

The impact of eHealth group interventions on the mental, behavioural, and physical health of adults: A systematic review protocol

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Keywords: Substance use, mental health, eHealth, group counselling, systematic review, physical activity

DOI: <https://doi.org/10.21203/rs.3.rs-37015/v2>

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Abstract

Background: COVID-19 has resulted in an increased demand for mental health services globally. There is emerging evidence for the efficacy for group eHealth interventions that support population-based mental health and wellbeing, but a systematic review is lacking. The primary objective of this systematic review is to summarize the evidence for eHealth group counselling and coaching programs for adults. A second objective is to assess, within studies selected for our primary objective, the impact of programs that encourage PA on outcomes compared to those that do not.

Methods and Design: Randomized controlled trials that assess the impact of eHealth group counselling or coaching programs on mental health, health behaviour, or physical health conditions or concerns among community dwelling adults will be searched in MEDLINE, PsycInfo, CINHALL, and the Central Register of Controlled Trials. The review will be structured using PRISMA guidelines. Studies will be synthesized using the Cochrane Handbook and Synthesis Without Meta-Analysis (SWiM) reporting guideline. Quality will be evaluated using GRADE. Risk of bias will be assessed using the Cochrane Risk of Bias tool with higher quality studies prioritized when drawing conclusions. The role of sex and gender will be considered as well as possible gender biases at all stages of the review.

Discussion: This review will examine the effectiveness of eHealth counselling and coaching programs delivered to adults in a group format. Findings will inform the decisions of governments, communities, and health care organizations responding to the COVID-19 pandemic in Canada.

Systematic review registration: The protocol has been registered at the International Prospective Register of Systematic Reviews (PROSPERO: [CRD42020187551](https://www.crd42020187551)).

Background

The mental health and wellbeing of societies have been severely affected by the COVID-19 pandemic [1]. As outlined by the Secretary General of the United Nations, this problem is a priority that must be urgently addressed [1]. In Canada, approximately 25% of adults reported poor to fair mental health in April-May 2020 compared to 8% in 2018 [2]. Similar results have been reported in the United Kingdom, Italy, and Spain [3]. In China, almost half of all adults now report symptoms of anxiety and depression [4]. Individuals need help with social isolation, employment disruptions, financial distress, domestic violence, substance use, as well as grief and mourning for loved ones lost to COVID-19 [5]. Others, who are medically vulnerable to COVID-19 due to chronic health conditions, may be seeking resources and coaching so that they may become as healthy as possible in preparation for potential COVID-19 infection. As a result, the demand for mental health and health coaching services are increasing globally with COVID-19 spread [6]. If these services can be delivered effectively as eHealth interventions, they can address an important population health need while avoiding the face-to-face contact that fuels COVID-19 spread. eHealth involves the use of information and communication technologies in the support of health and health-related activity [7]. eHealth interventions include services delivered online, by phone, and

through mobile applications (“apps”). Systematic reviews suggest eHealth interventions can address mental, physical, and behavioural health concerns [8–13]. A problem is that positive outcomes are often tied to the intensity of therapist guidance, which has cost implications that can make the population scale up of more effective interventions prohibitive [11]. A way to offset cost while maintaining the intensity of therapist guidance is to offer eHealth programs to *groups* of individuals rather than more standard one-on-one formats. While there is emerging evidence that eHealth interventions delivered in a group format can improve mental health and wellbeing, a systematic review is lacking [13–17].

The *primary objective* of this systematic review is to address a gap by summarizing evidence from randomized controlled trials that have assessed the impacts of *group* eHealth counselling and coaching programs among community-dwelling adults on acute or chronic mental health conditions or concerns, behavioural health concerns, or physical health concerns that they would like to address or cope with, relative to control or another form of intervention. In this review, we will define counselling and coaching broadly as the skilled use of relationship to facilitate self-knowledge, wellness, and the optimal development of personal resources and resilience [18]. Given increased physical activity has been shown to improve mental and physical health generally, including during the COVID-19 pandemic, we will assess the impact of eHealth group counselling programs that encourage PA on these outcomes compared to those that do not as a secondary objective [19, 20].

Methods And Design

Protocol and registration

This protocol is reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis for Protocols 2015 (PRISMA-P), and is registered in the International Prospective Register of Systematic Reviews (PROSPERO) ([CRD42020187551](https://doi.org/10.1111/CRD4.2020187551)) [21]. The planned systematic review will be reported in accordance with the PRISMA statement [31]. Any amendments to this protocol will be documented and published alongside the results of the systematic review.

Eligibility criteria

Inclusion Criteria

We will include randomized controlled trials, published in English or French, between January 2005 and June 2020 from any country. Only studies involving adult participants (18 years and older) living in community-based settings will be included. For example, adults living in care homes or prison will be excluded. Pregnant women will be included. Studies selected for this review will assess group interventions delivered to adults who have acute or chronic mental health conditions or concerns (e.g., substance dependence, depression, psychological distress), behavioural health concerns (e.g., substance misuse), or physical health concerns (e.g., physical pain, menopausal symptoms) that they seek to address or cope with. This may include programs for health care workers, although this is not a requirement for inclusion.

Studies will be included if they have examined a group intervention that was entirely (100%) delivered in a live, synchronous, format with at least three sessions of guidance through video or phone conferencing, or group-based texting. In Table 1 we have outlined the types of eHealth delivery methods that will be included. Included studies will assess the effectiveness or comparative effectiveness of interventions. Studies that use one of the following comparators will be permitted: i) standard care, ii) control (wait-listed or no treatment), iii) attention control group that includes some activities but differs from the intervention group in intensity, contacts, and/or time (e.g., providing a brochure for the topic under study) [22, 23], iv) attention placebo control that includes group activities that are similar to the intervention group in intensity, contacts, and/or time, but are missing a counselling or coaching component [24], v) unguided eHealth intervention, vi) eHealth individual intervention, or vii) non-eHealth group or individual in-person intervention.

Interventions must be led by a group leader who has training in mental health (e.g., a psychologist, psychiatrist or counsellor), health coaching, life coaching, or mindfulness/meditation. The group leader is required to have completed a certificate or a degree related to the intervention (e.g., health coaching certification, meditation certification, Master of Social Work degree).

Exclusion Criteria

We will exclude non-randomized and observational studies. Studies published prior to 2005 will be excluded given the reduced availability of eHealth counselling and internet coverage in earlier years. Studies including participants under the age of 18 or those diagnosed with end-stage chronic disease or in palliative care will be excluded. Interventions delivered to adults living in institutionalized settings will be excluded (e.g., care homes, prison). Interventions that are not conducted entirely online, by phone, and/or group-based texting will be excluded. Peer-led groups and group leaders without a recognized certificate or degree related to the intervention will be excluded. For example, undergraduate students trained by the investigators to lead a mindfulness intervention would not meet inclusion criteria. However, undergraduate students who receive recognized certification in mindfulness teacher training will meet inclusion criteria.

Table 1. Types of interventions delivery

Intervention delivery	Included	Excluded
Videoconference	Participants can see and interact with each other in a synchronous way (e.g. skype)	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication
Telephone conference	The intervention includes synchronous, live interaction between participants and facilitator	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication
Text messages	Group text messaging	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication
Mobile applications (apps)	The intervention app involves synchronous, live group communication	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication
Virtual social networks (e.g. Facebook)	The intervention includes a synchronous group chat with live exchange between facilitator and participants	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication
Websites and online communities	The intervention includes a synchronous group forum or chat with live exchange between facilitator and participants	Asynchronous, one-way messages, peer-led intervention, or one-on-one communication

Outcome Measures

Studies that do not include at least one of the outcomes will be excluded from the review.

Primary Outcomes

The primary outcomes are changes in acute or chronic mental health conditions or concerns, behavioural health concerns, or physical health conditions or concerns that have been examined using validated measures. Studies that examine differences in the incidence or prevalence of an outcome between intervention and comparator groups (e.g., number of unhealthy drinkers) as well as behaviours (e.g., number of alcoholic drinks per day) will be included. *Mental health outcomes or concerns* will include changes in outcomes such as depression, anxiety, stress and distress, substance dependence, well-being, quality of life, and other well-being constructs. *Behavioural health concerns* will include any health-related behaviour that has been examined using a validated tool such as changes in substance use, smoking, sexual behaviour, eating behaviour, or medication adherence. *Physical health conditions or concerns* will

include outcomes such as physiological changes such as improvements in blood pressure; as well as changes in symptom severity or perceived ability to cope with a physical illness (e.g., arthritic pain, menopausal symptoms, cancer). To be included in this review, adherence will have been examined using the mean number of modules/sessions completed and the percentage of persons that completed the whole treatment.

Secondary Outcomes

Secondary outcomes include changes in physical activity, whether or not it has been identified as a behavioural health concern by the participant, that has been measured using validated questionnaires or changes in device-measured activity patterns.

Information sources and search strategy

MEDLINE, PsycInfo, CINAHL, and the Cochrane Central Register of Controlled Trials will be screened for potential inclusion. Our search strategy, outlined in Table 2, combines MeSH terms and free-text words and was developed by a subject librarian (DS) and the primary investigator (CC). Terms such as (mental health or mental disorders or behavioral symptoms) AND (Skype or Facetime or Zoom or Google+Hangouts) AND (counseling or psychotherapy or nursing or social work or yoga or meditation or mindfulness) were included in the search. In order to restrict our search to clinical trials, the search terms of (Randomized Controlled Trial or RCT* or randomi*) were also included.

Data selection and screening process

Covidence will be used to manage records and data throughout the review [22]. Prior to screening, we will pilot test the screening instructions on five randomly selected studies to ensure consistency. If there is not a high percentage of agreement, we will further clarify the inclusion and exclusion criteria and re-test the process with five new studies. When 100% agreement is achieved, the team will start initial screening. Titles and abstracts will be independently screened by two reviewers (MLV, EH). In cases where a decision for exclusion or potential inclusion cannot be made by the title/abstract, the full text will be retrieved. Consensus meetings to reconcile disagreements will occur at each 30% interval of records screened. After initial screening, full text copies of the articles will be obtained and independently reviewed by two authors (MLV, EH) to ensure inclusion criteria are met. If needed, consensus on final inclusion will be achieved by discussing with a third reviewer (CC or RL).

Table 2. Search Strategy

-
1. Mental Health/ [MeSH]
 2. exp Mental Disorders/ [MeSH]
 3. exp Behavioral Symptoms/ [MeSH]
 4. (((mental* or psychological*) adj3 (health* or well* or disorder* or ill*)) or anxi* or depress* or neuros* or psychiatric or stress* or distress* or emotion* or aggress* or trauma* or suicid* or bereav* or grief or griev* or mourn* or addict* or alcoholism or ((substance* or drug* or alcohol*) adj3 (us* or misus* or abus* or dependen*))).mp.
 5. or/1-4
 6. exp Videoconferencing/ [MeSH]
 7. exp Telemedicine/ [MeSH]
 8. exp Internet/ [MeSH] or exp Telephone/ [MeSH]
 9. (telehealth or telemedicine or ehealth or video*).mp.
 10. (Skype or Facetime or Zoom or Google+Hangouts).mp.
 11. (internet or web or online or telephon* or phone or phoning or phones or phoned or SMS or text messag* or texting or texted).mp.
 12. (distance or remote).mp.
 13. or/6-12
 14. exp Counseling/ [MeSH] or exp Psychotherapy/ [MeSH] or exp Nursing/ [MeSH] or exp Social Work/ [MeSH] or Yoga/ [MeSH] or Meditation/ [MeSH] or Mindfulness/ [MeSH]
 15. (counsel* or motivational interview* or coach* or psychotherap* or social work* or nurs* or kinesiolog* or yoga or meditat* or mindfulness).mp.
 16. or/14-15
 17. 13 and 16
 18. Distance Counseling/ [MeSH]
 19. (e-therap* or etherap* or e-counsel* or ecounsel* or telepsycholog* or "tele-mental health" or e-coach* or ecoach*).mp.
 20. or/17-19
 21. group*.mp.
 22. exp Adult/ [MeSH]
 23. adult*.mp.
 24. or/22-23
 25. exp Randomized Controlled Trial/ [MeSH]
 26. (randomi* or randomly).mp, pt.

27. RCT*.mp

28. or/22-24

29. 5 and 20 and 21 and 24 and 28

30. limit 29 to (yr="2005 -Current" and (english or french))

Data extraction, evaluation, and synthesis

Data will be extracted into prepared inclusion/exclusion checklists within Covidence and results collated. If there are multiple publications from the same data set or study that consider different outcomes, they will be retained but will be combined into one “study” or data point during the data extraction process. The Cochrane Handbook and Synthesis Without Meta-Analysis (SWiM) reporting guideline will be used to synthesize studies [23]. Due to expected variation in interventions and reporting of outcomes, a meta-analysis will not be performed [27]. Instead, findings will be synthesized narratively and a summary will be presented in a Table that includes setting, design, country, population, sample size, analytic method, relationships between group eHealth counselling or coaching and outcomes of interest, relevant results, and quality of evidence score for each article using the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach [24]. We will conduct a summary of findings for each outcome in which five or more studies are selected for review. For example, if five studies selected for the review examined anxiety as an outcome, we will do a summary of findings for that outcome. We have also planned a summary of findings by gender, and the intensity/duration of the interventions. Risk of bias will be assessed and reported on by MLV and EH using the Cochrane Risk of Bias tool [25]. Discrepancies will be resolved in a discussion with CC and RL. Risk of bias domains to be analyzed are: (a) random sequence generation, (b) allocation concealment, (c) blinding, (d) incomplete outcome data, (e) selective reporting and other bias. In psychological interventions blinding is not possible resulting in a high risk of bias rating of (c), which we will discuss in our findings. Higher quality records will be prioritized when drawing conclusions. The role of sex and gender will be considered as well as possible gender biases at all stages of the review process from article selection and synthesis to knowledge mobilization, e.g. creation of gender-specific guidelines for eHealth therapies. Finally, we will narratively summarize the implications of findings as they may pertain to the documented impacts that COVID-19 has had on substance misuse, mental health and wellbeing within adult populations to inform the decisions of governments, communities, and health care organizations responding to the pandemic.

Patient and public involvement

We have developed this study in collaboration with various stakeholders and knowledge users to ensure its applicability. In particular, we are working with Indigenous stakeholders to ensure alignment with needs and priorities. There are concerns about the risk posed by COVID-19 for Elders, given their centrality within many Indigenous cultures, as well as the risk posed to adults with mental and physical health concerns, and a desire for eHealth programs that can strengthen resilience in the face of COVID-19. We

seek to provide a systematic review that will be of maximum utility for Indigenous organizations who are mobilizing to address this need in their communities.

Dissemination

The findings of the review will be published in an academic peer-reviewed journal. We will also create knowledge translation packages for stakeholders and government decision-makers that include a summary of findings and descriptions of promising programs identified in the review and a slide deck summarizing the results.

Conclusions

As outlined by the Secretary General of the United Nations, the mental health and wellbeing of societies have been severely affected by the COVID-19 pandemic and is a priority that must be urgently addressed [1]. There is also a need for programs that assist adults in making lifestyle changes to strengthen their health in preparation for possible COVID-19 infection (e.g., to address substance misuse or promote smoking cessation). This review will contribute to the COVID-19 global response by summarizing the evidence for eHealth counselling and coaching programs that can be delivered to populations in a group format, and thus in a cost-effective way without losing the element of therapist interaction. This review may also contribute to our understanding of how physical activity may be encouraged within these interventions as a drug-free way to strengthen wellbeing. As part of our review we will identify knowledge strengths and gaps related to this area of inquiry, including applicability and/or transferability to the current pandemic context. Findings will be of interest to communities and decision-makers as they strive to support the mental, behavioural, and physical well-being of the populations they serve during the COVID-19 pandemic in effective ways.

Abbreviations

CINHAL	Cumulative Index of Nursing and Allied Health Literature
COVID-19	Coronavirus disease 2019
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
MeSH	Medical subject headings
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
PRISMA-P	Preferred Reporting Items for Systematic Reviews and Meta-Analysis for Protocols
PROSPERO	Prospective Register of Systematic Reviews
SWIM	Synthesis without meta-analysis

Declarations

Ethics and Consent: Systematic review - not applicable.

Consent for publication: Not applicable.

Competing interests: All authors report no conflicts of interest.

Funding: This work was supported by an Alberta Innovates Translational Chair award (No. 201300491). Role of study sponsors in study design, analysis, and interpretation: none.

Authors' contributions: CC,RL, and RS designed the study. CC, RL, MLV, and EH drafted the manuscript, and MLV and EH initiated the study design. CC and DS developed the search strategy. All authors contributed to the refinement of the study protocol, reviewed and provided feedback on the manuscript, and approved the final manuscript. CC serves as the guarantor of the manuscript.

Availability of data and materials: Not applicable.

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