversity of needs to help inform the development of inclusive peer support programs. Individuals can include but are not limited to members of the LGBTQ+ community; youth who are Black, Métis, Indigenous, or of colour; youth with disabilities; youth experiencing homelessness; youth members of newcomer communities; and youth living in rural and remote communities.

Potential participants will be identified through CADTH connections with peer support programs, patient groups, and pan-Canadian health organizations. A CADTH Patient Engagement Officer will contact potential participants by email and phone to explore their interest in becoming involved. The preliminary request will include the purpose and scope of the project, the purpose of engagement, and the nature of engagement activities. The Patient Engagement Officer will obtain participants' informed consent to share their information and comments with CADTH staff.

Engagement Activities

Youth participants who are peer service users and trained peer support workers have been and will continue to be involved at several time points, including:

- before protocol finalization
- during drafting of the initial report
- upon completion of final report.

Comments and feedback on the research questions, eligibility criteria, and equity considerations gained through engagement processes were used during protocol development. They helped inform how the protocol defines concepts relevant to the analyses of the clinical effectiveness and safety review, the environmental scan, and the integration of equity considerations. For the clinical effectiveness and safety review, perspectives shared helped consider the relevance and meaning of outcomes of interest. The perspectives and experiences shared will enable the research team to consider the scientific evidence alongside an understanding of the wider experiences of those using and providing peer support for youth mental health. It will also be used to ensure the relevance of this HTA.

Once preliminary findings are available, participants will be invited to discussion(s) with the researchers. One-on-one and/or group conversations will explore their perceptions of key findings, including if the findings are understandable, and if they reflect personal experiences or understandings. Conversation(s) will be used to consider the possible need to explore avenues of analysis that have been missed or underdeveloped, add additional concepts or experiences that relate to identified categories, and/or inform the processes underlying the use of peer support and the context of analysis for the clinical effectiveness and safety review and environmental scan. Additionally, conversations with participants around equity will be reflected on and considered as the team consults the ECHTA checklist.[15]

Upon completion of the final report, participants will be invited to provide feedback on the clarity of writing and to comment on the relevance of the findings to youth in Canada using and offering peer support for mental health. At this point, they will also be asked if they feel their contributions to the project are reflected in the draft final report, and revisions will be made if needed.

Reporting

The final report will include the Guidance for Reporting Involvement of Patients and the Public Short Form reporting checklists[24] and include the outcomes, discussion, and reflection items, as suggested by that guidance, to outline the process of engagement and where and how participants' contributions were used in the assessment. The Patient Engagement Officer will keep track of patient engagement activities and interactions in detailed notes and communications.

CADTH will provide reflections and critical perspectives on patient advisor involvement for peer support users, peer support workers, and the research team in the final report. A link to the final assessment will be shared.

Opportunities for Stakeholder Feedback

All stakeholders will be given the opportunity to provide feedback on the draft report, and the draft included studies list. Targeted distribution will take place to elicit feedback from a diverse range of stakeholders, including peer support programs and mental health organizations that serve youth who are systematically disadvantaged. Unpublished data identified as part of the feedback process may only be included if the source of the data is in the public domain.

Protocol Amendments

If amendments are required at any time during the study, the reasons for the changes will be recorded in a study file and subsequently reported within the final study report. If necessary, a rescreening of the previous literature search or an updated literature search will be performed to capture additional data. Any deviations from the protocol, as well as the rationale and timing of these deviations, will be disclosed in the final report, and updates will be made to both the PROSPERO submission (registration number: CRD42022299556) and the project protocol on the CADTH website, as appropriate.

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Appendix 1: Literature Search Strategy

Note that this appendix has not been copy-edited.

Systematic Review of Clinical Effectiveness and Safety Database Search

Clinical Literature Search

Overview

Interface: Ovid

Databases

- MEDLINE All (1946-present)
- Embase (1974-present)
- PsycInfo (1806-present)
- Note: Subject headings and search fields have been customized for each database. Duplicates between databases were removed in Ovid.

Date of search: December 17, 2021

Alerts: Biweekly search updates until project completion

Search filters applied: Systematic reviews; meta-analyses; network meta-analyses; health technology assessments; overview of reviews; randomized controlled trials; controlled clinical trials; observational studies.

Limits:

- Publication date limit: 2006-present
- Language limit: English- and French-language
- Conference abstracts: excluded

Table 3: Systematic Review Syntax Guide

Syntax	Description
/	At the end of a phrase, searches the phrase as a subject heading
MeSH	Medical Subject Heading
.fs	Floating subheading
exp	Explode a subject heading
*	Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings
#	Truncation symbol for one character
?	Truncation symbol for one or no characters only
adj#	Requires terms to be adjacent to each other within # number of words (in any order)
.ti	Title
.ot	Original title
.ab	Abstract
.hw	Heading word; usually includes subject headings and controlled vocabulary
.kf	Keyword heading word
.dq	Candidate term word (Embase)
.pt	Publication type

Syntax	Description
.mp	Mapped term
.rn	Registry number
.nm	Name of substance word (MEDLINE)
.yr	Publication year
.jw	Journal title word (MEDLINE)
.jx	Journal title word (Embase)
freq=#	Requires terms to occur # number of times in the specified fields
medall	Ovid database code: MEDLINE All, 1946 to present, updated daily
oemezd	Ovid database code; Embase, 1974 to present, updated daily
psyh	Ovid database code; APA PsycInfo, 1806 to present, updated daily

Multi-Database Strategy

Searches

1. Peer group/
2. ((Peer* or mentor*) adj2 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ti,kf,dq.
3. ((Peer* or mentor*) adj1 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ab. /freq=2
4. Peer* support*.ab,dq.
5. (peer* to peer* or peer mentor*).ti,ab,kf,dq.
6. ((individual* or peer* or mentor*) adj4 lived experience*).ti,ab,kf,dq.
7. or/1-6
8. mental health care/ or mental health service/ or mental health/ or mental disease/ or adjustment disorder/ or alexithymia/ or exp anxiety disorder/ or complicated grief/ or exp dissociative disorder/ or exp emotional disorder/ or exp experimental mental disease/ or hikikomori/ or exp mental deficiency/ or mental infantilism/ or mental instability/ or mental overstimulation/ or exp mood disorder/ or exp neurosis/ or organic brain syndrome/ or organic psychosyndrome/ or exp personality disorder/ or psychiatric complication/ or exp psychosexual disorder/ or exp psychosis/ or exp psychosomatic disorder/ or exp psychotrauma/ or exp schizophrenia spectrum disorder/ or stupor/ or exp suicidal behavior/ or exp eating disorder/
9. (mental disorder* or mental health or mental disease* or mental illness* or posttraumatic or PTSD or PTD or trauma* or psychiatric illness* or psychiatric disease* or psychiatric disorder* or psychotic disorder* or psychiatric diagnos?s or behavio?r disorder* or mood disorder* or affective disorder* or psychological disorder* or psychological disease* or psychological illness* or psychological diagnos?s).ti,ab,kf,dq.
10. (anxiety or depress* or panic disorder* or neuroses or neurosis or neurotic or bipolar or schizophreni* or personality disorder* or psychosis or anorexia or eating disorder* or bulimia).ti,ab,kf,dq.
11. (suicid* or parasuicid*).ti,ab,kf,dq.
12. (self adj2 (injur* or mutilat* or inflict* or wound* or harm* or cut* or hurt* or destruct* or wound*)).ti,ab,kf,dq.
13. or/8-12

14. Young adult/
15. Juvenile/
16. Adolescent/
17. (child* or paediatric* or pediatric* or girl* or boy* or kid* or teen* or tween* or youngster* or youth* or preteen* or adolescen* or school age* or preadolescen* or juvenile* or young adult* or young people* or young person* or student* or early adult* or emerging adult* or college* or universit* or high school* or post secondary or postsecondary or classmate* or class mate*).ti,ab,kf,dq.
18. young.ti,kf.
19. or/14-18
20. 7 and 13 and 19
21. (Peer* and mental*).ti.
22. 20 or 21
23. 22 not (conference abstract or conference review).pt.
24. 23 use oemezd
25. exp Peer group/
26. ((Peer* or mentor*) adj2 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ti,kf.
27. ((Peer* or mentor*) adj1 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ab. /freq=2
28. Peer* support*.ab.
29. (peer* to peer* or peer mentor*).ti,ab,kf.
30. ((individual* or peer* or mentor*) adj4 lived experience*).ti,ab,kf.
31. or/25-30
32. Mental health/ or exp Mental health services/ or exp Community Mental Health Centers/ or Mental health recovery/ or Mentally Ill Persons/
33. mental disorders/ or exp anxiety disorders/ or exp "bipolar and related disorders"/ or exp "disruptive, impulse control, and conduct disorders"/ or exp dissociative disorders/ or exp elimination disorders/ or exp "feeding and eating disorders"/ or exp mood disorders/ or motor disorders/ or neurotic disorders/ or exp paraphilic disorders/ or exp personality disorders/ or exp "schizophrenia spectrum and other psychotic disorders"/ or exp sexual dysfunctions, psychological/ or exp sleep wake disorders/ or exp somatoform disorders/ or exp "trauma and stressor related disorders"/ or depression/ or Schizophrenia, Childhood/ or Anxiety, Separation/ or exp Self-Injurious Behavior/
34. (mental disorder* or mental health or mental disease* or mental illness* or posttraumatic or PTSD or PTD or trauma* or psychiatric illness* or psychiatric disease* or psychiatric disorder* or psychotic disorder* or psychiatric diagnos?s or behavio?r disorder* or mood disorder* or affective disorder* or psychological disorder* or psychological disease* or psychological illness* or psychological diagnos?s).ti,ab,kf.
35. (anxiety or depress* or panic disorder* or neuroses or neurosis or neurotic or bipolar or schizophreni* or personality disorder* or psychosis or anorexia or eating disorder* or bulimia).ti,ab,kf.
36. (suicid* or parasuicid*).ti,ab,kf.

37. (self adj2 (injur* or mutilat* or inflict* or wound* or harm* or cut* or hurt* or destruct* or wound*)).ti,ab,kf.
38. or/32-37
39. Adolescent/ or Young adult/ or Pediatrics/
40. (child* or paediatric* or pediatric* or girl* or boy* or kid* or teen* or tween* or youngster* or youth* or preteen* or adolescen* or school age* or preadolescen* or juvenile* or young adult* or young people* or young person* or student* or early adult* or emerging adult* or college* or universit* or high school* or post secondary or postsecondary or classmate* or class mate*).ti,ab,kf.
41. young.ti,kf.
42. or/39-41
43. 31 and 38 and 42
44. (Peer* and mental*).ti.
45. 43 or 44
46. 45 use medall
47. Peers/
48. Peer counseling/
49. Peer relations/
50. ((Peer* or mentor*) adj2 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ti,id.
51. ((Peer* or mentor*) adj1 (support* or relationship* or help* or intervention* or network* or discussion* or service* or program* or club* or based or coach* or counsel* or exchange* or guide* or group* or influence* or led or deliver* or education or involve* or advocate* or communication* or center* or centre* or lead* or model* or worker* or specialist* or run or partner* or provided or role* or interaction* or driven or advice or assistance or facilitat* or consult*)).ab. /freq=2
52. Peer* support*.ab.
53. (peer* to peer* or peer mentor*).ti,ab,id.
54. ((individual* or peer* or mentor*) adj4 lived experience*).ti,ab,id.
55. or/47-54
56. exp Mental health/
57. exp Mental health services/
58. mental disorders/ or exp affective disorders/ or exp anxiety disorders/ or exp bipolar disorder/ or borderline states/ or exp chronic mental illness/ or exp dissociative disorders/ or exp eating disorders/ or gender dysphoria/ or mental disorders due to general medical conditions/ or exp neurosis/ or exp paraphilias/ or exp personality disorders/ or exp psychosis/ or serious mental illness/ or exp sleep wake disorders/ or exp somatoform disorders/ or exp "stress and trauma related disorders"/ or exp thought disturbances/
59. exp suicide/
60. Suicidal ideation/
61. exp Self-Injurious Behavior/
62. (mental disorder* or mental health or mental disease* or mental illness* or posttraumatic or PTSD or PTD or trauma* or psychiatric illness* or psychiatric disease* or psychiatric disorder* or psychotic disorder* or psychiatric diagnos?s or behavio?r

disorder* or mood disorder* or affective disorder* or psychological disorder* or psychological disease* or psychological illness* or psychological diagnos?s).ti,ab,id.

63. (anxiety or depress* or panic disorder* or neuroses or neurosis or neurotic or bipolar or schizophreni* or personality disorder* or psychosis or anorexia or eating disorder* or bulimia).ti,ab,id.
64. (suicid* or parasuicid*).ti,ab,id.
65. (self adj2 (injur* or mutilat* or inflict* or wound* or harm* or cut* or hurt* or destruct* or wound*)).ti,ab,id.
66. or/56-65
67. ("200" or "320").ag.
68. Adolescent Attitudes/ or Adolescent Behavior/ or Adolescent Health/ or Adolescent Development/ or Adolescent Psychology/ or Early Adolescence/ or Adolescent Psychiatry/ or Adolescent Psychotherapy/ or Adolescent psychopathology/ or Emerging adulthood/ or Childhood development/
69. (child* or paediatric* or pediatric* or girl* or boy* or kid* or teen* or tween* or youngster* or youth* or preteen* or adolescen* or school age* or preadolescen* or juvenile* or young adult* or young people* or young person* or student* or early adult* or emerging adult* or college* or universit* or high school* or post secondary or postsecondary or classmate* or class mate*).ti,ab,id.
70. young.ti,id.
71. or/67-70
72. 55 and 66 and 71
73. (Peer* and mental*).ti.
74. 72 or 73
75. 74 use psyh
76. 24 or 46 or 75
77. (systematic review or meta-analysis).pt.
78. meta-analysis/ or systematic review/ or systematic reviews as topic/ or meta-analysis as topic/ or "meta analysis (topic)"/ or "systematic review (topic)"/ or exp technology assessment, biomedical/ or network meta-analysis/
79. ((systematic* adj3 (review* or overview*)) or (methodologic* adj3 (review* or overview*))).ti,ab,kf.
80. ((quantitative adj3 (review* or overview* or synthes*)) or (research adj3 (integrati* or overview*))).ti,ab,kf.
81. ((integrative adj3 (review* or overview*)) or (collaborative adj3 (review* or overview*)) or (pool* adj3 analy*)).ti,ab,kf.
82. (data synthes* or data extraction* or data abstraction*).ti,ab,kf.
83. (handsearch* or hand search*).ti,ab,kf.
84. (mantel haenszel or peto or der simonian or dersimonian or fixed effect* or latin square*).ti,ab,kf.
85. (met analy* or metanaly* or technology assessment* or HTA or HTAs or technology overview* or technology appraisal*).ti,ab,kf.
86. (meta regression* or metaregression*).ti,ab,kf.
87. (meta-analy* or metaanaly* or systematic review* or biomedical technology assessment* or bio-medical technology assessment*).mp,hw.
88. (medline or cochrane or pubmed or medlars or embase or cinahl).ti,ab,hw.
89. (cochrane or (health adj2 technology assessment) or evidence report).jw.
90. (comparative adj3 (efficacy or effectiveness)).ti,ab,kf.

91. (outcomes research or relative effectiveness).ti,ab,kf.
92. ((indirect or indirect treatment or mixed-treatment or bayesian) adj3 comparison*).ti,ab,kf.
93. (meta-analysis or systematic review).md.
94. (multi* adj3 treatment adj3 comparison*).ti,ab,kf.
95. (mixed adj3 treatment adj3 (meta-analy* or metaanaly*)).ti,ab,kf.
96. umbrella review*.ti,ab,kf.
97. (multi* adj2 paramet* adj2 evidence adj2 synthesis).ti,ab,kf.
98. (multiparamet* adj2 evidence adj2 synthesis).ti,ab,kf.
99. (multi-paramet* adj2 evidence adj2 synthesis).ti,ab,kf.
100. or/77-99
101. epidemiologic methods.sh.
102. epidemiologic studies.sh.
103. observational study/
104. observational studies as topic/
105. clinical studies as topic/
106. controlled before-after studies/
107. cross-sectional studies/
108. historically controlled study/
109. interrupted time series analysis/
110. exp seroepidemiologic studies/
111. national longitudinal study of adolescent health/
112. cohort studies/
113. cohort analysis/
114. longitudinal studies/
115. longitudinal study/
116. prospective studies/
117. prospective study/
118. follow-up studies/
119. follow up/
120. followup studies/
121. retrospective studies/
122. retrospective study/
123. case-control studies/
124. exp case control study/
125. cross-sectional study/

126. observational study/
127. quasi experimental methods/
128. quasi experimental study/
129. single-case studies as topic/
130. (observational study or validation studies or clinical study).pt.
131. (observational adj3 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
132. cohort*.ti,ab,kf,kw.
133. (prospective adj7 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
134. ((follow up or followup) adj7 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
135. ((longitudinal or longterm or (long adj term)) adj7 (study or studies or design or analysis or analyses or data)).ti,ab,kf,kw.
136. (retrospective adj7 (study or studies or design or analysis or analyses or data or review)).ti,ab,kf,kw.
137. ((case adj control) or (case adj comparison) or (case adj controlled)).ti,ab,kf,kw.
138. (case-referent adj3 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
139. (population adj3 (study or studies or analysis or analyses)).ti,ab,kf,kw.
140. (descriptive adj3 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
141. ((multidimensional or (multi adj dimensional)) adj3 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
142. (cross adj sectional adj7 (study or studies or design or research or analysis or analyses or survey or findings)).ti,ab,kf,kw.
143. ((natural adj experiment) or (natural adj experiments)).ti,ab,kf,kw.
144. (quasi adj (experiment or experiments or experimental)).ti,ab,kf,kw.
145. ((non experiment or nonexperiment or non experimental or nonexperimental) adj3 (study or studies or design or analysis or analyses)).ti,ab,kf,kw.
146. (prevalence adj3 (study or studies or analysis or analyses)).ti,ab,kf,kw.
147. or/101-146
148. (Randomized Controlled Trial or Controlled Clinical Trial or Pragmatic Clinical Trial or Clinical Study or Adaptive Clinical Trial or Equivalence Trial).pt.
149. (Clinical Trial or Clinical Trial, Phase I or Clinical Trial, Phase II or Clinical Trial, Phase III or Clinical Trial, Phase IV or Clinical Trial Protocol).pt.
150. Multicenter Study.pt.
151. Clinical Studies as Topic/
152. exp Clinical Trial/ or exp Clinical Trials as Topic/ or Clinical Trial Protocol/ or Clinical Trial Protocols as Topic/ or exp "Clinical Trial (topic)"/
153. Multicenter Study/ or Multicenter Studies as Topic/ or "Multicenter Study (topic)"/
154. Randomization/
155. Random Allocation/
156. Double-Blind Method/
157. Double Blind Procedure/

158. Double-Blind Studies/
159. Single-Blind Method/
160. Single Blind Procedure/
161. Single-Blind Studies/
162. Placebos/
163. Placebo/
164. Control Groups/
165. Control Group/
166. Cross-Over Studies/ or Crossover Procedure/
167. (random* or sham or placebo*).ti,ab,hw,kf,kw.
168. ((singl* or doubl*) adj (blind* or dumm* or mask*)).ti,ab,hw,kf,kw.
169. ((tripl* or trebl*) adj (blind* or dumm* or mask*)).ti,ab,hw,kf,kw.
170. (control* adj3 (study or studies or trial* or group*)).ti,ab,hw,kf,kw.
171. (clinical adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
172. (Nonrandom* or non random* or non-random* or quasi-random* or quasirandom*).ti,ab,hw,kf,kw.
173. (phase adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
174. ((crossover or cross-over) adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
175. ((multicent* or multi-cent*) adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
176. allocated.ti,ab,hw.
177. ((open label or open-label) adj5 (study or studies or trial*)).ti,ab,hw,kf,kw.
178. ((equivalence or superiority or non-inferiority or noninferiority) adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
179. (pragmatic study or pragmatic studies).ti,ab,hw,kf,kw.
180. ((pragmatic or practical) adj3 trial*).ti,ab,hw,kf,kw.
181. ((quasiexperimental or quasi-experimental) adj3 (study or studies or trial*)).ti,ab,hw,kf,kw.
182. trial.ti,kf,kw.
183. or/148-182
184. exp animals/
185. exp animal experimentation/
186. exp models animal/
187. exp animal experiment/
188. nonhuman/
189. exp vertebrate/
190. animal.po.
191. or/184-190
192. exp humans/

193. exp human experiment/
194. human.po.
195. or/192-194
196. 191 not 195
197. 183 not 196
198. 100 or 147 or 197
199. 76 and 198
200. limit 199 to (english or french)
201. limit 200 to yr="2006 -Current"
202. limit 201 to yr="2006 -2014"
203. remove duplicates from 202
204. limit 201 to yr="2015 -current"
205. remove duplicates from 204
206. 203 or 205

Other Databases

Cochrane Central Register of Controlled Trials
Same MeSH, keywords, and limits used as per MEDLINE search, excluding study types and human restrictions. Syntax adjusted for Wiley platform. The search strategy is available on request.

CINAHL
Same MeSH, keywords, and limits used as per MEDLINE search, excluding study types and human restrictions. Syntax adjusted for EBSCO platform, including the addition of CINAHL headings. The search strategy is available on request.

Scopus
Same MeSH, keywords, and limits used as per MEDLINE search, excluding study types and human restrictions. Syntax adjusted for Scopus platform. The search strategy is available on request.

Grey Literature

Search dates: Jan 12 – Jan 21, 2021

Keywords: Same MeSH, keywords, and limits used as per MEDLINE search

Limits: Publication years: 2006-present, language: English- and French-language

Updated: Search updated prior to the completion of stakeholder feedback period
Relevant websites from the following sections of the CADTH grey literature checklist *Grey Matters: A Practical Tool for Searching Health-Related Grey Literature* were searched:
• Health Technology Assessment Agencies
• Clinical Practice Guidelines
• Databases (free)
• Health Statistics
• Internet Search
• Open Access Journals