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Online peer support interventions for chronic conditions: A scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-017999
Article Type:	Protocol
Date Submitted by the Author:	05-Jun-2017
Complete List of Authors:	Munce, Sarah; Toronto Rehabilitation Institute, Brain and Spinal Cord Rehabilitation Shepherd, John; University of Toronto, Rehabilitation Sciences Institute Perrier, Laure; University of Toronto, Gerstein Science Information Centre Allin, Sonya; University of Toronto, Physical Therapy Sweet, Shane; McGill University Tomasone, Jennifer; Queen's University, School of Kinesiology and Health Studies Nelson, Michelle; Lunenfeld-Tanenbaum Research Institute, Bridgepoint Collaboratory Guilcher, Sara; University of Toronto, Leslie Dan Faculty of Pharmacy Hossain, Saima; University of Toronto, Physical Therapy Jaglal, Susan; University of Toronto, Physical Therapy
Primary Subject Heading:	Research methods
Secondary Subject Heading:	Evidence based practice, Health services research, Patient-centred medicine
Keywords:	World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, CARDIOLOGY, DIABETES & ENDOCRINOLOGY, ONCOLOGY

SCHOLARONE™
Manuscripts

Online peer support interventions for chronic conditions: A scoping review protocol

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Abstract

Introduction:

Peer support is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions. Given that an increasing proportion of Canadians have internet access and the increasing implementation of web-based interventions, on-line peer support interventions are a promising option to address the burden of chronic diseases. Thus, the specific research question of this scoping review is the following: *What is known from the existing literature about the key characteristics of one-on-one, on-line peer support interventions for adults with chronic conditions?*

Methods and analysis:

We will use the methodological frameworks used by Arksey and O'Malley as well as Levac and colleagues for the current scoping review. To be eligible for inclusion, studies must report on adults (≥ 18 years of age) with one of the Public Health Agency of Canada chronic conditions or HIV/AIDS. We will limit our review to peer support interventions delivered through on-one-one, on-line formats. All study designs will be included. Only studies published from 2012-onwards will be included to ensure relevance to the current healthcare context and feasibility. Furthermore, only English-language studies will be included. Studies will be identified by searching a variety of databases. Two reviewers will independently screen the titles and abstracts identified by the literature search for inclusion (i.e., level 1 screening), the full text articles (i.e., level 2 screening), and then perform data abstraction. Abstracted data will include study characteristics, participant population, key characteristics of the intervention, and outcomes collected.

Dissemination:

This scoping review will identify the key features of online peer support interventions. Results will be used specifically to develop an online, peer support program. Future research may also involve a systematic review on the features of effective on-line peer support interventions.

Strengths and limitations of this study:

This review is guided by known methodological frameworks.

All phases of the review will be conducted in duplicate.

This review will include the Public Health Agency of Canada definition/list of chronic conditions.

This review will not include mental health conditions and a variety of other disabilities.

This review will be limited to English language studies only.

Keywords: Peer support interventions, on-line, chronic conditions, scoping review, protocol

Introduction

More than 20% Canadian adults live with one of the following chronic diseases: cardiovascular diseases, cancer, chronic respiratory diseases, or diabetes.¹ Since 2000, the prevalence rates for cardiovascular diseases and chronic respiratory diseases have increased.¹ Treatment of chronic diseases consumes 67% of all direct health care costs, and cost the Canadian economy \$190 billion annually, with \$68 billion related to treatment costs and the remaining costs related to lost productivity.² In the US, approximately 25% of the population has multiple chronic conditions;³ among Americans aged 65 and older, approximately three in four have multiple chronic conditions.⁴ In Australia, more than 7 million people have at least one chronic condition.⁵ Thus, it is imperative to develop and implement effective interventions to manage these chronic conditions.

As result of this increasing burden, particularly in health services and related costs, individuals with chronic conditions need assistance in learning and maintaining self-care behaviours that support healthy living, referred to as “chronic disease self-management”.⁶⁻⁸ Chronic condition self-management refers to a person’s ability to manage the symptoms, treatment, and physical, psychosocial and lifestyle changes that are associated with living with a chronic condition.^{7,8} A promising intervention is peer support which is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions.

There is some emerging evidence demonstrating the effectiveness of peer support for individuals with chronic conditions to self-manage their conditions.⁷⁻¹⁰ Peer support refers to “support for a person with a chronic condition from someone with the same condition or similar circumstances”.^{6,11} Individuals who provide peer support offer three types of support based on

1
2
3 experiential knowledge: emotional, informational and appraisal.¹² Emotional support involves
4 caring, empathy and encouragement; informational support involves advice, suggestions with
5 alternative actions, and factual feedback relevant to a particular topic; and appraisal support
6 involves affirming feelings, thoughts, and behaviors and thus is motivational, encouraging the
7 individual to continue with problem-solving attempts despite setbacks.¹²
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There are seven predominant types of peer support models in chronic condition management: professional-led groups that encourage peer interactions, structured peer-led self-management training, peer coaches, community health workers, support groups, telephone-based peer support, and web- and email-based programs.⁶ The current review will focus on peer coaches and web- and email-based programs. Given that 80% of Canadian households have the internet,¹³ and the increasing use of web-based interventions, there is an increasing need to determine the characteristics of on-line peer support interventions. Thus, the specific research question of this scoping review is the following: What is known from the existing literature about the key characteristics of one-on-one, on-line peer support interventions for adults with chronic conditions?

Methods and analysis

We will use the methodological frameworks proposed by Arksey and O'Malley¹⁴ as well as Levac and colleagues¹⁵ for the current scoping review. The research team has expertise in peer support across chronic conditions (SEPM, JS, SA, SNS, MLAN, SJTG, SBJ), online interventions (SA, SM, SBJ), and knowledge synthesis methods (SEPM, LP, JRT, MLAN, SJTG, SBJ). Although traditionally applied to systematic review protocols, the Preferred Reporting Items for Systematic Reviews and Meta-analysis for Protocols (PRISMA-P)¹⁶ was used to draft this protocol.

Eligibility criteria

For the purpose of this review, we will include chronic diseases identified by the Public Health Agency of Canada (PHAC), including cancer, heart (cardiovascular disease), hypertension, stroke, chronic respiratory diseases (asthma, chronic obstructive pulmonary disease, sleep apnea), diabetes, inflammatory bowel diseases (Crohn's Disease, ulcerative colitis) multiple sclerosis, neurological conditions (e.g., Alzheimer's disease and other dementias, cerebral palsy, epilepsy, multiple sclerosis, Parkinson's disease/parkinsonism, traumatic brain injury, and traumatic spinal cord injury (SCI)), arthritis, and osteoporosis.¹⁷ Mental illness was excluded from the list given that peer support interventions for this group may have particularly unique features not generalizable to other chronic disease patient populations, as previously determined in a systematic review on the effectiveness of quality improvement strategies for coordination of care to reduce use of health care services.¹⁸ To this list, we have also included HIV/AIDS (which, from our preliminary research, has a significant amount of literature on peer support interventions,¹⁹ and is increasingly being viewed as a chronic condition). Studies including individuals with co-morbidities (including mental illness) will be accepted. Thus, to be eligible for inclusion, the studies must report on adults (≥ 18 years of age) with one of these PHAC chronic conditions (excluding mental illness) or HIV/AIDS. We will limit our review to peer support intervention delivered through on-one-one, on-line formats. These on-line interventions could include Skype-based discussions or social media peer interactions, for example. Therefore, interventions that are professional-led groups that encourage face-to-face peer interactions, involve community health workers who are not peers, support groups, and provide telephone-based peer support will be excluded. All study designs will be included (e.g., observational studies, randomized controlled trials and qualitative studies). Only studies

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3 published from 2012-onwards will be included to ensure relevance to the current healthcare
4 context, technology, and feasibility. Furthermore, only English-language studies will be
5 included, which may result in a predisposition in results towards English language speaking
6 countries.
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12 ***Search strategy and information sources***

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15 Literature search strategies will be developed using medical subject headings (MeSH)
16 and text words related to chronic conditions and peer support interventions. Studies will be
17 identified by searching Medline (OVID interface), CINAHL (EBSCO interface), EMBASE
18 (OVID interface), PsycInfo (OVID interface), and Cochrane Central Register Controlled Trials
19 (Cochrane Library) and PEDro (physiotherapy evidence database). The search strategy for
20 Medline can be found in Additional File 1. A hand search of the reference lists from reviews and
21 selected articles will be made to ensure literature saturation. Finally, experts in the field of peer
22 support will be contacted and consulted in order to ensure that all relevant data is obtained,
23 including members of the research team. An information specialist (LP) who is expert in
24 systematic and scoping reviews will conduct all of the literature searches.
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39 ***Study selection***

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41 To promote the reliability of screening by the two reviewers, a pilot test of the level 1
42 screening form based on the criteria outlined above will be conducted on a random sample of
43 approximately 100 articles. The κ statistic will then be calculated to determine the inter-rater
44 reliability for study inclusion.²⁰ If low agreement is observed, the inclusion and exclusion
45 criteria will be simplified to increase the consistent application of the selection criteria. Two
46 reviewers will independently screen the titles and abstracts identified by the literature search for
47 inclusion using the screening form (i.e., level 1 screening). The full text of potentially relevant
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3 articles will then be collected and screened to determine final inclusion (i.e., level 2 screening).

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5 A pilot test of the level 2 screening form will be performed on approximately 1% of the articles
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8 and the inter-rater reliability for study inclusion will also be calculated.²⁰ A third reviewer who
9
10 is knowledgeable in the research area will be available to resolve discrepancies, if necessary.

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12 Studies excluded during the screening phases will be documented in an electronic database along
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14 with an explanation for the exclusion.

15 16 17 ***Data items and data collection process***

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19 Abstracted data will include study characteristics (e.g., year of publication, country of
20
21 study), participant population (e.g., chronic disease condition, income, ethnicity, age, sex,
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23 education), key characteristics of the intervention (e.g., duration, frequency, theory of change for
24
25 the intervention, etc.), and type of outcome collected (if applicable) as well as results (i.e.,
26
27 efficacy or effectiveness). Additional categories may be identified through the completion of the
28
29 search and through discussions with the research team and key stakeholders. A data abstraction
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31 form will also be pilot tested and modified if poor agreement is observed. For example, any
32
33 wording on the form that may be related to poor agreement will be reviewed and changed. Two
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35 reviewers will independently abstract all of the data and a discussion or the involvement of a
36
37 third reviewer will resolve disagreements. Study quality will not be evaluated as the purpose of
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39 a scoping review is to identify gaps in the literature and future areas for a systematic review.^{15,16}
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46 Covidence will be used to manage the records and data throughout the review.
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48 49 ***Synthesis***

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51 The data from this scoping review will be summarized quantitatively using numerical
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53 counts and qualitatively using thematic analysis and will be grouped by chronic condition type.
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56 The results of this review will determine the key characteristics (e.g., duration, frequency,
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3 theoretical orientation, etc.) of one-on-one, on-line peer support interventions for adults with
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5 chronic conditions. This scoping review will identify gaps in the literature as well as future areas
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7 for study either via implementation studies, consensus meeting, or systematic review.
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10 **Dissemination**

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12 Knowledge translation activities will occur at the beginning of the review and continue
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14 throughout with dissemination of the research question to key stakeholders such as the Ontario
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16 Ministry of Health and Long-term Care, the Ontario Peer Development Initiative, March of
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18 Dimes Canada, SCI Canada, Rick Hansen Institute, and the Ontario Neurotrauma Foundation.
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20 End-of-grant knowledge translation could also take place through these organizations and their
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22 outlets (e.g., print and online newsletters) as well as through traditional knowledge translation
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24 mechanisms (e.g., peer-reviewed journals and conference). For example, the results of the
25
26 scoping review will be presented at meetings locally, nationally, and internationally (e.g.,
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28 National Conference on Peer Support, American Medical Informatics Association) and published
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30 in a peer-reviewed journal so that results are available to the appropriate academic and clinical
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32 audiences. Finally, partnerships with local clinical programs and/or research initiatives will be
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34 made so that the results are disseminated in a timely and effective manner. This scoping review
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36 will identify the key features of peer support interventions and will be used specifically to inform
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38 the development of an online, peer support program (i.e., online peer support program for
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40 individuals with SCI). Depending on the evidence base found, future research may also involve
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42 a systematic review on the features of effective on-line peer support interventions.
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Footnotes

Contributors: SEPM conceived of the scoping review, together with JS, LP and SBJ. SEPM wrote the first draft of the protocol. SEPM is the guarantor of the review. SEPM, JS, and LP were involved in the preliminary literature review. LP conducted the literature search. LP provided methodological expertise (knowledge synthesis). JS, SA, SNS, JRT, SJTG, and MLAN provided critical content expertise on peer support that was integrated into the current protocol. SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG, SH, and SBJ were involved in editing and revising the protocol for important intellectual content. SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG, SH, and SBJ approved the final version of the protocol.

Funding: This work was supported by the Ontario Neurotrauma Foundation (ONF) and the Rick Hansen Institute (RHI). The ONF and RHI had no role in developing this protocol. SEP Munce is/has been supported by a Heart and Stroke Foundation of Canada Focus on Stroke Fellowship, Toronto Rehabilitation Institute-University Health Network, Canadian Institutes of Health Research Fellowship, and a European Stroke Research Foundation Investigator Award. SNS is supported by a salary award from FRQS Chercheurs-Boursiers, Junior 1 program.

Competing interests: None.

Provenance and peer review: Not commissioned; externally peer reviewed.

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3 Database: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid
4 MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

5 Search Strategy:
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10 1 Diabetes Mellitus/ [Diabetes Mellitus] (106925)
11 2 Diabetes Mellitus, Type 1/ (69361)
12 3 Diabetes Mellitus, Type 2/ (108663)
13 4 Diabetes Complications/ (39462)
14 5 diabet\$.tw. (523081)
15 6 (insulin\$ adj depend\$).tw. (29179)
16 7 insulin?depend\$.tw. (43)
17 8 exp Pulmonary Disease, Chronic Obstructive/ [COPD] (46140)
18 9 COPD.tw. (35401)
19 10 COAD.tw. (245)
20 11 "chronic airflow obstruction".tw. (543)
21 12 "obstructive lung disease\$.tw. (6025)
22 13 "obstructive pulmonary disease\$.tw. (38490)
23 14 Cardiovascular Diseases/ [Cardiovascular Disease/Stroke/Hypertension] (126070)
24 15 Cerebrovascular Disorders/ (45398)
25 16 exp Heart Diseases/ (1028587)
26 17 exp Hypertension/ (238378)
27 18 exp Hyperlipidemias/ (62478)
28 19 exp Stroke/ (107275)
29 20 (cardiovascular adj disease?).tw. (132985)
30 21 (cardio-vascular adj disease?).tw. (566)
31 22 (cardiac adj arrest\$).tw. (27050)
32 23 (coronary adj disease\$).tw. (13690)
33 24 cerebrovasc\$.tw. (45920)
34 25 (cerebral adj vasc\$).tw. (7701)
35 26 (heart adj failure).tw. (136198)
36 27 (heart adj disease\$).tw. (148046)
37 28 (heart adj attack\$).tw. (4829)
38 29 "high blood pressure".tw. (12751)
39 30 hypertensi\$.tw. (380148)
40 31 hyperlipid\$.tw. (26714)
41 32 hypercholesterol\$.tw. (31280)
42 33 poststroke.tw. (3944)
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4 34 post-stroke.tw. (6330)
5 35 stroke.tw. (191278)
6 36 exp Carcinoma/ [Cancer] (575751)
7 37 exp Neoplasms/ (2988852)
8 38 carcinoma\$.tw. (574831)
9 39 neoplasm\$.tw. (119477)
10 40 tumor\$.tw. (1441627)
11 41 cancer\$.tw. (1434821)
12 42 exp Osteoporosis/ [Osteoporosis] (50872)
13 43 osteoporosis.tw. (56120)
14 44 exp Arthritis/ [Arthritis] (235024)
15 45 arthriti\$.tw. (158150)
16 46 osteoarthriti\$.tw. (51431)
17 47 osteo-arthriti\$.tw. (404)
18 48 rheumati\$.tw. (49733)
19 49 exp Asthma/ [Asthma] (117410)
20 50 asthma\$.tw. (138598)
21 51 exp Inflammatory Bowel Diseases/ [IBD] (69727)
22 52 "inflammatory bowel disease?".tw. (36528)
23 53 IBD.tw. (17629)
24 54 (ulcer\$ adj colit\$).tw. (32683)
25 55 crohn\$.tw. (39743)
26 56 Motor Neuron Disease/ [Neurological Conditions] (4006)
27 57 "motor neuron disease?".tw. (4361)
28 58 (motorneuron adj disease).tw. (15)
29 59 (motoneuron adj disease).tw. (267)
30 60 Multiple Sclerosis/ [MS] (46517)
31 61 Multiple Sclerosis, Chronic Progressive/ (1723)
32 62 Multiple Sclerosis, Relapsing-Remitting/ (4962)
33 63 (multiple adj sclerosis).tw. (62635)
34 64 exp Spinal Cord Injuries/ [SCI] (43135)
35 65 exp Paraplegia/ (12583)
36 66 exp Quadriplegia/ (7638)
37 67 paraplegi\$.tw. (14828)
38 68 quadriplegi\$.tw. (3836)
39 69 tetraplegi\$.tw. (3762)
40 70 ("spinal cord" adj injur\$).tw. (31617)
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4 71 ("spinal cord" adj trauma\$.tw. (881)
5 72 SCI.tw. (28016)
6 73 exp Sleep Apnea Syndromes/ [Sleep Apnea] (29614)
7 74 (sleep adj apn?ea?).tw. (29165)
8 75 exp HIV/ [HIV/AIDS] (90847)
9 76 Acquired Immunodeficiency Syndrome/ (76092)
10 77 AIDS.tw. (137756)
11 78 HIV.tw. (275603)
12 79 (human adj immunodeficiency).tw. (80198)
13 80 "acquired immunodeficiency syndrome".tw. (15520)
14 81 "acquired immune deficiency syndrome".tw. (5532)
15 82 or/1-81 (6864407)
16 83 Peer Group/ [Peer Support] (17371)
17 84 Volunteers/ (8787)
18 85 peer.tw. (47864)
19 86 peers.tw. (23571)
20 87 volunteer?.tw. (166313)
21 88 advice.tw. (40431)
22 89 advis\$.tw. (58943)
23 90 (health adj coach\$.tw. (456)
24 91 counsel\$.tw. (89121)
25 92 (lay\$ adj led).tw. (121)
26 93 (lay\$ adj run).tw. (12)
27 94 (lay\$ adj help\$.tw. (91)
28 95 (lay\$ adj support\$.tw. (288)
29 96 (lay\$ adj visit\$.tw. (11)
30 97 (lay\$ adj based).tw. (514)
31 98 (lay\$ adj deliver\$.tw. (19)
32 99 (user\$ adj led).tw. (102)
33 100 (user\$ adj run).tw. (15)
34 101 (user\$ adj based).tw. (363)
35 102 layperson\$.tw. (1198)
36 103 (lay adj person\$.tw. (666)
37 104 (community adj person\$.tw. (78)
38 105 (support adj person\$.tw. (1127)
39 106 (community adj based).tw. (48065)
40 107 (community adj visit\$.tw. (64)
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4 108 (home adj based).tw. (7657)
5 109 (home adj visit\$.tw. (7270)
6 110 (expert adj patient?).tw. (207)
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8 111 (non adj professional?).tw. (1234)
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10 112 nonprofessional?.tw. (1057)
11 113 (non adj medical).tw. (4572)
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13 114 nonmedical.tw. (3177)
14 115 (mutual adj aid).tw. (323)
15 116 (mutual adj support?).tw. (510)
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17 117 (supportive adj relationship).tw. (152)
18 118 mentor\$.tw. (11672)
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20 119 (community adj worker?).tw. (368)
21 120 (lay adj worker?).tw. (84)
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23 121 (support adj worker?).tw. (663)
24 122 (voluntary adj work\$.tw. (251)
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26 123 (voluntary adj care).tw. (33)
27 124 (voluntary adj involvement).tw. (19)
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29 125 (voluntary adj help\$.tw. (43)
30 126 (voluntary adj counsel\$.tw. (1052)
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32 127 or/83-126 (498143)
33 128 Computer-Assisted Instruction/ (11051)
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35 129 exp Internet/ (64547)
36 130 exp Software/ (133078)
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38 131 Mobile Applications/ (1899)
39 132 User-Computer Interface/ (33561)
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41 133 Web Browser/ (384)
42 134 Computers/ (50698)
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44 135 exp Microcomputers/ (18257)
45 136 exp Cell Phones/ (8858)
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47 137 Educational Technology/ (1342)
48 138 Electronic Mail/ (2366)
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50 139 Webcasts/ (449)
51 140 exp Videoconferencing/ (1436)
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53 141 chatroom\$.tw. (49)
54 142 (chat adj room\$.tw. (275)
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56 143 email\$.tw. (5122)
57 144 e-mail\$.tw. (6846)
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4 145 (web adj based).tw. (22206)
5 146 (computer adj based).tw. (12251)
6 147 online.tw. (70773)
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8 148 (computer adj mediated).tw. (447)
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10 149 virtual.tw. (43005)
11 150 (computer adj assisted).tw. (22697)
12 151 Internet.mp. (83576)
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14 152 (computer adj supported).tw. (425)
15 153 (hand adj held).tw. (5605)
16
17 154 "personal digital assistant?".tw. (990)
18 155 ebased.tw. (0)
19
20 156 e-based.tw. (227)
21 157 on-line.tw. (23870)
22
23 158 computer\$.tw. (268656)
24 159 (information adj technolog\$.tw. (10318)
25
26 160 website\$.tw. (18794)
27 161 web-site\$.tw. (7251)
28
29 162 e-health.tw. (1569)
30 163 ehealth.tw. (1427)
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32 164 (electronic adj health).tw. (9090)
33 165 (mobile adj phone\$.tw. (5367)
34 166 (cell adj phone\$.tw. (1928)
35 167 smartphone\$.tw. (4315)
36 168 smart-phone\$.tw. (677)
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38 169 (mobile adj app\$.tw. (1447)
39 170 or/128-169 (626750)
40
41 171 exp adult/ [Adult filter - validated] (6417105)
42 172 adult.mp. (5014578)
43 173 Middle Aged/ (3849721)
44 174 age\$.tw. (3111391)
45 175 or/171-174 (8450657)
46
47 176 82 and 127 and 170 and 175 (3766)
48 177 exp Animals/ not (exp Animals/ and Humans/) (4384144)
49 178 176 not 177 (3764)
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51 179 limit 178 to (english language and yr="2007 -Current") (2628)
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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol* - NOTE that the current manuscript is a **scoping review protocol**

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Identify the report as a protocol of a systematic review page 1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such N/A .
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number N/A as this is a scoping review.
Authors:		
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author page 1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review page 9
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments N/A
Support:		
Sources	5a	Indicate sources of financial or other support for the review page 9
Sponsor	5b	Provide name for the review funder and/or sponsor page 9
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol page 9
INTRODUCTION		
Rationale	6	Describe the rationale for the review in the context of what is already known pages 3-4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) page 4
METHODS		
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review page 5
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage page 6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated Additional File 1
Study records:		

Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review page 7
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis) pages 6-7
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators page 7
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications pages 7-8 (data abstraction)
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale pages 7-8 (data abstraction)
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis N/A as this is a scoping review.
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised page 7
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ) N/A
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression) N/A
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned N/A
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies) N/A as this is a scoping review.
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE) N/A as this is a scoping review.

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.

BMJ Open

Online peer support interventions for chronic conditions: A scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-017999.R1
Article Type:	Protocol
Date Submitted by the Author:	19-Jul-2017
Complete List of Authors:	Munce, Sarah; Toronto Rehabilitation Institute, Brain and Spinal Cord Rehabilitation Shepherd, John; University of Toronto, Rehabilitation Sciences Institute Perrier, Laure; University of Toronto, Gerstein Science Information Centre Allin, Sonya; University of Toronto, Physical Therapy Sweet, Shane; McGill University Tomasone, Jennifer; Queen's University, School of Kinesiology and Health Studies Nelson, Michelle; Lunenfeld-Tanenbaum Research Institute, Bridgepoint Collaboratory Guilcher, Sara; University of Toronto, Leslie Dan Faculty of Pharmacy Hossain, Saima; University of Toronto, Physical Therapy Jaglal, Susan; University of Toronto, Physical Therapy
Primary Subject Heading:	Research methods
Secondary Subject Heading:	Evidence based practice, Health services research, Patient-centred medicine
Keywords:	World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, CARDIOLOGY, DIABETES & ENDOCRINOLOGY, ONCOLOGY

SCHOLARONE™
Manuscripts

Online peer support interventions for chronic conditions: A scoping review protocol

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Abstract

Introduction:

Peer support is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions. Given that an increasing proportion of Canadians have internet access and the increasing implementation of web-based interventions, on-line peer support interventions are a promising option to address the burden of chronic diseases. Thus, the specific research question of this scoping review is the following: *What is known from the existing literature about the key characteristics of one-on-one, on-line peer support interventions for adults with chronic conditions?*

Methods and analysis:

We will use the methodological frameworks used by Arksey and O'Malley as well as Levac and colleagues for the current scoping review. To be eligible for inclusion, studies must report on adults (≥ 18 years of age) with one of the Public Health Agency of Canada chronic conditions or HIV/AIDS. We will limit our review to peer support interventions delivered through on-one-one, on-line formats. All study designs will be included. Only studies published from 2012-onwards will be included to ensure relevance to the current healthcare context and feasibility. Furthermore, only English-language studies will be included. Studies will be identified by searching a variety of databases. Two reviewers will independently screen the titles and abstracts identified by the literature search for inclusion (i.e., level 1 screening), the full text articles (i.e., level 2 screening), and then perform data abstraction. Abstracted data will include study characteristics, participant population, key characteristics of the intervention, and outcomes collected.

Dissemination:

This scoping review will identify the key features of online peer support interventions. Results will be used specifically to develop an online, peer support program. Future research may also involve a systematic review on the features of effective on-line peer support interventions.

Strengths and limitations of this study:

This review is guided by known methodological frameworks.

All phases of the review will be conducted in duplicate.

This review will include the Public Health Agency of Canada definition/list of chronic conditions.

This review will not include mental health conditions and a variety of other disabilities.

This review will be limited to English language studies only.

Keywords: Peer support interventions, on-line, chronic conditions, scoping review, protocol

Introduction

More than 20% Canadian adults live with one of the following chronic diseases: cardiovascular diseases, cancer, chronic respiratory diseases, or diabetes.¹ Since 2000, the prevalence rates for cardiovascular diseases and chronic respiratory diseases have increased.¹ Treatment of chronic diseases consumes 67% of all direct health care costs, and cost the Canadian economy \$190 billion annually, with \$68 billion related to treatment costs and the remaining costs related to lost productivity.² In the US, approximately 25% of the population has multiple chronic conditions;³ among Americans aged 65 and older, approximately three in four have multiple chronic conditions.⁴ In Australia, more than 7 million people have at least one chronic condition.⁵ Thus, it is imperative to develop and implement effective interventions to manage these chronic conditions.

As result of this increasing burden, particularly in health services and related costs, individuals with chronic conditions need assistance in learning and maintaining self-care behaviours that support healthy living, referred to as “chronic disease self-management”.⁶⁻⁸ Chronic condition self-management refers to a person’s ability to manage the symptoms, treatment, and physical, psychosocial and lifestyle changes that are associated with living with a chronic condition.^{7,8} A promising intervention is peer support which is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions.⁶

There is some emerging evidence demonstrating the effectiveness of peer support for individuals with chronic conditions to self-manage their conditions.⁷⁻¹⁰ Peer support refers to “support for a person with a chronic condition from someone with the same condition or similar circumstances”.^{6,11} Individuals who provide peer support offer three types of support based on

1
2
3 experiential knowledge: emotional, informational and appraisal.¹² Emotional support involves
4 caring, empathy and encouragement; informational support involves advice, suggestions with
5 alternative actions, and factual feedback relevant to a particular topic; and appraisal support
6 involves affirming feelings, thoughts, and behaviors and thus is motivational, encouraging the
7 individual to continue with problem-solving attempts despite setbacks.¹²
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There are seven predominant types of peer support models in chronic condition management: professional-led groups that encourage peer interactions, structured peer-led self-management training, peer coaches, community health workers, support groups, telephone-based peer support, and web- and email-based programs.⁶ At the same time, it is also important to recognize that there are varied models of peer support, and that treating them as if they are fully defined and highly distinct may lead to overlooking important commonalities.¹³ The current review will focus on peer coaches and web- and email-based programs. Given that 80% of Canadian households have the internet,¹⁴ and the increasing use of web-based interventions, there is an increasing need to determine the characteristics of on-line peer support interventions.^{6,11} The specific research question of this scoping review is the following: What is known from the existing literature about the key characteristics (e.g., duration, frequency, delivery setting, type of intervention, type of support provided - emotional, informational and appraisal, underlying theories for the intervention/behaviour change techniques/working mechanisms, context etc.) of on-line peer support interventions for adults with chronic conditions?

51 **Methods and analysis**

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We will use the methodological frameworks proposed by Arksey and O'Malley¹⁵ as well as Levac and colleagues¹⁶ for the current scoping review. These frameworks outline six different

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3 stages involved in a scoping review: (1) identifying the research question; (2) identifying
4 relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarising and
5 reporting the results; and, (6) consulting with relevant stakeholders.^{15,16} The research team has
6 expertise in peer support across chronic conditions (SEPM, JS, SA, SNS, MLAN, SJTG, SBJ),
7 online interventions (SA, SM, SBJ), and knowledge synthesis methods (SEPM, LP, JRT,
8 MLAN, SJTG, SBJ). Although traditionally applied to systematic review protocols, the
9 Preferred Reporting Items for Systematic Reviews and Meta-analysis for Protocols (PRISMA-
10 P)¹⁷ was used to draft this protocol.
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22 *Eligibility criteria*

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24 For the purpose of this review, we will include chronic diseases identified by the Public
25 Health Agency of Canada (PHAC), including cancer, heart (cardiovascular disease),
26 hypertension, stroke, chronic respiratory diseases (asthma, chronic obstructive pulmonary
27 disease, sleep apnea), diabetes, inflammatory bowel diseases (Crohn's Disease, ulcerative colitis)
28 multiple sclerosis, neurological conditions (e.g., Alzheimer's disease and other dementias,
29 cerebral palsy, epilepsy, multiple sclerosis, Parkinson's disease/parkinsonism, traumatic brain
30 injury, and traumatic spinal cord injury (SCI)), arthritis, and osteoporosis.¹⁸ Mental illness was
31 excluded from the list given that peer support interventions for this group may have particularly
32 unique features not generalizable to other chronic disease patient populations. Similarly, in a
33 systematic review on the effectiveness of quality improvement strategies (i.e., including patient
34 education and promotion of self-management) for coordination of care to reduce use of health
35 care services, Tricco and colleagues¹⁹ determined that these quality improvement strategies
36 reduced hospital admissions among patients with chronic conditions other than mental illness,
37 indicating that different approaches are needed for mental health. To this list, we have also
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3 included HIV/AIDS (which, from our preliminary research, has a significant amount of literature
4 on peer support interventions,²⁰ and is increasingly being viewed as a chronic condition).

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8 Studies including individuals with co-morbidities (including mental illness) will be accepted.

9
10 Thus, to be eligible for inclusion, the studies must report on adults (≥ 18 years of age) with one of
11 these PHAC chronic conditions (excluding mental illness) or HIV/AIDS. We will limit our
12 review to peer support intervention delivered through on-line formats. These on-line
13 interventions could include Skype-based discussions or social media peer interactions, for
14 example. Therefore, interventions that are professional-led groups that encourage face-to-face
15 peer interactions, involve community health workers who are not peers (i.e., health care
16 professionals), support groups, and provide telephone-based peer support will be excluded. All
17 study designs will be included (e.g., observational studies, randomized controlled trials and
18 qualitative studies). Only studies published from January 2012-April 2017 will be included. We
19 have included studies from the last 5 years to ensure relevance to the current healthcare context,
20 in technology, and feasibility. Furthermore, only English-language studies will be included,
21 which may result in a predisposition in results towards English language speaking countries.

22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 ***Search strategy and information sources***

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41 Literature search strategies will be developed using medical subject headings (MeSH)
42 and text words related to chronic conditions and peer support interventions. Studies will be
43 identified by searching Medline (OVID interface), CINAHL (EBSCO interface), EMBASE
44 (OVID interface), PsycInfo (OVID interface), and Cochrane Central Register Controlled Trials
45 (Cochrane Library) and PEDro (physiotherapy evidence database). The search strategy for
46 Medline can be found in Additional File 1. A hand search of the reference lists from reviews and
47 selected articles will be made to ensure literature saturation. Finally, experts in the field of peer
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3 support will be contacted and consulted in order to ensure that all relevant data is obtained,
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5 including members of the research team. An information specialist (LP) who is expert in
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7 systematic and scoping reviews will conduct all of the literature searches.
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10 ***Study selection***

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12 To promote the reliability of screening by the two reviewers, a pilot test of the level 1
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14 screening form based on the criteria outlined above will be conducted on a random sample of
15
16 approximately 100 articles. The κ statistic will then be calculated to determine the inter-rater
17
18 reliability for study inclusion.²¹ If low agreement is observed, the inclusion and exclusion
19
20 criteria will be simplified to increase the consistent application of the selection criteria. Two
21
22 reviewers will independently screen the titles and abstracts identified by the literature search for
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24 inclusion using the screening form (i.e., level 1 screening). The full text of potentially relevant
25
26 articles will then be collected and screened to determine final inclusion (i.e., level 2 screening).
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28 A pilot test of the level 2 screening form will be performed on approximately 1% of the articles
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30 and the inter-rater reliability for study inclusion will also be calculated.²¹ A third reviewer who
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32 is knowledgeable in the research area will be available to resolve discrepancies, if necessary.
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39 ***Data items and data collection process***

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41 Abstracted data will include study characteristics (e.g., year of publication, country of
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43 study), participant population (e.g., chronic disease condition, income, ethnicity, age, sex,
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45 education), key characteristics of the intervention (e.g., duration, frequency, delivery setting,
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47 type of intervention, type of support provided - emotional, informational and appraisal,
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49 underlying theories for the intervention/behaviour change techniques/working mechanisms,
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51 context etc.), and type of outcome collected (if applicable) as well as results (i.e., efficacy or
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53 effectiveness). Outcomes reported may include, but are not limited to, self-efficacy, depression,
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3 and quality of life. In fact, we aim to identify the variety of reported impacts. Additional
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5 categories may be identified through the completion of the search and through discussions with
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7 the research team and key stakeholders. A data abstraction form will also be pilot tested and
8
9 modified if poor agreement is observed. For example, any wording on the form that may be
10
11 related to poor agreement will be reviewed and changed. Two reviewers will independently
12
13 abstract all of the data and a discussion or the involvement of a third reviewer will resolve
14
15 disagreements. Study quality will not be evaluated as the purpose of a scoping review is to
16
17 identify gaps in the literature and future areas for a systematic review.^{15,16} Distiller SR will be
18
19 used to manage the records and data throughout the review.
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24 ***Synthesis***

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27 The data from this scoping review will be summarized quantitatively using numerical
28
29 counts and qualitatively using thematic analysis and will be grouped by chronic condition type
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31 (e.g., what kind of underlying theories are found in on-line peer support interventions in cancer?)
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33 This data will be coded/analyzed manually. The results of this review will determine the key
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35 characteristics (e.g., duration, frequency, delivery setting, type of intervention, type of support
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37 provided - emotional, informational and appraisal, underlying theories for the
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39 intervention/behaviour change techniques/working mechanisms, context etc.) of on-line peer
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41 support interventions for adults with chronic conditions. This scoping review will identify gaps
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43 in the literature as well as future areas for study either via implementation studies, consensus
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45 meeting, or systematic review.
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50 **Dissemination**

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53 Knowledge translation activities will occur at the beginning of the review and continue
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55 throughout with dissemination of the research question to key stakeholders such as the Ontario
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3 Ministry of Health and Long-term Care, the Ontario Peer Development Initiative, March of
4 Dimes Canada, SCI Canada, Rick Hansen Institute, and the Ontario Neurotrauma Foundation.
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6 End-of-grant knowledge translation could also take place through these organizations and their
7
8 outlets (e.g., print and online newsletters) as well as through traditional knowledge translation
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10 mechanisms (e.g., peer-reviewed journals and conference). For example, the results of the
11
12 scoping review will be presented at meetings locally, nationally, and internationally (e.g.,
13
14 National Conference on Peer Support, American Medical Informatics Association) and published
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16 in a peer-reviewed journal so that results are available to the appropriate academic and clinical
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18 audiences. Finally, partnerships with local clinical programs and/or research initiatives will be
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20 made so that the results are disseminated in a timely and effective manner. There will be
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22 expected limitations to this review. For example, this review will not include (primary) mental
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24 health conditions and a variety of other disabilities. Furthermore, this review will be limited to
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26 English language studies only. Lastly, our review will be limited to the published research
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28 literature. We acknowledge that we will be excluding reports on available, relevant programs
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30 but not published in these arenas. However, the currently proposed scoping review has a number
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32 of strengths - it is guided by known methodological frameworks and all phases will be conducted
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34 in duplicate, etc). This review will identify the key features of peer support interventions and
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36 will be used specifically to inform the development of an online, peer support program (i.e.,
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38 online peer support program for individuals with SCI). Depending on the evidence base found,
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40 future research may also involve a systematic review on the features of effective on-line peer
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42 support interventions.
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Footnotes

Contributors: SEPM conceived of the scoping review, together with JS, LP and SBJ. SEPM wrote the first draft of the protocol. SEPM is the guarantor of the review. SEPM, JS, and LP were involved in the preliminary literature review. LP conducted the literature search. LP provided methodological expertise (knowledge synthesis). JS, SA, SNS, JRT, SJTG, and MLAN provided critical content expertise on peer support that was integrated into the current protocol. SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG, SH, and SBJ were involved in editing and revising the protocol for important intellectual content. SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG, SH, and SBJ approved the final version of the protocol.

Funding: This work was supported by the Ontario Neurotrauma Foundation (ONF) and the Rick Hansen Institute (RHI). The ONF and RHI had no role in developing this protocol. SEP Munce is/has been supported by a Heart and Stroke Foundation of Canada Focus on Stroke Fellowship, Toronto Rehabilitation Institute-University Health Network, Canadian Institutes of Health Research Fellowship, and a European Stroke Research Foundation Investigator Award. SNS is supported by a salary award from FRQS Chercheurs-Boursiers, Junior 1 program.

Competing interests: None.

Provenance and peer review: Not commissioned; externally peer reviewed.

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Database: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

Search Strategy:

- 1 Diabetes Mellitus/ [Diabetes Mellitus] (106925)
- 2 Diabetes Mellitus, Type 1/ (69361)
- 3 Diabetes Mellitus, Type 2/ (108663)
- 4 Diabetes Complications/ (39462)
- 5 diabet\$.tw. (523081)
- 6 (insulin\$ adj depend\$).tw. (29179)
- 7 insulin?depend\$.tw. (43)
- 8 exp Pulmonary Disease, Chronic Obstructive/ [COPD] (46140)
- 9 COPD.tw. (35401)
- 10 COAD.tw. (245)
- 11 "chronic airflow obstruction".tw. (543)
- 12 "obstructive lung disease\$.tw. (6025)
- 13 "obstructive pulmonary disease\$.tw. (38490)
- 14 Cardiovascular Diseases/ [Cardiovascular Disease/Stroke/Hypertension] (126070)
- 15 Cerebrovascular Disorders/ (45398)
- 16 exp Heart Diseases/ (1028587)
- 17 exp Hypertension/ (238378)
- 18 exp Hyperlipidemias/ (62478)
- 19 exp Stroke/ (107275)
- 20 (cardiovascular adj disease?).tw. (132985)
- 21 (cardio-vascular adj disease?).tw. (566)
- 22 (cardiac adj arrest\$).tw. (27050)
- 23 (coronary adj disease\$).tw. (13690)
- 24 cerebrovasc\$.tw. (45920)
- 25 (cerebral adj vasc\$).tw. (7701)
- 26 (heart adj failure).tw. (136198)
- 27 (heart adj disease\$).tw. (148046)
- 28 (heart adj attack\$).tw. (4829)
- 29 "high blood pressure".tw. (12751)
- 30 hypertensi\$.tw. (380148)
- 31 hyperlipid\$.tw. (26714)
- 32 hypercholesterol\$.tw. (31280)
- 33 poststroke.tw. (3944)

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4 34 post-stroke.tw. (6330)
5 35 stroke.tw. (191278)
6 36 exp Carcinoma/ [Cancer] (575751)
7 37 exp Neoplasms/ (2988852)
8 38 carcinoma\$.tw. (574831)
9 39 neoplasm\$.tw. (119477)
10 40 tumor\$.tw. (1441627)
11 41 cancer\$.tw. (1434821)
12 42 exp Osteoporosis/ [Osteoporosis] (50872)
13 43 osteoporosis.tw. (56120)
14 44 exp Arthritis/ [Arthritis] (235024)
15 45 arthriti\$.tw. (158150)
16 46 osteoarthriti\$.tw. (51431)
17 47 osteo-arthriti\$.tw. (404)
18 48 rheumati\$.tw. (49733)
19 49 exp Asthma/ [Asthma] (117410)
20 50 asthma\$.tw. (138598)
21 51 exp Inflammatory Bowel Diseases/ [IBD] (69727)
22 52 "inflammatory bowel disease?".tw. (36528)
23 53 IBD.tw. (17629)
24 54 (ulcer\$ adj colit\$).tw. (32683)
25 55 crohn\$.tw. (39743)
26 56 Motor Neuron Disease/ [Neurological Conditions] (4006)
27 57 "motor neuron disease?".tw. (4361)
28 58 (motorneuron adj disease).tw. (15)
29 59 (motoneuron adj disease).tw. (267)
30 60 Multiple Sclerosis/ [MS] (46517)
31 61 Multiple Sclerosis, Chronic Progressive/ (1723)
32 62 Multiple Sclerosis, Relapsing-Remitting/ (4962)
33 63 (multiple adj sclerosis).tw. (62635)
34 64 exp Spinal Cord Injuries/ [SCI] (43135)
35 65 exp Paraplegia/ (12583)
36 66 exp Quadriplegia/ (7638)
37 67 paraplegi\$.tw. (14828)
38 68 quadriplegi\$.tw. (3836)
39 69 tetraplegi\$.tw. (3762)
40 70 ("spinal cord" adj injur\$).tw. (31617)
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4 71 ("spinal cord" adj trauma\$.tw. (881)
5 72 SCI.tw. (28016)
6 73 exp Sleep Apnea Syndromes/ [Sleep Apnea] (29614)
7 74 (sleep adj apn?ea?).tw. (29165)
8 75 exp HIV/ [HIV/AIDS] (90847)
9 76 Acquired Immunodeficiency Syndrome/ (76092)
10 77 AIDS.tw. (137756)
11 78 HIV.tw. (275603)
12 79 (human adj immunodeficiency).tw. (80198)
13 80 "acquired immunodeficiency syndrome".tw. (15520)
14 81 "acquired immune deficiency syndrome".tw. (5532)
15 82 or/1-81 (6864407)
16 83 Peer Group/ [Peer Support] (17371)
17 84 Volunteers/ (8787)
18 85 peer.tw. (47864)
19 86 peers.tw. (23571)
20 87 volunteer?.tw. (166313)
21 88 advice.tw. (40431)
22 89 advis\$.tw. (58943)
23 90 (health adj coach\$.tw. (456)
24 91 counsel\$.tw. (89121)
25 92 (lay\$ adj led).tw. (121)
26 93 (lay\$ adj run).tw. (12)
27 94 (lay\$ adj help\$.tw. (91)
28 95 (lay\$ adj support\$.tw. (288)
29 96 (lay\$ adj visit\$.tw. (11)
30 97 (lay\$ adj based).tw. (514)
31 98 (lay\$ adj deliver\$.tw. (19)
32 99 (user\$ adj led).tw. (102)
33 100 (user\$ adj run).tw. (15)
34 101 (user\$ adj based).tw. (363)
35 102 layperson\$.tw. (1198)
36 103 (lay adj person\$.tw. (666)
37 104 (community adj person\$.tw. (78)
38 105 (support adj person\$.tw. (1127)
39 106 (community adj based).tw. (48065)
40 107 (community adj visit\$.tw. (64)
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4 108 (home adj based).tw. (7657)
5 109 (home adj visit\$.tw. (7270)
6 110 (expert adj patient?).tw. (207)
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8 111 (non adj professional?).tw. (1234)
9 112 nonprofessional?.tw. (1057)
10 113 (non adj medical).tw. (4572)
11 114 nonmedical.tw. (3177)
12 115 (mutual adj aid).tw. (323)
13 116 (mutual adj support?).tw. (510)
14 117 (supportive adj relationship).tw. (152)
15 118 mentor\$.tw. (11672)
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17 119 (community adj worker?).tw. (368)
18 120 (lay adj worker?).tw. (84)
19 121 (support adj worker?).tw. (663)
20 122 (voluntary adj work\$.tw. (251)
21 123 (voluntary adj care).tw. (33)
22 124 (voluntary adj involvement).tw. (19)
23 125 (voluntary adj help\$.tw. (43)
24 126 (voluntary adj counsel\$.tw. (1052)
25 127 or/83-126 (498143)
26 128 Computer-Assisted Instruction/ (11051)
27 129 exp Internet/ (64547)
28 130 exp Software/ (133078)
29 131 Mobile Applications/ (1899)
30 132 User-Computer Interface/ (33561)
31 133 Web Browser/ (384)
32 134 Computers/ (50698)
33 135 exp Microcomputers/ (18257)
34 136 exp Cell Phones/ (8858)
35 137 Educational Technology/ (1342)
36 138 Electronic Mail/ (2366)
37 139 Webcasts/ (449)
38 140 exp Videoconferencing/ (1436)
39 141 chatroom\$.tw. (49)
40 142 (chat adj room\$.tw. (275)
41 143 email\$.tw. (5122)
42 144 e-mail\$.tw. (6846)
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4 145 (web adj based).tw. (22206)
5 146 (computer adj based).tw. (12251)
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7 147 online.tw. (70773)
8 148 (computer adj mediated).tw. (447)
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10 149 virtual.tw. (43005)
11 150 (computer adj assisted).tw. (22697)
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13 151 Internet.mp. (83576)
14 152 (computer adj supported).tw. (425)
15 153 (hand adj held).tw. (5605)
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17 154 "personal digital assistant?".tw. (990)
18 155 ebased.tw. (0)
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20 156 e-based.tw. (227)
21 157 on-line.tw. (23870)
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23 158 computer\$.tw. (268656)
24 159 (information adj technolog\$.tw. (10318)
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26 160 website\$.tw. (18794)
27 161 web-site\$.tw. (7251)
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29 162 e-health.tw. (1569)
30 163 ehealth.tw. (1427)
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32 164 (electronic adj health).tw. (9090)
33 165 (mobile adj phone\$.tw. (5367)
34 166 (cell adj phone\$.tw. (1928)
35 167 smartphone\$.tw. (4315)
36 168 smart-phone\$.tw. (677)
37 169 (mobile adj app\$.tw. (1447)
38 170 or/128-169 (626750)
39 171 exp adult/ [Adult filter - validated] (6417105)
40 172 adult.mp. (5014578)
41 173 Middle Aged/ (3849721)
42 174 age\$.tw. (3111391)
43 175 or/171-174 (8450657)
44 176 82 and 127 and 170 and 175 (3766)
45 177 exp Animals/ not (exp Animals/ and Humans/) (4384144)
46 178 176 not 177 (3764)
47 179 limit 178 to (english language and yr="2007 -Current") (2628)
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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol* - NOTE that the current manuscript is a **scoping review protocol**

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Identify the report as a protocol of a systematic review page 1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such N/A .
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number N/A as this is a scoping review.
Authors:		
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author page 1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review page 9
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments N/A
Support:		
Sources	5a	Indicate sources of financial or other support for the review page 9
Sponsor	5b	Provide name for the review funder and/or sponsor page 9
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol page 9
INTRODUCTION		
Rationale	6	Describe the rationale for the review in the context of what is already known pages 3-4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) page 4
METHODS		
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review page 5
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage page 6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated Additional File 1
Study records:		

Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review page 7
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis) pages 6-7
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators page 7
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications pages 7-8 (data abstraction)
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale pages 7-8 (data abstraction)
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis N/A as this is a scoping review.
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised page 7
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ) N/A
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression) N/A
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned N/A
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies) N/A as this is a scoping review.
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE) N/A as this is a scoping review.

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.

BMJ Open

Online peer support interventions for chronic conditions: A scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2017-017999.R2
Article Type:	Protocol
Date Submitted by the Author:	24-Aug-2017
Complete List of Authors:	Munce, Sarah; Toronto Rehabilitation Institute, Brain and Spinal Cord Rehabilitation Shepherd, John; University of Toronto, Rehabilitation Sciences Institute Perrier, Laure; University of Toronto, Gerstein Science Information Centre Allin, Sonya; University of Toronto, Physical Therapy Sweet, Shane; McGill University Tomasone, Jennifer; Queen's University, School of Kinesiology and Health Studies Nelson, Michelle; Lunenfeld-Tanenbaum Research Institute, Bridgepoint Collaboratory Guilcher, Sara; University of Toronto, Leslie Dan Faculty of Pharmacy Hossain, Saima; University of Toronto, Physical Therapy Jaglal, Susan; University of Toronto, Physical Therapy
Primary Subject Heading:	Research methods
Secondary Subject Heading:	Evidence based practice, Health services research, Patient-centred medicine
Keywords:	World Wide Web technology < BIOTECHNOLOGY & BIOINFORMATICS, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, CARDIOLOGY, DIABETES & ENDOCRINOLOGY, ONCOLOGY

SCHOLARONE™
Manuscripts

Online peer support interventions for chronic conditions: A scoping review protocol

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Abstract

Introduction:

Peer support is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions. Given that an increasing proportion of Canadians have internet access and the increasing implementation of web-based interventions, on-line peer support interventions are a promising option to address the burden of chronic diseases. Thus, the specific research question of this scoping review is the following: *What is known from the existing literature about the key characteristics of on-line peer support interventions for adults with chronic conditions?*

Methods and analysis:

We will use the methodological frameworks used by Arksey and O'Malley as well as Levac and colleagues for the current scoping review. To be eligible for inclusion, studies must report on adults (≥ 18 years of age) with one of the Public Health Agency of Canada chronic conditions or HIV/AIDS. We will limit our review to peer support interventions delivered through on-line formats. All study designs will be included. Only studies published from 2012-onwards will be included to ensure relevance to the current healthcare context and feasibility. Furthermore, only English-language studies will be included. Studies will be identified by searching a variety of databases. Two reviewers will independently screen the titles and abstracts identified by the literature search for inclusion (i.e., level 1 screening), the full text articles (i.e., level 2 screening), and then perform data abstraction. Abstracted data will include study characteristics, participant population, key characteristics of the intervention, and outcomes collected.

Dissemination:

This review will identify the key features of on-line peer support interventions and could assist in the future development of other on-line peer support programs so that effective and sustainable programs can be developed.

Strengths and limitations of this study:

This review is guided by known methodological frameworks.

All phases of the review will be conducted in duplicate.

This review will include the Public Health Agency of Canada definition/list of chronic conditions.

This review will not include mental health conditions and a variety of other disabilities.

This review will be limited to English language studies only.

Keywords: Peer support interventions, on-line, chronic conditions, scoping review, protocol

Introduction

More than 20% Canadian adults live with one of the following chronic diseases: cardiovascular diseases, cancer, chronic respiratory diseases, or diabetes.¹ Since 2000, the prevalence rates for cardiovascular diseases and chronic respiratory diseases have increased.¹ Treatment of chronic diseases consumes 67% of all direct health care costs, and cost the Canadian economy \$190 billion annually, with \$68 billion related to treatment costs and the remaining costs related to lost productivity.² In the US, approximately 25% of the population has multiple chronic conditions;³ among Americans aged 65 and older, approximately three in four have multiple chronic conditions.⁴ In Australia, more than 7 million people have at least one chronic condition.⁵ Thus, it is imperative to develop and implement effective interventions to manage these chronic conditions.

As a result of this increasing burden, particularly in health services and related costs, individuals with chronic conditions need assistance in learning and maintaining self-care behaviours that support healthy living, referred to as “chronic disease self-management”.⁶⁻⁸ Chronic condition self-management refers to a person’s ability to manage the symptoms, treatment, and physical, psychosocial and lifestyle changes that are associated with living with a chronic condition.^{7,8} A promising intervention is peer support which is receiving increasing attention as both an effective and cost effective intervention method to support the self-management of chronic health conditions.⁶

There is some emerging evidence demonstrating the effectiveness of peer support for individuals with chronic conditions to self-manage their conditions.⁷⁻¹⁰ Peer support in the context of chronic disease management refers to “support for a person with a chronic condition from someone with the same condition or similar circumstances”.^{6,11} Individuals who provide

1
2
3 peer support offer three types of support based on experiential knowledge: emotional,
4
5 informational, and appraisal.¹² Emotional support involves caring, empathy and encouragement;
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7 informational support involves advice, suggestions with alternative actions, and factual feedback
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9 relevant to a particular topic; and appraisal support involves affirming feelings, thoughts, and
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11 behaviors and thus is motivational, encouraging the individual to continue with problem-solving
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13 attempts despite setbacks.¹²
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15

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17 There are seven predominant types of peer support models in chronic condition
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19 management: professional-led groups that encourage peer interactions, structured peer-led self-
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21 management training, peer coaches, community health workers, support groups, telephone-based
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23 peer support, and web- and email-based programs.⁶ At the same time, it is also important to
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25 recognize that there are varied models of peer support, and that treating them as if they are fully
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27 defined and highly distinct may lead to overlooking important commonalities.¹³ The current
28
29 review will focus on peer coaches and web- and email-based programs. Given that the majority
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31 of households have the internet (e.g., 80% in Canada),¹⁴ and the increasing use of web-based
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33 interventions, there is an increasing need to determine the characteristics of on-line peer support
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35 interventions.^{6,11} The specific research question of this scoping review is the following: What is
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37 known from the existing literature about the key characteristics (e.g., duration, frequency,
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39 delivery setting, type of intervention, type of support provided - emotional, informational and
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41 appraisal, underlying theories for the intervention/behaviour change techniques/working
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43 mechanisms, context etc.) of on-line peer support interventions for adults with chronic
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45 conditions?
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Methods and analysis

We will use the methodological frameworks proposed by Arksey and O'Malley¹⁵ as well as Levac and colleagues¹⁶ for the current scoping review. These frameworks outline six different stages involved in a scoping review: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarising and reporting the results; and, (6) consulting with relevant stakeholders.^{15,16} The research team has expertise in peer support across chronic conditions (SEPM, JS, SA, SNS, MLAN, SJTG, SBJ), online interventions (SA, SM, SBJ), and knowledge synthesis methods (SEPM, LP, JRT, MLAN, SJTG, SBJ). Although traditionally applied to systematic review protocols, the Preferred Reporting Items for Systematic Reviews and Meta-analysis for Protocols (PRISMA-P)¹⁷ was used to draft this protocol.

Eligibility criteria

For the purpose of this review, we will include chronic diseases identified by the Public Health Agency of Canada (PHAC), including cancer, heart (cardiovascular disease), hypertension, stroke, chronic respiratory diseases (asthma, chronic obstructive pulmonary disease, sleep apnea), diabetes, inflammatory bowel diseases (Crohn's Disease, ulcerative colitis) multiple sclerosis, neurological conditions (e.g., Alzheimer's disease and other dementias, cerebral palsy, epilepsy, multiple sclerosis, Parkinson's disease/parkinsonism, traumatic brain injury, and traumatic spinal cord injury (SCI)), arthritis, and osteoporosis.¹⁸ Mental illness was excluded from the list given that peer support interventions for this group may have particularly unique features not generalizable to other chronic disease patient populations. Similarly, in a systematic review on the effectiveness of quality improvement strategies (i.e., including patient education and promotion of self-management) for coordination of care to reduce use of health

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2
3 care services, Tricco and colleagues¹⁹ determined that these quality improvement strategies
4 reduced hospital admissions among patients with chronic conditions other than mental illness,
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6 indicating that different approaches are needed for mental health. To this list, we have also
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8 included HIV/AIDS (which, from our preliminary research, has a significant amount of literature
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10 on peer support interventions,²⁰ and is increasingly being viewed as a chronic condition).
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13 Studies including individuals with co-morbidities (including mental illness) will be accepted.
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15 Thus, to be eligible for inclusion, the studies must report on adults (≥ 18 years of age) with one of
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17 these PHAC chronic conditions (excluding mental illness) or HIV/AIDS. We will limit our
18
19 review to peer support interventions delivered through on-line formats. Peer support in the
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21 context of chronic disease management is operationalized as “support for a person with a chronic
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23 condition from someone with the same condition or similar circumstances”.^{6,11} This type of
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25 support could be emotional, informational, and/or appraisal.¹² Examples of on-line peer
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27 interventions could include Skype-based discussions, social media peer interactions, or text
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29 messages from a peer(s). Therefore, interventions that are professional-led groups that
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31 encourage face-to-face peer interactions, involve community health workers who are not peers
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33 (i.e., health care professionals), support groups, and provide telephone-based peer support will be
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35 excluded. All study designs will be included (e.g., observational studies, randomized controlled
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37 trials and qualitative studies). Only studies published from January 2012-April 2017 will be
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39 included. We have included studies from the last 5 years to ensure relevance to the current
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41 healthcare context, in technology, and feasibility. Furthermore, only English-language studies
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43 will be included, which may result in a predisposition in results towards English language
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45 speaking countries.
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Search strategy and information sources

Literature search strategies will be developed using medical subject headings (MeSH) and text words related to chronic conditions and peer support interventions. Studies will be identified by searching Medline (OVID interface), CINAHL (EBSCO interface), EMBASE (OVID interface), PsycInfo (OVID interface), and Cochrane Central Register Controlled Trials (Cochrane Library) and PEDro (physiotherapy evidence database). The search strategy for Medline can be found in the Supplementary File. A hand search of the reference lists from reviews and selected articles will be made to ensure literature saturation. Finally, experts in the field of peer support will be contacted and consulted in order to ensure that all relevant data is obtained, including members of the research team. An information specialist (LP) who is expert in systematic and scoping reviews will conduct all of the literature searches.

Study selection

To promote the reliability of screening by the two reviewers, a pilot test of the level 1 screening form based on the criteria outlined above will be conducted on a random sample of approximately 100 articles. The κ statistic will then be calculated to determine the inter-rater reliability for study inclusion.²¹ If low agreement is observed, the inclusion and exclusion criteria will be simplified to increase the consistent application of the selection criteria. Two reviewers will independently screen the titles and abstracts identified by the literature search for inclusion using the screening form (i.e., level 1 screening). The full text of potentially relevant articles will then be collected and screened to determine final inclusion (i.e., level 2 screening). A pilot test of the level 2 screening form will be performed on approximately 1% of the articles and the inter-rater reliability for study inclusion will also be calculated.²¹ A third reviewer who is knowledgeable in the research area will be available to resolve conflicts, if necessary.

Data items and data collection process

Abstracted data will include study characteristics (e.g., year of publication, country of study), participant population (e.g., chronic disease condition, income, ethnicity, age, sex, education), key characteristics of the intervention (e.g., duration, frequency, delivery setting, type of intervention, type of support provided - emotional, informational and appraisal, underlying theories for the intervention/behaviour change techniques/working mechanisms, context etc.), and type of outcome collected (if applicable) as well as results (i.e., efficacy or effectiveness). Outcomes reported may include, but are not limited to, self-efficacy, depression, and quality of life. In fact, we aim to identify the variety of reported impacts. Additional categories may be identified through the completion of the search and through discussions with the research team and key stakeholders. A data abstraction form will also be pilot tested and modified if poor agreement is observed. For example, any wording on the form that may be related to poor agreement will be reviewed and improved. Two reviewers will independently abstract all of the data and a discussion or the involvement of a third reviewer will resolve disagreements. Study quality will not be evaluated as the purpose of a scoping review is to identify gaps in the literature and future areas for a systematic review.^{15,16} Distiller SR will be used to manage the records and data throughout the review.

Synthesis

The data from this scoping review will be summarized quantitatively using numerical counts and qualitatively using thematic analysis and will be grouped by chronic condition type (e.g., what kind of underlying theories are found in on-line peer support interventions in cancer?) This data will be coded/analyzed manually. The results of this review will determine the key characteristics (e.g., duration, frequency, delivery setting, type of intervention, type of support

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3 provided - emotional, informational and appraisal, underlying theories for the
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5 intervention/behaviour change techniques/working mechanisms, context etc.) of on-line peer
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7 support interventions for adults with chronic conditions. This scoping review will identify gaps
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9 in the literature as well as future areas for study either via implementation studies, consensus
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11 meeting, or systematic review.
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14 15 **Dissemination**

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17 Knowledge translation activities will occur at the beginning of the review and continue
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19 throughout with dissemination of the research question to key stakeholders such as the Ontario
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21 Ministry of Health and Long-term Care, the Ontario Peer Development Initiative, March of
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23 Dimes Canada, SCI Canada, Rick Hansen Institute, and the Ontario Neurotrauma Foundation.
24
25 End-of-grant knowledge translation could also take place through these organizations and their
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27 outlets (e.g., print and online newsletters) as well as through traditional knowledge translation
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29 mechanisms (e.g., peer-reviewed journals and conference). For example, the results of the
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31 scoping review will be presented at meetings locally, nationally, and internationally (e.g.,
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33 National Conference on Peer Support, American Medical Informatics Association) and published
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35 in a peer-reviewed journal so that results are available to the appropriate academic and clinical
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37 audiences. Finally, partnerships with local clinical programs and/or research initiatives will be
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39 made so that the results are disseminated in a timely and effective manner.
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47 There will be expected limitations and strengths to this review. For example, this review
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49 will not include (primary) mental health conditions and a variety of other disabilities. A number
50
51 of problem-solving approaches for mental health conditions are emerging as quite effective when
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53 administered by nonprofessionals, including in low-resource settings.²²⁻²⁴ The possibility of
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55 implementing these on-line would represent exciting advances in the field of peer support, and
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3 thus, a future, separate systematic/scoping review on on-line peer support interventions for
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5 mental health conditions should be considered. Furthermore, this review will be limited to
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7 English language studies only. Lastly, our review will be limited to the published research
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9 literature. We acknowledge that we will be excluding reports on available, relevant programs
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11 but not published in these arenas. However, the currently proposed scoping review has a number
12
13 of strengths - it is guided by known methodological frameworks and all phases will be conducted
14
15 in duplicate, etc). This review will contribute to critical and emerging perspectives on peer
16
17 support. For example, the results of the review will identify the key features of on-line peer
18
19 support interventions, and in doing so, assist in the future development of other on-line peer
20
21 support programs (i.e., so that effective and sustainable programs can be developed). Similarly,
22
23 the current review will provide considerations for programs that are not yet in the on-line format
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25 so that they can be modified with features that are unique to the on-line environment.
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31 **Footnotes**

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34 **Contributors:** SEPM conceived of the scoping review, together with JS, LP and SBJ. SEPM
35 wrote the first draft of the protocol. SEPM is the guarantor of the review. SEPM, JS, and LP
36 were involved in the preliminary literature review. LP conducted the literature search. LP
37 provided methodological expertise (knowledge synthesis). JS, SA, SNS, JRT, SJTG, and MLAN
38 provided critical content expertise on peer support that was integrated into the current protocol.
39 SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG, SH, and SBJ were involved in editing and revising
40 the protocol for important intellectual content. SEPM, JS, LP, SA, SNS, JRT, MLAN, SJTG,
41 SH, and SBJ approved the final version of the protocol.
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45 **Funding:** This work was supported by the Ontario Neurotrauma Foundation (ONF) and the
46 Rick Hansen Institute (RHI). The ONF and RHI had no role in developing this protocol. SEP
47 Munce is/has been supported by a Heart and Stroke Foundation of Canada Focus on Stroke
48 Fellowship, Toronto Rehabilitation Institute-University Health Network, Canadian Institutes of
49 Health Research Fellowship, and a European Stroke Research Foundation Investigator Award.
50 SNS is supported by a salary award from FRQS Chercheurs-Boursiers, Junior 1 program.
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55 **Competing interests:** None.
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57 **Provenance and peer review:** Not commissioned; externally peer reviewed.
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36 intervention in adults impaired by psychological distress in a conflict-affected area of Pakistan:
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Database: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

Search Strategy:

- 1 Diabetes Mellitus/ [Diabetes Mellitus] (106925)
- 2 Diabetes Mellitus, Type 1/ (69361)
- 3 Diabetes Mellitus, Type 2/ (108663)
- 4 Diabetes Complications/ (39462)
- 5 diabet\$.tw. (523081)
- 6 (insulin\$ adj depend\$).tw. (29179)
- 7 insulin?depend\$.tw. (43)
- 8 exp Pulmonary Disease, Chronic Obstructive/ [COPD] (46140)
- 9 COPD.tw. (35401)
- 10 COAD.tw. (245)
- 11 "chronic airflow obstruction".tw. (543)
- 12 "obstructive lung disease\$.tw. (6025)
- 13 "obstructive pulmonary disease\$.tw. (38490)
- 14 Cardiovascular Diseases/ [Cardiovascular Disease/Stroke/Hypertension] (126070)
- 15 Cerebrovascular Disorders/ (45398)
- 16 exp Heart Diseases/ (1028587)
- 17 exp Hypertension/ (238378)
- 18 exp Hyperlipidemias/ (62478)
- 19 exp Stroke/ (107275)
- 20 (cardiovascular adj disease?).tw. (132985)
- 21 (cardio-vascular adj disease?).tw. (566)
- 22 (cardiac adj arrest\$).tw. (27050)
- 23 (coronary adj disease\$).tw. (13690)
- 24 cerebrovasc\$.tw. (45920)
- 25 (cerebral adj vasc\$).tw. (7701)
- 26 (heart adj failure).tw. (136198)
- 27 (heart adj disease\$).tw. (148046)
- 28 (heart adj attack\$).tw. (4829)
- 29 "high blood pressure".tw. (12751)
- 30 hypertensi\$.tw. (380148)
- 31 hyperlipid\$.tw. (26714)
- 32 hypercholesterol\$.tw. (31280)
- 33 poststroke.tw. (3944)

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4 34 post-stroke.tw. (6330)
5 35 stroke.tw. (191278)
6 36 exp Carcinoma/ [Cancer] (575751)
7 37 exp Neoplasms/ (2988852)
8 38 carcinoma\$.tw. (574831)
9 39 neoplasm\$.tw. (119477)
10 40 tumor\$.tw. (1441627)
11 41 cancer\$.tw. (1434821)
12 42 exp Osteoporosis/ [Osteoporosis] (50872)
13 43 osteoporosis.tw. (56120)
14 44 exp Arthritis/ [Arthritis] (235024)
15 45 arthriti\$.tw. (158150)
16 46 osteoarthriti\$.tw. (51431)
17 47 osteo-arthriti\$.tw. (404)
18 48 rheumati\$.tw. (49733)
19 49 exp Asthma/ [Asthma] (117410)
20 50 asthma\$.tw. (138598)
21 51 exp Inflammatory Bowel Diseases/ [IBD] (69727)
22 52 "inflammatory bowel disease?".tw. (36528)
23 53 IBD.tw. (17629)
24 54 (ulcer\$ adj colit\$).tw. (32683)
25 55 crohn\$.tw. (39743)
26 56 Motor Neuron Disease/ [Neurological Conditions] (4006)
27 57 "motor neuron disease?".tw. (4361)
28 58 (motoneuron adj disease).tw. (15)
29 59 (motoneuron adj disease).tw. (267)
30 60 Multiple Sclerosis/ [MS] (46517)
31 61 Multiple Sclerosis, Chronic Progressive/ (1723)
32 62 Multiple Sclerosis, Relapsing-Remitting/ (4962)
33 63 (multiple adj sclerosis).tw. (62635)
34 64 exp Spinal Cord Injuries/ [SCI] (43135)
35 65 exp Paraplegia/ (12583)
36 66 exp Quadriplegia/ (7638)
37 67 paraplegi\$.tw. (14828)
38 68 quadriplegi\$.tw. (3836)
39 69 tetraplegi\$.tw. (3762)
40 70 ("spinal cord" adj injur\$).tw. (31617)
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4 71 ("spinal cord" adj trauma\$.tw. (881)
5 72 SCI.tw. (28016)
6 73 exp Sleep Apnea Syndromes/ [Sleep Apnea] (29614)
7 74 (sleep adj apn?ea?).tw. (29165)
8 9
9 75 exp HIV/ [HIV/AIDS] (90847)
10 76 Acquired Immunodeficiency Syndrome/ (76092)
11 77 AIDS.tw. (137756)
12 78 HIV.tw. (275603)
13 79 (human adj immunodeficiency).tw. (80198)
14 80 "acquired immunodeficiency syndrome".tw. (15520)
15 81 "acquired immune deficiency syndrome".tw. (5532)
16 82 or/1-81 (6864407)
17 83 Peer Group/ [Peer Support] (17371)
18 84 Volunteers/ (8787)
19 85 peer.tw. (47864)
20 86 peers.tw. (23571)
21 87 volunteer?.tw. (166313)
22 88 advice.tw. (40431)
23 89 advis\$.tw. (58943)
24 90 (health adj coach\$.tw. (456)
25 91 counsel\$.tw. (89121)
26 92 (lay\$ adj led).tw. (121)
27 93 (lay\$ adj run).tw. (12)
28 94 (lay\$ adj help\$.tw. (91)
29 95 (lay\$ adj support\$.tw. (288)
30 96 (lay\$ adj visit\$.tw. (11)
31 97 (lay\$ adj based).tw. (514)
32 98 (lay\$ adj deliver\$.tw. (19)
33 99 (user\$ adj led).tw. (102)
34 100 (user\$ adj run).tw. (15)
35 101 (user\$ adj based).tw. (363)
36 102 layperson\$.tw. (1198)
37 103 (lay adj person\$.tw. (666)
38 104 (community adj person\$.tw. (78)
39 105 (support adj person\$.tw. (1127)
40 106 (community adj based).tw. (48065)
41 107 (community adj visit\$.tw. (64)
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- 4 108 (home adj based).tw. (7657)
- 5 109 (home adj visit\$.tw. (7270)
- 6 110 (expert adj patient?).tw. (207)
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- 8 111 (non adj professional?).tw. (1234)
- 9 112 nonprofessional?.tw. (1057)
- 10 113 (non adj medical).tw. (4572)
- 11 114 nonmedical.tw. (3177)
- 12 115 (mutual adj aid).tw. (323)
- 13 116 (mutual adj support?).tw. (510)
- 14 117 (supportive adj relationship).tw. (152)
- 15 118 mentor\$.tw. (11672)
- 16 119 (community adj worker?).tw. (368)
- 17 120 (lay adj worker?).tw. (84)
- 18 121 (support adj worker?).tw. (663)
- 19 122 (voluntary adj work\$.tw. (251)
- 20 123 (voluntary adj care).tw. (33)
- 21 124 (voluntary adj involvement).tw. (19)
- 22 125 (voluntary adj help\$.tw. (43)
- 23 126 (voluntary adj counsel\$.tw. (1052)
- 24 127 or/83-126 (498143)
- 25 128 Computer-Assisted Instruction/ (11051)
- 26 129 exp Internet/ (64547)
- 27 130 exp Software/ (133078)
- 28 131 Mobile Applications/ (1899)
- 29 132 User-Computer Interface/ (33561)
- 30 133 Web Browser/ (384)
- 31 134 Computers/ (50698)
- 32 135 exp Microcomputers/ (18257)
- 33 136 exp Cell Phones/ (8858)
- 34 137 Educational Technology/ (1342)
- 35 138 Electronic Mail/ (2366)
- 36 139 Webcasts/ (449)
- 37 140 exp Videoconferencing/ (1436)
- 38 141 chatroom\$.tw. (49)
- 39 142 (chat adj room\$.tw. (275)
- 40 143 email\$.tw. (5122)
- 41 144 e-mail\$.tw. (6846)
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4 145 (web adj based).tw. (22206)
5 146 (computer adj based).tw. (12251)
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7 147 online.tw. (70773)
8 148 (computer adj mediated).tw. (447)
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10 149 virtual.tw. (43005)
11 150 (computer adj assisted).tw. (22697)
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13 151 Internet.mp. (83576)
14 152 (computer adj supported).tw. (425)
15 153 (hand adj held).tw. (5605)
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17 154 "personal digital assistant?".tw. (990)
18 155 ebased.tw. (0)
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20 156 e-based.tw. (227)
21 157 on-line.tw. (23870)
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23 158 computer\$.tw. (268656)
24 159 (information adj technolog\$.tw. (10318)
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26 160 website\$.tw. (18794)
27 161 web-site\$.tw. (7251)
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29 162 e-health.tw. (1569)
30 163 ehealth.tw. (1427)
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32 164 (electronic adj health).tw. (9090)
33 165 (mobile adj phone\$.tw. (5367)
34 166 (cell adj phone\$.tw. (1928)
35 167 smartphone\$.tw. (4315)
36 168 smart-phone\$.tw. (677)
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38 169 (mobile adj app\$.tw. (1447)
39 170 or/128-169 (626750)
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41 171 exp adult/ [Adult filter - validated] (6417105)
42 172 adult.mp. (5014578)
43 173 Middle Aged/ (3849721)
44 174 age\$.tw. (3111391)
45 175 or/171-174 (8450657)
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47 176 82 and 127 and 170 and 175 (3766)
48 177 exp Animals/ not (exp Animals/ and Humans/) (4384144)
49 178 176 not 177 (3764)
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51 179 limit 178 to (english language and yr="2007 -Current") (2628)
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PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol* - NOTE that the current manuscript is a **scoping review protocol**

Section and topic	Item No	Checklist item
ADMINISTRATIVE INFORMATION		
Title:		
Identification	1a	Identify the report as a protocol of a systematic review page 1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such N/A .
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number N/A as this is a scoping review.
Authors:		
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author page 1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review page 9
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments N/A
Support:		
Sources	5a	Indicate sources of financial or other support for the review page 9
Sponsor	5b	Provide name for the review funder and/or sponsor page 9
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol page 9
INTRODUCTION		
Rationale	6	Describe the rationale for the review in the context of what is already known pages 3-4
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO) page 4
METHODS		
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review page 5
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage page 6
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated Additional File 1
Study records:		

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Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review page 7
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis) pages 6-7
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators page 7
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications pages 7-8 (data abstraction)
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale pages 7-8 (data abstraction)
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis N/A as this is a scoping review.
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised page 7
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall's τ) N/A
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression) N/A
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned N/A
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies) N/A as this is a scoping review.
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE) N/A as this is a scoping review.

*** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.