BMJ Open

The effects of peer support on the mental health of young adults: A scoping review

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-061336
Article Type:	Original research
Date Submitted by the Author:	25-Jan-2022
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Keywords:	Depression & mood disorders < PSYCHIATRY, MENTAL HEALTH, Child & adolescent psychiatry < PSYCHIATRY, Adult psychiatry < PSYCHIATRY

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Journal: BMJ Open – Original Article/Review

Title: The effects of peer support on the mental health of young adults: A scoping review

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Word Count: 3805 words

Keywords: depression; mental health; peer support; university students; well-being; young adult

ABSTRACT

Objectives: Young adults report disproportionally greater mental health problems compared to the rest of the population with numerous barriers preventing them from seeking help. Peer support, defined as a form of social-emotional support offered by an individual with a shared lived experience, has been reported as being effective in improving a variety of mental health outcomes in differing populations. The objective of this scoping review is to provide an overview of the literature investigating the impact of peer support on the mental health of young adults.

Design: A scoping review methodology was utilized to identify relevant peer-reviewed articles in accordance with PRISMA guidelines across six databases and a search of the grey literature. Overall, 17 eligible studies met the inclusion criteria and were included in the review.

Results: Overall, studies suggest that peer support is associated with improvements in mental health including greater happiness, self-esteem, and effective coping, and reductions in depression, loneliness, and anxiety. This effect appears to be present among university students, non-student young adults and ethnic/sexual minorities. Both individual and group peer support appear to be beneficial for mental health with positive effects also being present for those providing the support.

Conclusions: Peer support appears to be a promising avenue towards improving the mental health of young adults, with lower barriers to accessing these services when compared to traditional mental health services. The importance of training peer supporters and the differential impact of peer support based on the method of delivery should be investigated in future research.

Strengths and limitations of this study

- Peer-reviewed literature from multiple databases were screened using thorough inclusion and exclusion criteria.
- First scoping review examining the impact of peer support on the mental health of young adults.
- Although over 12,000 articles were evaluated, conclusions are drawn based on 17 studies suggesting the need for additional methodologically sound studies on the effectiveness of peer support in improving the mental wellbeing of young adults.
- Inconsistencies are noted in the definition and measurement of peer support which may result in noteworthy variability in the reviewed studies.

BACKGROUND

Young adults, aged 18 to 25, are disproportionality affected by mental health disorders when compared to the rest of the population.[1] The transition to university often coincides with young adulthood and a peak of mental illness onset due to decreased support from family and friends, increased financial burden, loneliness, and intense study periods.[2-4] Psychological and emotional problems in university students have been on the rise, both in frequency and severity.[5-7] In fact, psychological distress has been reported as being significantly higher among university students.[8-11] For instance, the WHO World Mental Health Surveys International College Student Project surveyed 13,984 undergraduate freshman students across eight countries and found that one-third of students had an anxiety, mood, or substance disorder.[12] Moreover, university students face a host of academic, interpersonal, financial, and cultural challenges.[10, 13-15] Due to the chronic nature of mental health issues, poor mental health in university students has the potential to result in significant future economic consequences on society. This is both at an indirect level in terms of absenteeism, productivity loss and under-performance, as well as at a direct level in terms of the need for hospital care, medication, social services, and income support.[16] Additionally, depression, substance use disorder and psychosis are the most important psychiatric risk factors for suicide.[17] The high prevalence of psychological distress indicates the importance of developing and establishing programs that address such problems.[13]

Previous research indicates that between 45% and 65% of university students experiencing mental health problems do not seek professional help.[10, 18, 19] Barriers to mental health help-seeking among university students include denial, embarrassment, lack of time and stigma.[20, 21] As a result, university students often choose informal support from

family and friends, or other resources, such as self-help books and online sites.[22] In addition, when students do reach out to counseling services, long wait lists (typically ranging from four to six weeks) are frequently listed as an obstacle for receiving help.[22] These attitudes and the barriers associated with help seeking behaviors must be addressed when providing supportive services.

Currently, universities are more challenged than ever when it comes to providing cost-effective and accessible services that meet the broad range of concerns faced by their student population. Beyond counselling and psychiatric services, an emerging resource for help-seeking young adults is peer support. Peer support, in the context of mental health, has previously been defined as a form of social emotional support offered by an individual who shares a previously lived experience with someone suffering from a mental health condition in an environment of respect and shared responsibility.[23] Various forms of peer support exist; they can be classified based on the setting in which peer support is provided, the training of the individual offering the service, and/or the administration overseeing the service.[23] Reviews of the outcomes of peer support interventions for individuals with severe mental illness have generally come to positive conclusions, yet results are still tentative given the infancy of this research area.[24-27] Some of the positive outcomes reported by individuals accessing peer support include improved self-esteem, self-efficacy, and self-management.[28] Furthermore, peer support has been identified as having the potential to serve individuals, for example ethnic and sexual minorities, who are in need of mental health services yet feel alienated from the traditional mental health system.[29]

Peer support has been shown to be beneficial for both those receiving support and those offering support.[30, 31] It has also been shown to be effective for a variety of mental health challenges, including for patients suffering from addiction and for bereaved survivors.[32, 33]

However, to date, there has been no systematic investigation of how exactly peer support may contribute to the mental health and wellbeing of young adults, a demographic particularly vulnerable to a range of mental health disorders. As such, the primary aim of this review was to synthesize the available peer-reviewed literature regarding the relationship between peer support and mental health among young adults. The following research questions were established for this scoping review (i) How is peer support being delivered to young adults?; and (ii) What is the effect of peer support on the mental health of young adults?

METHODS

Patient and public involvement

This study is a scoping review based on study-level data and no patients were involved in the study.

Search strategy

A scoping review is a systematic approach to mapping the literature on a given topic. The aims of scoping reviews generally include determining the breadth of available literature and identifying gaps in the research field of interest. An iterative approach was taken to develop the research questions for the present scoping review, which included identifying relevant literature, such as reviews and editorials, and having discussions with stakeholders who have firsthand experience with university peer support centres. The present scoping review is congruent with the recommended six-step methodology as outlined by Arksey and O'Malley [34] and follow the PRISMA extension for scoping reviews (PRISMA-ScR).

To methodically search for peer-reviewed literature addressing these research questions, a broad search strategy was developed and employed across several databases. In January 2021, the following databases were searched for studies published up to the end of December 2020:

Medline, EMBASE, PsycInfo, Web of Science, CINAHL, and SocIndex. The search terms used were centred around three principal topics: peer support, mental health, and young/emerging adulthood. An example of the search strategy is provided in Table 1. Previous literature reviews on related topics, as well as discussions with research librarians were utilized to help inform these terms. Additionally, a grey literature search was conducted in January 2021 and included the top 50 results from Google and Google Scholar. All articles were imported to EndNote and were uploaded to the Covidence Systematic Review Software for removal of duplicates.

Table 1

Keywords for database searches

Grouping terms	Keywords
Peer Support	(“peer support” OR “online peer support” OR “peer to peer” OR “peer counsel*” OR “peer mentor*” OR “support group*” OR “emotional support” OR “psychological support” OR “help seeking” OR “peer support cent*” OR “peer communication” OR “social support”) AND
Mental Health	(“mental health” OR “college mental health” OR “university mental health” OR “student mental health” OR “emotional well*being” OR “psychological well*being” OR “social isolation” OR loneliness OR stress OR “psychological distress” OR “psychological stress” OR “academic stress” OR depression OR “depressive symptoms” OR anxiety OR “anxious symptoms” OR suicide* OR grief OR “psychological resilience”) AND
Young/emerging adulthood	(“young adulthood” OR “emerging adulthood”)

Inclusion and exclusion criteria

Eligibility for study inclusion in the present review was based on the following criteria: original peer-reviewed articles published in English or French; participants or specified groups of participants within a study aged 18 to 25 (if range not reported, the mean age had to fall between 18 to 25, with a standard deviation ± 1.75); measured or assessed the provision of peer support

(defined as social or emotional support that is provided by people sharing similar experiences to bring about a desired emotional or psychological change) or peer mentoring; assessed a mental health outcome (i.e., mental health, depression, anxiety, mood, suicidality, loneliness/social isolation, grief, psychological or academic stress, psychological, emotional wellbeing, self-esteem, resilience and psychological or emotional coping); and described a relationship between peer support and the mental health outcome of either the supporters (i.e. individuals providing peer support) or supportees (i.e., individuals receiving peer support).

Studies were excluded if they were: literature reviews, study protocols, dissertations, case reports, or presentations/conference abstracts; assessed social support more generally or as provided by non-peers (e.g., family members, mental health care providers); assessed other forms of peer communication that were not defined as peer support; or investigated the association between peer support and non-mental health outcomes (e.g., medical, social, or occupational variables).

Study selection

Screening of titles and abstracts was performed by two independent reviewers (JR, RR, JC, AC, KW, SK, AK, MS) using the described eligibility criteria using the Covidence Systematic Review Software. Subsequently, full text screening of remaining articles was also carried out by two independent reviewers (JR, RR, JC, AC, KW, SK, MS). At both stages, conflicts were reviewed and resolved by an independent third screener (JR, RR).

Data collection

Data collection and extraction from each included article was conducted independently by two reviewers (JC, AC, SK, MS) and consensus of extracted information was established. The following characteristics were extracted from each study: citation (including authors, title, and

year of publication), country, study design, study objective(s), participant characteristics, type and delivery method of peer support, mental health outcomes measured, and main findings. No risk of bias assessment was completed as the purpose of conducting a scoping review is to better understand the breadth of a topic of study rather than evaluate study quality. Appendix I presents a table with an overview of the included studies.

RESULTS

Cumulatively, 21,796 articles were identified from the data-base and grey literature searches. After duplicates were removed, 12,217 articles remained, and each title and abstract was reviewed. Of these, 408 passed on to full-text review, following which, 17 articles ultimately met criteria for inclusion. The overall search process and reasons for exclusion for the reviewed full-text articles are included in Figure 1.

Measurement of peer support

Overall, there appears to be a significant degree of variation in the methodology utilized to measure peer support. The most common method was through the use of validated self-report measures for perceived support coming from friends or peers. However, these assessment tools varied widely and included the Multidimensional Scale of Perceived Social Support,[35] Perceived Social Support from Friends measure,[36] Inventory of Parent and Peer Attachment,[37] Interpersonal Relationship Inventory,[38] and the Social Provisions Scale.[39]

One of the included studies coded interview responses for instances of perceived support [40] and another conducted a qualitative analysis of online forum posts including themes of social support.[41] Other studies quantitatively measured instances of emotional support,[42, 43] while others did not directly measure social support, but based their study on the fact that they were offering peer support services.[44-46] Finally, three studies investigated the impact of peer

support, not based on the response of supportees, but based on the experience of supporters.[47-49]

Measurement of mental health

The assessed mental health outcomes also varied, with some studies measuring a single outcome and others investigating several. While some of the included studies investigated the alleviation of negative psychological states, other studies researched the effects of peer support on positive psychological outcomes. Specifically, studies measured depression/depressive symptoms (n = 8), anxiety (n = 6), stress (n = 3), negative affect (n = 1), loneliness (n = 1), and internalized homonegativity (n = 1). One study measured various specific mental health problems including obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, and hostility, in addition to depression and anxiety.[50] As for positive psychological outcomes, although less common, some studies measured emotional and/or general well-being (n = 3), self-esteem (n = 2), mental health (n = 1), happiness (n = 1), flourishing (social, emotional, psychological; n = 1), belonging (n = 1), coping (n = 1), and positive affect (n = 1).

Delivery of peer support and characteristics of supporters

Eleven of the included studies investigated peer support delivered individually and in-person,[42, 43, 46, 48, 50-56]. Two studies investigated in-person group peer support,[44, 45] two studies investigated individual online peer support,[41, 47] and one looked at helplines for individual peer support.[49] Finally, a single study qualitatively investigated the importance and significance of peer support in a university setting.[40]

The roles of individuals providing peer support also varied greatly, with some studies including multiple different types of supporters. These roles included friends (n = 8), significant

others (n = 3), other university students (n = 4), volunteer peer supporters (n = 2), mentors (n = 2), and therapists-in-training/healing practitioners acting as peer supporters (n = 1).

All individuals providing peer-support services in a group context or through helplines were trained.[44, 45, 49] These individuals were less likely to be friends or family members and were more likely to be volunteer peer supporters or therapists-in-training. The studies investigating online peer support had both trained and untrained supporters, although untrained supporters nevertheless had previous knowledge of additional resources for students experiencing depression.[41, 47]

Effects of peer support on supportee mental health

Individual Peer Support

A total of nine studies investigated the impact of individual peer support on the mental health of young adults. Overall, peer support was found to lead to various mental health benefits for supportees including statistically significant increases in happiness,[48] self-esteem,[52] problem- and emotion-focused coping strategies,[56] as well as significant reductions in loneliness,[48] depression,[50-52] and anxiety.[50] Moreover, qualitative analyses identified benefits of peer support such as a majority of students (77%) experiencing a sense of relief from their anxieties about dental school,[46] nursing students experiencing decreases in anxiety regarding first experiences in hospital,[55] and general improvements in university student mental health and well-being.[40]

One study noted no significant effect of peer support in reducing depressive symptoms.[41] This study investigated the effect of an online peer support intervention for students by untrained supporters. Although a numerical decrease in depressive symptoms was present when the baseline to post-intervention scores were compared (mean CES-D scores from

37.0 to 33.5), this difference was statistically non-significant ($p = 0.13$). Overall, these studies suggest that individual peer support is generally associated with improvements in mental health, related to increases in happiness, self-esteem, and effective coping, and decreases in depression, loneliness, and anxiety.

A total of three articles investigated the role of individual peer support on the mental health of specific minority groups including marginalized Latino undergraduates,[53] lesbian, gay and bisexual (LGB) young adults,[54] and sexual minority men.[43] In the study investigating peer support among Latino students, Llamas and Ramos-Sánchez [53] found that perceptions of support from peers significantly decreased the association between intragroup marginalization and college adjustment, whereby intragroup marginalization was no longer a significant predictor of college adjustment when social support was present. Specific to LGB young adults, greater peer support was associated with reductions in depression and internalized homophobia. It was also a significant moderator in the relationship between family attitudes and anxiety, as well as family victimization and depression.[54] In other words, peer support buffered against the mental health consequences of negative family attitudes and family victimization. Finally, Gibbs and Rice [43] qualitatively identified factors associated with depression in sexual minority men. Of note, greater connections within the gay community and the increased availability of emotional support was associated with decreases in depressive symptoms. Overall, peer support appears to be beneficial for ethnic and sexual minorities, with noted improvements in college adjustment and decreases in anxiety and depression.

Group Peer Support

Two studies investigated the effect of group peer support on mental health.[44, 45] Both studies had predominantly female samples (70% and 77%, respectively) and featured trained

peer supporters. Byrom [44] identified that individuals with lower initial mental wellbeing participated in the peer support program for longer and had greater increases in mental wellbeing from beginning to end of the program. Specifically, attending a greater number of sessions led to greater improvements in wellbeing from baseline to follow-up six weeks later, while also increasing a supportee's knowledge of mental health and ability to take care of their own mental health. Similarly, the study by Hughes and colleagues [45] found that young adults in outpatient care for psychological distress experienced decreases in severity of both depressive and anxious symptoms following peer support group; this improvement was maintained for up to two-months post-treatment. Overall, group peer support appears to have a positive impact on increasing wellbeing and reducing symptoms of depression and anxiety.

Effect of peer support on supporter mental health

Four studies investigated the effect of peer support on the individuals providing the support. Two of these studies had untrained, in-person, individual peer supporters providing both emotional and instrumental support. These studies evaluated whether providing these types of support led to improvements in either affect or wellbeing.[42, 48] The first, by Armstrong-Carter and colleagues [42] noted that providing instrumental support to a friend resulted in greater positive affect that same day and across multiple days if they continued providing this support. However, over extended periods of providing instrumental support, negative affect also increased, with this association being significantly moderated by gender (i.e., negative affect was present for men but not for women). The second study by Morelli and colleagues [48] identified that emotional support had the greatest effect in decreasing loneliness, stress, anxiety and increasing happiness.

The remaining two studies investigated peer support provided by trained supporters either online [47] or through helplines.[49] Investigating the coping styles of peer supporters, Johnson and Riley [47] found that following the peer support training, peer supporters reported a decrease in avoidance-based coping and an increased sense of belonging. Pereira and colleagues [49] focused more on the effects of working for the helpline and noted that the two most stressful aspects of the work reported by peer supporters were waiting for calls and receiving calls concerning more serious topics (e.g., suicidality). They noted that having a colleague provide support was a helpful way to cope with resulting distress. Overall, providing peer support appears to be beneficial to supporters although some aspects of the work appears to be distressing to some supporters.

DISCUSSION

The purpose of this scoping review was to synthesize evidence describing and evaluating the impact of peer support on the mental health of young adults. According to published literature, peer support among young adults is being evaluated as delivered predominantly via in-person modality, though several studies investigated group peer support and other modalities of delivery (i.e., over the Internet or phone). The majority of studied peer support was provided by friends or significant others, although school peers and volunteer peer supporters were also represented in the included studies. Trained peer supporters were overrepresented in the studies that investigated group-based, Internet-based, and telephone-based support compared to individual in-person peer support. Overall, these results indicate that there are multiple ways that peer support interventions could be delivered with positive results across modalities.

This scoping review represents an initial attempt at determining the breadth of the available literature on the effectiveness of peer support in addressing the mental health concerns

of young adults. An initial review of the evidence by Davison and colleagues [24] indicated that peer support groups may improve symptoms of severe mental illness, enhance quality of life, and promote larger social networks. More recently, John and colleagues [25] conducted a systematic review of the literature specific to university students and they identified three studies with mixed findings related to mental wellbeing. The present review represents an updated summary and synthesis of the peer support literature as it relates to young adults irrespective of university status, which captures a broad array of mental health outcomes. Overall, results from the reviewed studies indicate that peer support has predominantly positive effects on mental health outcomes of young adults including depressive symptoms, anxious symptoms, psychological distress and self-esteem. Notwithstanding these results, there remains a paucity of controlled and prospective studies investigating the impact of peer support.

Overall, peer support is an accessible, affordable and easy-to-implement mental health resource that has beneficial effects across populations. [57] The long wait times and numerous barriers to accessing professional mental health services highlight the importance of more accessible and less stigmatized mental health services. As highlighted by the studies included within the present review, peer support can be effective in improving the depressive symptoms, stress and anxiety that young adults can experience. The results of this review suggest that peer support may represent a valuable intervention for improving mental health outcomes among young adults; specifically, among those attending college or university. Based on the results of the present review, it is recommended that future research investigate the feasibility and cost-effectiveness of formalized peer support services on improving the mental wellbeing of young adults.

To our knowledge, this is the first scoping review examining the impact of peer support on the mental health of young adults beyond university students. Strengths of the present review include that rigorous search criteria were utilized to initially captures over 12,000 articles from multiple databases and grey literature. Moreover, all articles were screened and extracted by multiple reviewers. However, results of the present review are limited by significant methodological heterogeneity between included studies. For instance, several studies utilized a qualitative approach to measuring the benefit of peer support, and other studies utilized quantitative approaches with different peer support and mental health measurements being used across studies. Furthermore, peer supporters varied in their background and whether or not they had received peer-support related training. These variations highlight the need for greater consistency in what comprises peer-support within the research literature. Additionally, there was a lack of standardization in the recruitment procedures for the participants within the included studies. As such, a number of unmeasured confounding variables could have been relevant to the changes in mental health detected within the studies, such as accessing other mental health services or the use of medications for various mental health conditions. Future research utilizing more thorough screening procedures and randomization procedures are recommended to substantiate the results of the available literature. Although 17 studies were examined in this scoping review, only two studies provided longitudinal evidence investigating the direct effect of peer support on mental health outcomes among young adults. Future research should assess the impact of peer support on the mental health of young adults through randomized prospective trials. Additionally, there is a need to investigate the potential long-term effects of peer support on mental health outcomes, as well as the potential benefits of peer supporters themselves having access to relevant services.

Limitations should also be noted specific to the scoping review methodology. First, the risk of bias of the included papers was not assessed. Second, only peer-reviewed journal articles were included within the present review, with it being possible that additional commentaries, essays, or program evaluation reports have been written on this subject area. This was done in order to ensure a minimal level of scientific rigor within the included articles. Third, clear inclusion and exclusion criteria were established to limit the number of included studies, with the current review not investigating the impact of peer support among those under the age of 18 and those over the age of 25. Additional reviews are required to synthesize the results specific to the impact of peer support on the mental health of children and older adults. Fourth, only studies with the specified mental health outcomes were included and other available literature investigating the benefits of peer support at the level of physical health and social/relational wellbeing were excluded. Although limiting the scope of the review, this was a predetermined decision to increase the specificity of included scientific articles.

In conclusion, this scoping review highlights the potential benefits of peer support in terms of improving the mental health outcomes of young adults. Importantly, in the included studies, peer support was provided by a wide variety of individuals, ranging from friends and significant others to trained peer supporters. This shows that peer support is being utilized informally in both everyday conversations and in formalized structured settings, pointing to the multitude of existing definitions of this term. From the reviewed studies, peer support has been shown to have largely positive effects on mental health outcomes of young adults as it relates to depressive symptoms, anxious symptoms, psychological distress, and self-esteem. In order to bolster the present evidence base, future studies should focus on examining the impact of peer support on the mental health of young adults through prospective randomized studies.

Acknowledgements

Author contributions: Jérémie Richard: Conceptualization, Methodology, Literature search, Literature screening, Writing – Original Draft, Writing - Review & Editing, Supervision, Project administration. **Reid Rebinsky:** Conceptualization, Methodology, Literature search, Literature screening, Supervision, Project administration, Funding acquisition. **Rahul Suresh:** Writing – Original Draft, Writing - Review & Editing. **Serena Kubic:** Literature screening, Data extraction. **Adam Carter:** Literature screening, Data extraction. **Jasmyn Cunningham:** Literature screening, Data extraction, Writing - Review & Editing. **Amy Ker:** Literature screening. **Kayla Williams:** Literature screening. **Mark Sorin:** Literature screening, Data extraction, Writing – Original Draft, Writing - Review & Editing, Supervision, Funding acquisition.

Funding sources: Funding was provided for assistance with the costs of open-access publication by the Mary H Brown Fund offered by McGill University (award number N/A). No funding agencies had input into the content of this manuscript.

Conflicts of interest: The authors declare no conflicts of interest.

Patent consent for publication: Not applicable.

Ethics approval: This study does not involve human participants.

Data availability statement: Data are available upon reasonable request. All data relevant to the study are included in the article or uploaded as supplementary information. Extra data are available by emailing the corresponding author (jeremie.richard@mail.mcgill.ca).

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Figure legend

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

FIGURES

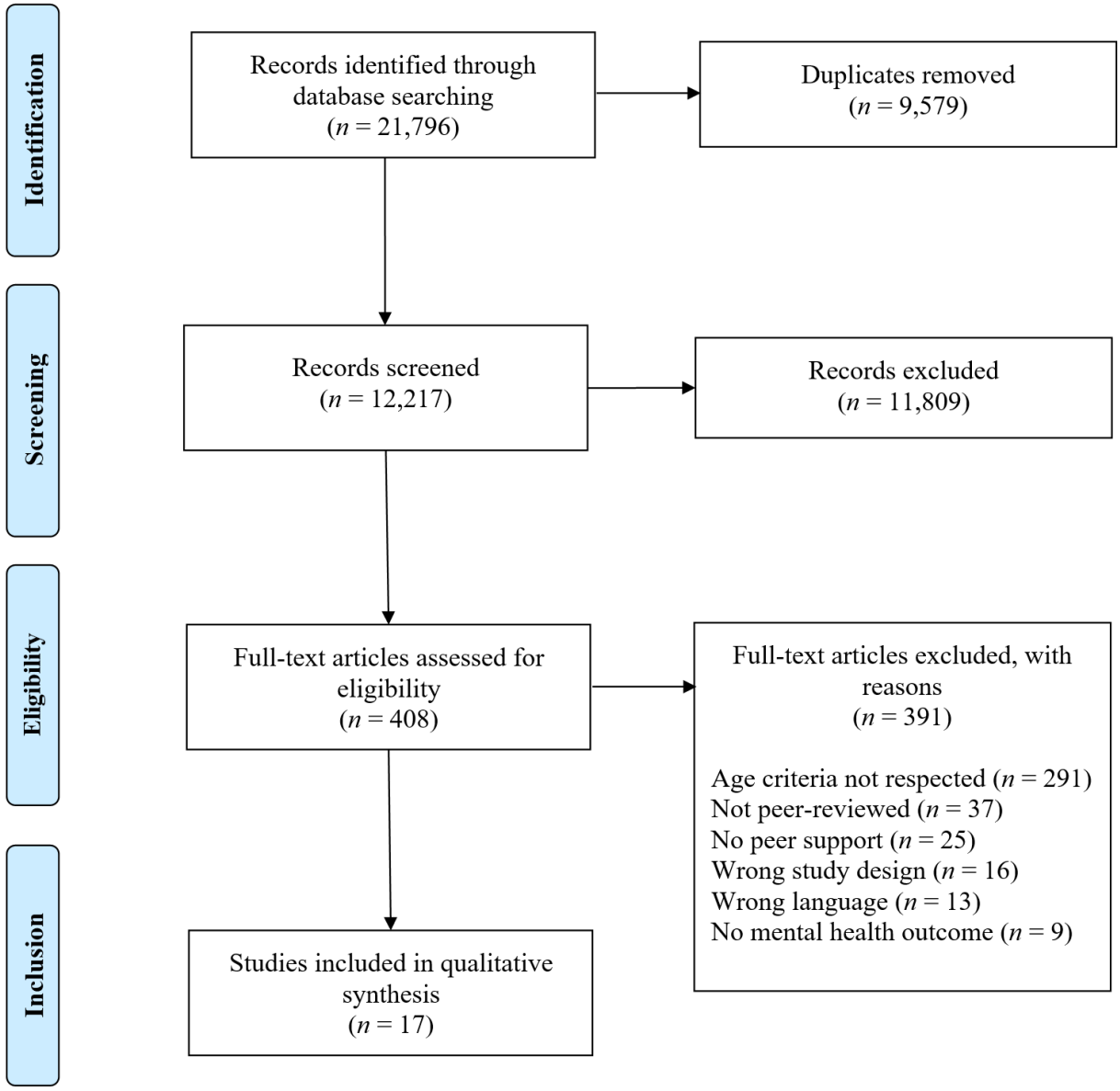

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

Appendix I

Summary of studies investigating the effect of peer support on the mental health of young adults

Author	Study type	Objective	Method of providing peer support (PS); how PS was measured	Participant characteristics	Mental health outcome and instrument	Findings
Armstrong-Carter et *al.* [42]	Cohort	To determine if providing instrumental and emotional support to friends and roommates during the first year of college is associated with positive or negative affect.	Individual PS provided by untrained friends and/or college roommates; Instrumental and emotional support: Checklist of perceived daily helping behaviour	First-year college students living in university housing with a roommate; n = 411 Male = 34% Female = 66% M_{age} = 18.62 years (SD = 0.37)	Daily emotional well-being including positive and negative affect: Profile of Mood States.	Providing greater instrumental support to a friend resulted in greater levels of positive affect over and above the previous day ($p < 0.05$). There were no other significant direct associations between daily helping behaviours and positive or negative affect. Young adults who provided more instrumental support to a friend on average across days experienced more positive affect ($p < 0.01$) compared to young adults who provided less instrumental support. Young adults who provided more instrumental support to a roommate on average across days experienced more negative affect ($p < 0.001$) compared to young adults who provided less instrumental support. The daily association between the provision of instrumental support to friends and negative affect was significantly moderated by gender ($p < 0.01$); providing instrumental support to a friend was associated with greater negative affect for young men but not young women. The interactions between empathy and provision of support were not significant.
Byrom et *al.* [44]	Cohort	To understand who attends peer support groups via self-referral and what the effects of peer support are on wellbeing.	Group PS provided by trained volunteers (with or without lived experience of depression); N/A	University students attending the peer support programme regardless of current mental health; n = 65 Male = 22% Female = 70% Other = 8% M_{age} = 20.4 years (SD = 2.72)	Mental well-being: Warwick-Edinburgh Mental Well-being Scale.	Students with lower levels of mental wellbeing were more likely to complete the course. By the second measurement period, there was a significant increase in mental wellbeing ($p < 0.01$), from an average of 17.94 (SD = 2.21) at the start of the programme to 19.71 (SD = 3.92). For those completing the whole programme (third measurement), there was a linear trend in improvement in mental wellbeing across the course. A repeated measures ANOVA showed a significant effect of session number on mental wellbeing ($p < 0.01$) with a significant increase in mental wellbeing between Time 1 and Time 2 ($p < 0.01$) and a smaller, non-significant increase in mental wellbeing between Time 2 and Time 3 ($p = 0.092$). Overall, 69% felt the session improved their ability to take care of their own mental health and 54% felt the session improved their knowledge of mental health.
Duncan et *al.* [51]	Cross-sectional	To determine whether higher levels of social leisure engagement are associated with lower levels of depressive symptoms and to assess whether this relationship is	Individual PS provided by untrained friends; Perceived peer support: friend subscale of the Multidimensional Scale of Perceived Social Support.	University students; n = 270 Male = 12.6% Female = 87.4% Age range: 18-25 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Social leisure engagement, peer support, depressive symptoms and gender were generally moderately and significantly correlated (ranging from r = .27-.30) indicating related but distinct constructs. There was a significant negative association between peer support and depressive symptomology ($p < 0.01$). Those who reported higher levels of social leisure engagement reported lower perceptions of depressive symptoms indirectly through increased peer support. Higher levels of social leisure engagement were significantly related to higher levels of peer support ($p <$ .001), and higher levels of peer support were significantly

		mediated by perceived peer support.				associated to lower levels of depressive symptomology (p < .001). The direct path remained significant (p < .001). The model accounted for 7% of the variance in peer support and 14% of the variance in depressive symptomology. The Sobel test was significant (p < .01) meaning the relationship between social leisure engagement and depressive symptomology was indirectly linked through peer support.
Gibbs et *al.* [43]	Cross-sectional	To assess which levels of social context are most influential on the depression symptoms of sexual minority male youth.	Individual PS provided by untrained individuals most important to the participant (e.g., friends, co-workers); Perceived support/emotional support	Sexual minority male youth (SMMY), including men who identify as a sexual minority (i.e., homosexual, bisexual and queer) and those who do not (e.g., heterosexual, questioning) using *Grindr* in West Hollywood; n = 195 Males = 100% M_{age} = 22.25 years (SD = 1.63) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, participants had moderately supportive networks, with 61% providing emotional support and 52% providing instrumental support. In the regression model, four variables were found to be significantly associated with depressive symptoms when accounting for all other included social context factors: lifetime experiences of homophobia (p < 0.001), enacted gay community connection (p = 0.047), the presence of an objecting alter (p = 0.009), and greater network emotional support (p = 0.034).
Horgan et *al.* [41]	Mixed methods	To determine if an online peer support intervention for students will help decrease depressive symptoms.	PS delivered via an online forum in which untrained students provide PS to each other; Qualitative analysis of forum posts including themes of peer support.	University students experiencing depressive symptoms n = 118 Male = 64.4%, Female = 35.6% M_{age} = 20.6 years (SD = 1.8) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, the median CES-D score was 37 at baseline and 33.5 at post-intervention (p = 0.133). Various themes emerged from forum posts including symptoms of depression and loneliness during college life, benefits of the website/sharing and identifying with others, advice giving and receiving emotional and informational support, and increased pressure of third level education/'academic crisis'.
Hughes et *al.* [45]	Non-randomized comparison between groups	To evaluate biopsychosocial services for young adults experiencing psychological distress and compare it to usual	Group PS provided by trained, therapists-in-training and healing practitioners in the community who aligned philosophically with the program model; some also worked as professional therapists	Young adults with moderate-to-severe symptoms of depression and/or anxiety n = 26 Male = 23%	Depression and anxiety: Symptoms Checklist-90-Revised (SCL-90-R) depression and anxiety subscales and global severity index (GSI).	A significant time by group interaction term was found for each primary outcome variable: depression (p = 0.003), anxiety (p = 0.031), and global severity (p = 0.029) indicating that change over time in all mood variables was significantly different between the program and comparison groups. By two-month follow up, program participants showed a clinically meaningful improvement in mood. Program participants demonstrated continued improvement in depression (p = 0.03) and anxiety (p = 0.032) from

		outpatient psychiatric care.	and were instructed on ways to de-professionalize their role; N/A	Female = 77% Age range: 18-25 years		intervention endpoint to two-month follow-up. No sufficient evidence of change in depression or anxiety was found for the comparison group over the study period.
Jibeen et *al.* [50]	Cross-sectional	To evaluate how social support is associated with mental health problems among Pakistani university students, and to determine the type social support that is most strongly associated with mental health problems in	Individual PS provided by untrained friends and significant others; Perceived support: Multidimensional Scale of Perceived Social Support.	University students n = 912 Male = 60% Female = 40% M_{age} = 20.50 years (SD = 1.77) Age range: 19-26 years	Depression, anxiety, obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, hostility: Brief Symptom Inventory (BSI).	A weak negative correlation between friends' support and depression, anxiety, obsession-compulsion, and interpersonal sensitivity (correlations range from -.10 to -.16; obsession-compulsion was non-significant). In the univariate model, friends support was not a significant predictor of psychological problems. In the univariate model, support from significant others was a significant predictor ($p < 0.05$), with the effects in this model being significant only for depression ($p < 0.01$).
Johnson et *al.* [47]	Non-randomized comparison between groups	To examine the psychosocial effect of providing mental health peer support on college student peer support workers as compared to other trained student workers.	Individual PS provided by trained peer supporters consisting of volunteer students and/or volunteer emergency response medical service workers EMT; ERMS); Social support: 12-item Interpersonal Support Evaluation List.	Undergraduate students trained to provide mental health peer support and student workers not trained in providing peer support n = 75 Male = 19% Female = 81% Age range: 18 and over	Social, emotional, and psychological flourishing: Mental Health Continuum Short Form (MHC-SF). Coping (appraisal, challenge, avoidance, social); Deakin Coping Scale.	Peer supporters displayed significantly lower appraisal and challenge coping, as well as a trend toward higher avoidance scores than the control group. Peer supporters displayed trends toward lower total flourishing due to lower psychological and emotional flourishing than controls based on scores, but this was non-significant. Comparing in-group differences (post-training vs. post-working), peer supporters experienced a significant reduction in their reliance on avoidant coping over the course of their work, as well as a significant increase in their sense of belonging-type social support. Contrary to this, EMT recruits showed no significant differences when compared to the control group.
Li et *al.* [52]	Cross-sectional	To determine the relationship between parental support and peer support as predictors of depression and self-esteem among college students.	Individual PS provided by untrained peers; Support by peers: Inventory of Parent and Peer Attachment (IPPA)	College undergraduates from an urban, private university in the United States Midwest; n = 197 Male = 39% Female = 61% M_{age} = 18.38 years (SD = 0.66) Age range: 17-21 years	Depression: Beck Depression Inventory, Second Edition (BDI-II). Self-esteem: Rosenberg Self-Esteem Scale (RSES).	Significant relationships were noted between peer support and psychological adjustment ($p < 0.01$). There were no significant gender differences on measures of age or peer support. Depression and self-esteem were significantly negatively correlated with peer support.

Llamas et *al.* [53]	Cross-sectional	To determine whether perceived social support by friends mediates the role of intragroup marginalization on acculturative stress and college adjustment.	Individual PS provided by untrained friends; Perceived Social Support from Friends Measure (PSS-Fr)	Latino undergraduate college students n = 83 Male = 31.3% Female = 68.7% M_{age} = 19.39 years (SD = 1.30)	Acculturative stress: Revised Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale. College adjustment: The Student Adaptation to College Questionnaire.	The regression coefficient indicated that the association between intragroup marginalization and acculturative stress, in the presence of perceived social support, did decrease. However, the decrease was not significant; intragroup marginalization remained a significant predictor of acculturative stress ($p < .001$). For college adjustment, the regression coefficient indicated that the association between intragroup marginalization and college adjustment, in the presence of perceived social support, did significantly decrease this relative association; intragroup marginalization was no longer a significant predictor of college adjustment ($p < .01$).
Lopez et *al.* [46]	Cohort	To evaluate a peer mentoring program at a dental school in the United States Midwest and determine student perceptions of its benefits.	Individual PS provided by untrained mentors. N/A	University dental students (D1-D4); n = 256 Male = 45% Female = 51% Other = 4% Five age categories reported, with 51.6% of the sample being between the age of 20 and 25.	Relief from anxieties about dental school: Questionnaire responses	Overall, having a dental school mentor allowed students to experience relief from their anxieties about dental school (53% of individuals aged 21 to 25 agreed), with females (55%) agreeing more than males (45%; $p \leq .05$). Having a mentor helped them feel more confident about being in medical school (54% of individuals aged 21 to 25 agreed).
McBeath et *al.* [40]	Qualitative	To explore the relationship between peer support and sense of belonging on the mental health and overall well-being of students in a work-integrated learning (WIL) program to those in a traditional non-WIL program.	Individual PS provided by the untrained social circle of an individual; Interview responses (coded for perceived support).	Participants at a large Canadian university offering both WIL and non-WIL programs (i.e. co-op); n = 25 Male = 44% Female = 56% Age range: 18-24 years	Mental health, sense of belonging, well-being: identification of related themes from qualitative interview.	Peer support and sense of belonging were protective factors for university student's mental health and well-being. A shared concept of sense of belonging emerged whereby both WIL and non-WIL students described it as a feeling of being accepted and recognized within the university community. This contributed to an elevated sense of acceptance, stronger engagement, and higher levels of motivation. A strong sense of belonging and access to high-quality peer support in the context of the school community were critical factors for student mental health and well-being and strengthened their confidence in school-to-work transitions after graduation.
Morelli et *al.* [48]	Cohort	To determine if emotional and instrumental support provision would interact to predict provider well-being.	Individual PS provided by untrained friends; Instrumental support (number of emotional disclosures heard by the provider and tangible assistance provided as measured by the Self-Report Altruism Scale).	Undergraduate students n = 98 Male = 51% Female = 49% M_{age} = 19.41 years (SD = NR)	Loneliness: UCLA loneliness scale. Perceived stress: Perceived Stress Scale. Daily Anxiety: four adjectives (i.e., anxious, stressed, upset, and scared). Daily Happiness: four items (i.e., happy, joyful, excited, and elated).	Provided emotional support moderated the effect of provided instrumental support on loneliness ($p = .06$), perceived stress ($p = .01$), anxiety ($p = .04$), and happiness ($p = .03$). Regarding happiness, those reporting higher levels of emotional support provision were happier as instrumental support provision increased ($p = .003$). Provided instrumental support predicted less stress ($p = .011$), anxiety ($p = .017$), and loneliness ($p = .001$) for people with high emotional support provision. Instrumental support provision did not relate to stress ($p = .94$), anxiety ($p = .85$), and

			Emotional support (empathy and emotional responsiveness to positive and negative events).			loneliness (p = .44) for providers with lower levels of emotional support provision. Previous day emotional support provision significantly predicted decreases in current day loneliness (p < .05). In addition, previous day emotional support provision showed a marginally significant negative relationship with current day perceived stress (p = .07). However, previous day emotional support provision did not have a significant relationship with current day happiness or current day anxiety. Receiving higher levels of instrumental support predicted less loneliness for those receiving high levels of emotional support (p = .001), whereas receiving instrumental support did not predict loneliness for those receiving low levels of emotional support (p = .13). Given the interaction, receiving higher levels of instrumental support predicted greater happiness for those receiving high emotional support (p < .001), whereas for those receiving low emotional support, receiving instrumental support predicted more modest increases in happiness (p = .047). Effects on perceived stress and anxiety were in a similar, though non-significant direction for those who received high and low levels of emotional support (p = .11).
Parra et *al.* [54]	Cross-sectional	To predict how perceived negative familial attitudes toward homosexuality, experiences of family victimization, and peer support are associated with anxiety, depression, internalized homonegativity and self-esteem	Individual PS provided by untrained friends; Perceived social support: Interpersonal relationship inventory	Lesbian and bisexual young men and women (in college or university) n = 62 Male = 56% Female = 43% Other = 1% M_{age} = 21.34 years (SD = 2.65)	Anxious symptoms: Beck Anxiety Inventory (BAI). Depressive symptoms: Beck Depression Inventory, Second Edition (BDI-II). Internalized homonegativity (IH): Nungesser Homosexual Attitudes Inventory Revised. Self-esteem: Rosenberg Self-Esteem Inventory.	English-speaking participants reported greater depression, lower self-esteem, and lower peer social support than French-speaking participants (p < .05). Participants who reported greater peer social support also reported less depression and IH. Peer support moderated the link between family attitudes and anxiety and between family victimization and depression. More negative family attitudes significantly predicted greater anxious symptoms, but only when LGB emerging adults reported low peer social support (p < .05). There was no association between family attitudes toward homosexuality and anxiety symptoms when peer support was higher (p > .05). Greater family victimization significantly predicted greater depression symptoms when LGB emerging adults reported low peer support (p < .001). There was no association between family victimization and depression when peer support was higher (p > .05).
Pereira et *al.* [49]	Mixed-methods (cross-sectional & qualitative)	To investigate the feelings, behavioural and support needs of students working at a student Nightline services.	A PS helpline in which PS is provided by trained students; Not measured, assessed peer supporters.	Students working on a nightline in the UK and Portugal n = 65 Male = 29% Female = 71% M_{age} = 20.97 years (SD = NR)	Emotions/feelings (including stress and anxiety) and coping strategies: questions developed by the authors	Peer supporters that were working reported a mixture of feelings, being anxious, apprehensive, yet eager for calls. When waiting for calls both groups reported being slightly nervous; the Portuguese students were significantly more hopeful and confident (2.81 compared to 1.48), while only the UK students said they were bored. The UK group did not find duties particularly stressful, present stressors could be reduced by talking about stressful calls, encouraging other peer supporters to come in and talk, and knowing their partner better. The Portuguese group, who had many fewer calls, were stressed by the lack of calls, and the other organizational duties put upon them. There was general agreement that calls were stressful and demanding. The most

						stressful were suicide calls, and for the UK sample, also sex-related calls; surprisingly manipulative/hoax calls were also consistently reported as being stressful. Common ways of coping were to talk about it and take deep breaths. When putting the phone down the most common response was to turn and talk to their partner, take a deep breath, and drink, eat or smoke; the Portuguese supporters tended to stand up, and unlike the English, hug/kiss their partner. Males rated themselves as more anxious during a call than females and were more likely to write or doodle at this time. After a call, females were more likely to take deep breaths, and smoke. They also reported being more relaxed at the end of a shift. These were the only gender differences found and in each case were statistically significant ($p < 0.05$).
Sprengel et *al.* [55]	Cohort	To evaluate the value of peer mentoring for nursing students early in the curriculum	Individual PS provided by untrained mentors (second-year students); Peer mentoring: The Clinical Experience Evaluation Forms.	Freshman and sophomore nursing students; n = 30 Sex note reported. Age range: 18-20+ years	Anxiety-provoking situations: The Clinical Experience Evaluation Forms.	Short-term benefits for both groups of students include verbalizing less anxiety, less confusion, and a more positive environment for learning to occur. Peer mentoring encourages greater student responsibility and promotes active learning. Sophomores lacking assertiveness, confidence, or with less knowledge, were found to be poor mentors. Freshmen were more likely to report that working with a sophomore student helped boost my self-confidence and sophomores reported that assisted to help lessen the freshmen student's anxiety today.
Talebi et *al.* [56]	Cross-sectional	To assess psychosocial factors that contribute to the perceived stigma of seeking help for mental health problems among students as they transition into university.	Individual PS provided by untrained friends and partners; Perceived social support: Social Provisions Scale	First year university students at Carleton University in Ottawa, Ontario; n = 328 Male = 30% Female = 70% M_{age} = 18.79 years (SD = 1.74)	Depressive symptoms: Beck Depression Inventory (BDI). Coping: Survey of Coping Profiles Endorsed (SCOPE).	Greater depressive symptoms were associated with lower perceptions of support and more unsupportive interactions with peers. Diminished social support resources appeared to have consequences for how individuals coped with distress, in those perceptions of greater peer support were related to endorsement of more problem-focused coping strategies, and those who experienced more unsupportive responses from their peers were less likely to endorse problem-focused coping and more likely to engage in emotion-focused coping efforts.

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4-5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5-6
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	6
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6-8
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6-9
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	7
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	8
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	8-9
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7-8
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	8-9
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	9
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	9-11
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	11-14; Appendix I
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	11-14; Appendix I
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	14-17
Limitations	20	Discuss the limitations of the scoping review process.	16-17
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	17
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	18

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

BMJ Open

Scoping review to evaluate the effects of peer support on the mental health of young adults

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-061336.R1
Article Type:	Original research
Date Submitted by the Author:	27-May-2022
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Primary Subject Heading:	Mental health
Secondary Subject Heading:	Evidence based practice
Keywords:	Depression & mood disorders < PSYCHIATRY, MENTAL HEALTH, Child & adolescent psychiatry < PSYCHIATRY, Adult psychiatry < PSYCHIATRY

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Journal: BMJ Open – Original Article/Review

Title: Scoping review to evaluate the effects of peer support on the mental health of young adults

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Word Count: Original: 3805 words; Revised version: 4318 words

Keywords: depression; mental health; peer support; university students; well-being; young adult

ABSTRACT

Objectives: Young adults report disproportionally greater mental health problems compared to the rest of the population with numerous barriers preventing them from seeking help. Peer support, defined as a form of social-emotional support offered by an individual with a shared lived experience, has been reported as being effective in improving a variety of mental health outcomes in differing populations. The objective of this scoping review is to provide an overview of the literature investigating the impact of peer support on the mental health of young adults.

Design: A scoping review methodology was utilized to identify relevant peer-reviewed articles in accordance with PRISMA guidelines across six databases and a search of the grey literature. Overall, 17 eligible studies met the inclusion criteria and were included in the review.

Results: Overall, studies suggest that peer support is associated with improvements in mental health including greater happiness, self-esteem, and effective coping, and reductions in depression, loneliness, and anxiety. This effect appears to be present among university students, non-student young adults and ethnic/sexual minorities. Both individual and group peer support appear to be beneficial for mental health with positive effects also being present for those providing the support.

Conclusions: Peer support appears to be a promising avenue towards improving the mental health of young adults, with lower barriers to accessing these services when compared to traditional mental health services. The importance of training peer supporters and the differential impact of peer support based on the method of delivery should be investigated in future research.

Strengths and limitations of this study

- Literature from six electronic databases and grey literature sources were screened to comprehensively describe the literature.
- Inclusion criteria were developed based on clear definitions of peer support, mental health, and young adulthood.
- Only published peer-reviewed research articles in English or French were included.
- Inconsistencies in the ways peer support and mental health were measured make it difficult to synthesize results across studies.

BACKGROUND

Young adults, aged 18 to 25, are disproportionality affected by mental health disorders when compared to the rest of the population.[1] The transition to university often coincides with young adulthood and a peak of mental illness onset due to decreased support from family and friends, increased financial burden, loneliness, and intense study periods.[2-4] Psychological and emotional problems in university students have been on the rise, both in frequency and severity.[5-7] In fact, psychological distress has been reported as being significantly higher among university students.[8-11] For instance, the WHO World Mental Health Surveys International College Student Project surveyed 13,984 undergraduate freshman students across eight countries and found that one-third of students had an anxiety, mood, or substance disorder.[12] Moreover, university students face a host of academic, interpersonal, financial, and cultural challenges.[10, 13-15] Due to the chronic nature of mental health issues, poor mental health in university students has the potential to result in significant future economic consequences on society. This is both at an indirect level in terms of absenteeism, productivity loss and under-performance, as well as at a direct level in terms of the need for hospital care, medication, social services, and income support.[16] Additionally, depression, substance use disorder and psychosis are the most important psychiatric risk factors for suicide.[17] The high prevalence of psychological distress indicates the importance of developing and establishing programs that address such problems.[13]

Previous research indicates that between 45% and 65% of university students experiencing mental health problems do not seek professional help.[10, 18, 19] Barriers to mental health help-seeking among university students include denial, embarrassment, lack of time and stigma.[20, 21] As a result, university students often choose informal support from

family and friends, or other resources, such as self-help books and online sites.[22] In addition, when students do reach out to counseling services, long wait lists (typically ranging from four to six weeks) are frequently listed as an obstacle for receiving help.[22] These attitudes and the barriers associated with help seeking behaviors must be addressed when providing supportive services.

Currently, universities are more challenged than ever when it comes to providing cost-effective and accessible services that meet the broad range of concerns faced by their student population. Beyond counselling and psychiatric services, an emerging resource for help-seeking young adults is peer support. Peer support, in the context of mental health, has previously been defined as a form of social emotional support offered by an individual who shares a previously lived experience with someone suffering from a mental health condition in an environment of respect and shared responsibility.[23] Various forms of peer support exist; they can be classified based on the setting in which peer support is provided (e.g., hospital, school, online), the training of the individual offering the service (e.g., prior training in active listening/supportive interventions, no previous training), shared characteristic or past experience(s) between the supporter or person receiving support, and/or the administration overseeing the service.[23] Furthermore, peer support has been identified as having the potential to serve individuals, for example ethnic and sexual minorities, who are in need of mental health services yet feel alienated from the traditional mental health system.[29]

Reviews of the outcomes of peer support interventions for individuals with severe mental illness have generally come to positive conclusions, yet results are still tentative given the infancy of this research area.[24-27] Beyond the effects to those receiving support, there are also promising findings related to the benefits of providing peer support.[30, 31] Some of the positive

reported outcomes reported include improvements in self-esteem, self-efficacy, self-management, and in the recovery from addiction or bereavement.[28, 32, 33] Nevertheless, findings are mixed when it comes to the effects of peer support. In a systematic review investigating the role of online peer support (i.e., Internet support groups, chat rooms) on the mental health of adolescents and young adults, only two of the four randomized trials reported improvements in mental health symptoms, with the two other studies included in the review showing a non-statistically significant decrease in symptoms.[34]

Overall, these results indicate the need for reviews that are broader in scope which can nuance the effects of different forms of peer support (e.g., online vs. in-person; individual vs. group) on specific mental health outcomes among young adults. Moreover, as a number of challenges are present in the evaluation of peer support services (e.g., difficulties with random assignment, varied roles of peer supporters, differences in training and supervision),it is critical to evaluate the state of the peer-reviewed research evidence as it relates to these variables.[35] As such, the primary aim of this review was to synthesize the available peer-reviewed literature regarding the relationship between peer support and mental health among young adults. The following research questions were established for this scoping review (i) How is peer support being delivered to young adults?; and (ii) What is the effect of peer support on the mental health of young adults?

METHODS

Patient and public involvement

This study is a scoping review based on study-level data and no patients were involved in the study.

Search strategy

A scoping review is a systematic approach to mapping the literature on a given topic. The aims of scoping reviews generally include determining the breadth of available literature and identifying gaps in the research field of interest. An iterative approach was taken to develop the research questions for the present scoping review, which included identifying relevant literature, such as reviews and editorials, and having discussions with stakeholders who have firsthand experience with university peer support centres. The present scoping review is congruent with the recommended six-step methodology as outlined by Arksey and O'Malley [36] and follow the PRISMA extension for scoping reviews (PRISMA-ScR).

To methodically search for peer-reviewed literature addressing these research questions, a broad search strategy was developed and employed across several databases. In January 2021, the following databases were searched for studies published up to the end of December 2020: Medline, EMBASE, PsycInfo, Web of Science, CINAHL, and SocIndex. The search terms used were centred around three principal topics: peer support, mental health, and young/emerging adulthood. An example of the search strategy is provided in Table 1. Previous literature reviews on related topics, as well as discussions with research librarians were utilized to help inform these terms. Additionally, a grey literature search was conducted in January 2021 and included the top 50 results from Google and Google Scholar. All articles were imported to EndNote and were uploaded to the Covidence Systematic Review Software for removal of duplicates.

Table 1

Keywords for database searches

Grouping terms	Keywords

Table 1

Keywords for database searches

Peer Support	("peer support" OR "online peer support" OR "peer to peer" OR "peer counsel*" OR "peer mentor*" OR "support group*" OR "emotional support" OR "psychological support" OR "help seeking" OR "peer support cent*" OR "peer communication" OR "social support") AND
Mental Health	("mental health" OR "college mental health" OR "university mental health" OR "student mental health" OR "emotional well*being" OR "psychological well*being" OR "social isolation" OR loneliness OR stress OR "psychological distress" OR "psychological stress" OR "academic stress" OR depression OR "depressive symptoms" OR anxiety OR "anxious symptoms" OR suicide* OR grief OR "psychological resilience") AND
Young/emerging adulthood	("young adulthood" OR "emerging adulthood")

Inclusion and exclusion criteria

Eligibility for study inclusion in the present review was based on the following criteria: original peer-reviewed articles published in English or French; participants or specified groups of participants within a study aged 18 to 25 (if range not reported, the mean age had to fall between 18 to 25, with a standard deviation ± 1.75); measured or assessed the provision of peer support (defined as social or emotional support that is provided by people sharing similar experiences to bring about a desired emotional or psychological change) or peer mentoring; assessed a mental health outcome (i.e., mental health, depression, anxiety, mood, suicidality, loneliness/social isolation, grief, psychological or academic stress, psychological, emotional wellbeing, self-esteem, resilience and psychological or emotional coping); and described a relationship between peer support and the mental health outcome of either the supporters (i.e. individuals providing peer support) or supportees (i.e., individuals receiving peer support). No limitations were included specific to geographic location of the study.

Studies were excluded if they were: literature reviews, study protocols, dissertations, case reports, or presentations/conference abstracts; assessed social support more generally or as provided by non-peers (e.g., family members, mental health care providers); assessed other forms of peer communication that were not defined as peer support; or investigated the association between peer support and non-mental health outcomes (e.g., medical, social, or occupational variables).

Study selection

Screening of titles and abstracts was performed by two independent reviewers (JR, RR, JC, AC, KW, SK, AK, MS) using the described eligibility criteria using the Covidence Systematic Review Software. Subsequently, full text screening of remaining articles was also carried out by two independent reviewers (JR, RR, JC, AC, KW, SK, MS). At both stages, conflicts were reviewed and resolved by an independent third screener (JR, RR).

Data collection

Data collection and extraction from each included article was conducted independently by two reviewers (JC, AC, SK, MS) and consensus of extracted information was established. The following characteristics were extracted from each study: citation (including authors, title, and year of publication), study design, study objective(s), participant characteristics (e.g., gender, age), type and delivery method of peer support, mental health outcomes measured, and main findings. These extracted characteristics were identified based on previous systematic and scoping reviews investigating peer support and/or mental health outcomes. No risk of bias assessment was completed as the purpose of conducting a scoping review is to better understand the breadth of a topic of study rather than evaluate study quality. Appendix I presents a table with an overview of the included studies.

RESULTS

Cumulatively, 21,796 articles were identified from the data-base and grey literature searches. After duplicates were removed, 12,217 articles remained, and each title and abstract was reviewed. Of these, 408 passed on to full-text review, following which, 17 articles ultimately met criteria for inclusion. The overall search process and reasons for exclusion for the reviewed full-text articles are included in Figure 1. Geographically, studies were carried out in the United States (n = 10), Canada (n = 3), the United Kingdom (n = 3, with one study recruiting part of their sample from Portugal), and Pakistan (n = 1). Most samples included university students (n = 15), with the remaining studies including young adults from the general population (n = 2).

Measurement of peer support

Overall, there appears to be a significant degree of variation in the methodology utilized to measure peer support. The most common method was through the use of validated self-report measures for perceived support coming from friends or peers. However, these assessment tools varied widely and included the Multidimensional Scale of Perceived Social Support,[37] Perceived Social Support from Friends measure,[38] Inventory of Parent and Peer Attachment,[39] Interpersonal Relationship Inventory,[40] and the Social Provisions Scale.[41] Generally, these scales include items related to perceived social support (e.g., “I get the help and support I need from my friends.”; “I have friends with whom I can share my joys and sorrows.”; “When we discuss things, my friends care about my point of view.”; “Could you turn to your friends for advice if you were having a problem?”) with responses provided on Likert-type scales ranging from strongly disagree/never/no to strongly agree/always/yes.

One of the included studies coded interview responses for instances of perceived support [42] and another conducted a qualitative analysis of online forum posts including themes of

social support.[43] Other studies quantitatively measured instances of emotional support,[44, 45] while others did not directly measure social support, but based their study on the fact that they were offering peer support services.[46-48] Finally, three studies investigated the impact of peer support, not based on the response of supportees, but based on the experience of supporters.[31, 49, 50]

Measurement of mental health

The assessed mental health outcomes also varied, with some studies measuring a single outcome and others investigating several. While some of the included studies investigated the alleviation of negative psychological states, other studies researched the effects of peer support on positive psychological outcomes. Specifically, studies measured depression/depressive symptoms (n = 8), anxiety (n = 6), stress (n = 3), negative affect (n = 1), loneliness (n = 1), and internalized homonegativity (n = 1). One study measured various specific mental health problems including obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, and hostility, in addition to depression and anxiety.[51] As for positive psychological outcomes, although less common, some studies measured emotional and/or general well-being (n = 3), self-esteem (n = 2), mental health (n = 1), happiness (n = 1), flourishing (social, emotional, psychological; n = 1), belonging (n = 1), coping (n = 1), and positive affect (n = 1). Details regarding the instruments used to measure the mental health outcomes are provided in Appendix I.

Delivery of peer support and characteristics of supporters

Eleven of the included studies investigated peer support delivered individually and in-person,[44, 45, 48, 49, 51-57]. Two studies investigated in-person group peer support,[46, 47] two studies investigated individual online peer support,[31, 43] and one looked at helplines for

individual peer support.[50] Finally, a single study qualitatively investigated the importance and significance of peer support in a university setting.[42]

The roles of individuals providing peer support also varied greatly, with some studies including multiple different types of supporters. These roles included friends (n = 8), significant others (n = 3), other university students (n = 4), volunteer peer supporters (n = 2), mentors (n = 2), and therapists-in-training/healing practitioners acting as peer supporters (n = 1).

All individuals providing peer-support services in a group context or through helplines were trained.[46, 47, 50] These individuals were less likely to be friends or family members and were more likely to be volunteer peer supporters or therapists-in-training. The studies investigating online peer support had both trained and untrained supporters, although untrained supporters nevertheless had previous knowledge of additional resources for students experiencing depression.[31, 43]

Effects of peer support on supportee mental health

Individual Peer Support

A total of nine studies investigated the impact of individual peer support on the mental health of young adults. Overall, peer support was significantly associated with various mental health benefits for supportees, including increases in happiness (β = .38, p = .03),[49] self-esteem (r = .40, p < .01),[53] problem focused coping strategies (β = .17, p < .01),[57] as well as marginal reductions in loneliness (β = −.49, p = .06),[49] depression (r = -.12 to -.32, p <.05),[51-53] and anxiety (r = -.15, p <.01).[51] Moreover, qualitative analyses identified benefits of peer support such as a majority of students (77%) experiencing a sense of relief from their anxieties about dental school,[48] nursing students experiencing decreases in anxiety

regarding first experiences in hospital,[56] and general improvements in university student mental health and well-being.[42]

One study did not identify a statistically significant effect of peer support in reducing depressive symptoms.[43] This study investigated the effect of an online peer support intervention for students by untrained supporters. Although a numerical decrease in depressive symptoms was present when the baseline to post-intervention scores were compared (mean CES-D scores from 37.0 to 33.5), this difference did not meet the threshold of statistical significance ($p = 0.13$). Overall, these studies suggest that individual peer support is generally associated with improvements in mental health, related to increases in happiness, self-esteem, and effective coping, and decreases in depression, loneliness, and anxiety.

A total of three articles investigated the role of individual peer support on the mental health of specific minority groups including marginalized Latino undergraduates,[54] lesbian, gay and bisexual (LGB) young adults,[55] and sexual minority men.[45] In the study investigating peer support among Latino students, Llamas and Ramos-Sánchez [54] found that perceptions of support from peers significantly decreased the association between intragroup marginalization and college adjustment, whereby intragroup marginalization was no longer a significant predictor of college adjustment when social support was present ($\beta = –.17$, $p > .05$). Specific to LGB young adults, greater peer support was associated with reductions in depression ($r = -.28$, $p < .05$) and internalized homophobia ($r = -.30$, $p < .05$). It was also a significant moderator in the relationship between family attitudes and anxiety ($\beta = .26$), as well as family victimization and depression ($\beta = -.23$).[55] In other words, peer support buffered against the mental health consequences of negative family attitudes and family victimization. Finally, Gibbs and Rice [45] qualitatively identified factors associated with depression in sexual minority men.

Of note, greater connections within the gay community (b = -.01, p = .047) and the increased availability of emotional support (b = -.35, p = .03) was associated with decreases in depressive symptoms. Overall, peer support appears to be beneficial for ethnic and sexual minorities, with noted improvements in college adjustment and decreases in anxiety and depression.

Group Peer Support

Two studies investigated the effect of group peer support on mental health.[46, 47] Both studies had predominantly female samples (70% and 77%, respectively) and featured trained peer supporters. Byrom [46] identified that individuals with lower initial mental wellbeing participated in the peer support program for longer and had greater increases in mental wellbeing from beginning to end of the program (effect size of d = 0.66 from baseline to week 3, and d = 0.39 from week 3 to week 6). Specifically, attending a greater number of sessions was associated with greater improvements in wellbeing from baseline to follow-up six weeks later, while also increasing a supportee's knowledge of mental health and ability to take care of their own mental health. Similarly, the study by Hughes and colleagues [47] found that young adults in outpatient care for psychological distress experienced decreases in severity of both depressive (p = .03) and anxious (p = .03) symptoms following peer support group; this improvement was maintained for up to two-months post-treatment. Overall, group peer support appears to have a positive impact on increasing wellbeing and reducing symptoms of depression and anxiety.

Effect of peer support on supporter mental health

Four studies investigated the effect of peer support on the individuals providing the support. Two of these studies had untrained, in-person, individual peer supporters providing both emotional and instrumental support. These studies evaluated whether providing these types of support led to improvements in either affect or wellbeing.[44, 49] The first, by Armstrong-Carter

and colleagues [44] noted that providing instrumental support to a friend resulted in greater positive affect that same day and across multiple days ($r = .17$, $p < .001$) if they continued providing this support. However, over extended periods of providing instrumental support, negative affect also increased ($r = .07$, $p < .01$), with this association being significantly moderated by gender (i.e., negative affect was present for men but not for women). The second study by Morelli and colleagues [49] identified that emotional support had the greatest effect in decreasing loneliness ($\beta = -.32$, $p = .04$), stress ($\beta = -.27$, $p = .04$), with marginal effects for anxiety ($\beta = -.24$, $p = .07$) and increasing happiness ($\beta = .28$, $p = .05$).

The remaining two studies investigated peer support provided by trained supporters either online [31] or through helplines.[50] Investigating the coping styles of peer supporters, Johnson and Riley [31] found that following the peer support training, peer supporters reported a decrease in avoidance-based coping ($p = 0.02$) and an increased sense of belonging ($p = 0.04$). Pereira and colleagues [50] focused more on the effects of working for the helpline and noted that the two most stressful aspects of the work reported by peer supporters were waiting for calls and receiving calls concerning more serious topics (e.g., suicidality). They noted that having a colleague provide support was a helpful way to cope with resulting distress. Overall, providing peer support appears to be beneficial to supporters although some aspects of the work appears to be distressing to some supporters.

DISCUSSION

The purpose of this scoping review was to synthesize evidence describing and evaluating the impact of peer support on the mental health of young adults. According to published literature, peer support among young adults is being evaluated as delivered predominantly via in-person modality, though several studies investigated group peer support and other modalities of

delivery (i.e., over the Internet or phone). The majority of studied peer support was provided by friends or significant others, although school peers and volunteer peer supporters were also represented in the included studies. Trained peer supporters were overrepresented in the studies that investigated group-based, Internet-based, and telephone-based support compared to individual in-person peer support. Overall, these results indicate that there are multiple ways that peer support interventions could be delivered with positive results across modalities.

This scoping review represents an initial attempt at determining the breadth of the available literature on the effectiveness of peer support in addressing the mental health concerns of young adults. An initial review of the evidence by Davison and colleagues [24] indicated that peer support groups may improve symptoms of severe mental illness, enhance quality of life, and promote larger social networks. More recently, John and colleagues [25] conducted a systematic review of the literature specific to university students and they identified three studies with mixed findings related to mental wellbeing. The present review represents an updated summary and synthesis of the peer support literature as it relates to young adults irrespective of university status, which captures a broad array of mental health outcomes. Overall, results from the reviewed studies indicate that peer support has predominantly positive effects on mental health outcomes of young adults including depressive symptoms, anxious symptoms, psychological distress and self-esteem. Notwithstanding these results, there remains a paucity of controlled and prospective studies investigating the impact of peer support.

Peer support has been identified as an accessible, affordable and easy-to-implement mental health resource that has beneficial effects across populations.[58] The long wait times and numerous barriers to accessing professional mental health services highlight the importance of more accessible and less stigmatized mental health services. As highlighted by the studies

included within the present review, peer support can be effective in improving the depressive symptoms, stress and anxiety that young adults can experience. The results of this review suggest that peer support may represent a valuable intervention for improving mental health outcomes among young adults; specifically, among those attending college or university. Based on the results of the present review, it is recommended that future research investigate the feasibility and cost-effectiveness of formalized peer support services on improving the mental wellbeing of young adults.

To our knowledge, this is the first scoping review examining the impact of peer support on the mental health of young adults beyond university students. Strengths of the present review include that rigorous search criteria were utilized to initially captures over 12,000 articles from multiple databases and grey literature. Moreover, all articles were screened and extracted by multiple reviewers. However, results of the present review are limited by significant methodological heterogeneity between included studies. For instance, a majority of the included studies utilized quantitative approaches with different peer support and mental health measurements being used across studies, with other studies utilizing a qualitative approach to measuring the benefit of peer support. Moreover, studies investigating the effect of peer support on mental health through the use of statistical approaches are limited in that they do not fully consider individuals, their peculiarities, and unique characteristics, emphasizing the importance of qualitative research in this research domain. Furthermore, peer supporters varied in their background and whether or not they had received peer-support related training. These variations highlight the need for greater consistency in what comprises peer-support within the research literature. Additionally, there was a lack of standardization in the recruitment procedures for the participants within the included studies. As such, a number of unmeasured confounding variables

could have been relevant to the changes in mental health detected within the studies, such as accessing other mental health services or the use of medications for various mental health conditions. Future research utilizing more thorough screening procedures and randomization procedures are recommended to substantiate the results of the available literature. Although 17 studies were examined in this scoping review, only two studies provided longitudinal evidence investigating the direct effect of peer support on mental health outcomes among young adults. Future research should assess the impact of peer support on the mental health of young adults through randomized prospective trials. Additionally, there is a need to investigate the potential long-term effects of peer support on mental health outcomes, as well as the potential benefits of peer supporters themselves having access to relevant services.

Limitations should also be noted specific to the scoping review methodology. First, the risk of bias of the included papers was not assessed. Second, only peer-reviewed journal articles were included within the present review, with it being possible that additional commentaries, essays, or program evaluation reports have been written on this subject area. This was done in order to ensure a minimal level of scientific rigor within the included articles. Third, clear inclusion and exclusion criteria were established to limit the number of included studies, with the current review not investigating the impact of peer support among those under the age of 18 and those over the age of 25. Additional reviews are required to synthesize the results specific to the impact of peer support on the mental health of children and older adults. Fourth, only studies with the specified mental health outcomes were included and other available literature investigating the benefits of peer support at the level of physical health and social/relational wellbeing were excluded. Although limiting the scope of the review, this was a predetermined decision to increase the specificity of included scientific articles.

In conclusion, this scoping review highlights the potential benefits of peer support in terms of improving the mental health outcomes of young adults. Importantly, in the included studies, peer support was provided by a wide variety of individuals, ranging from friends and significant others to trained peer supporters. This shows that peer support is being utilized informally in both everyday conversations and in formalized structured settings, pointing to the multitude of existing definitions of this term. From the reviewed studies, peer support has been shown to have largely positive effects on mental health outcomes of young adults as it relates to depressive symptoms, anxious symptoms, psychological distress, and self-esteem. In order to bolster the present evidence base, future studies should focus on examining the impact of peer support on the mental health of young adults through prospective randomized studies.

Acknowledgements

Author contributions: Jérémie Richard: Conceptualization, Methodology, Literature search, Literature screening, Writing – Original Draft, Writing - Review & Editing, Supervision, Project administration. **Reid Rebinsky:** Conceptualization, Methodology, Literature search, Literature screening, Supervision, Project administration, Funding acquisition. **Rahul Suresh:** Writing – Original Draft, Writing - Review & Editing. **Serena Kubic:** Literature screening, Data extraction. **Adam Carter:** Literature screening, Data extraction. **Jasmyn Cunningham:** Literature screening, Data extraction, Writing - Review & Editing. **Amy Ker:** Literature screening. **Kayla Williams:** Literature screening. **Mark Sorin:** Literature screening, Data extraction, Writing – Original Draft, Writing - Review & Editing, Supervision, Funding acquisition.

Funding sources: Funding was provided for assistance with the costs of open-access publication by the Mary H Brown Fund offered by McGill University. No funding agencies had input into the content of this manuscript.

Conflicts of interest: The authors declare no conflicts of interest.

Patent consent for publication: Not applicable.

Ethics approval: This study does not involve human participants.

Data availability statement: Data are available upon reasonable request. All data relevant to the study are included in the article or uploaded as supplementary information. Extra data are available by emailing the corresponding author (jeremie.richard@mail.mcgill.ca).

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Figure legend

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

FIGURES

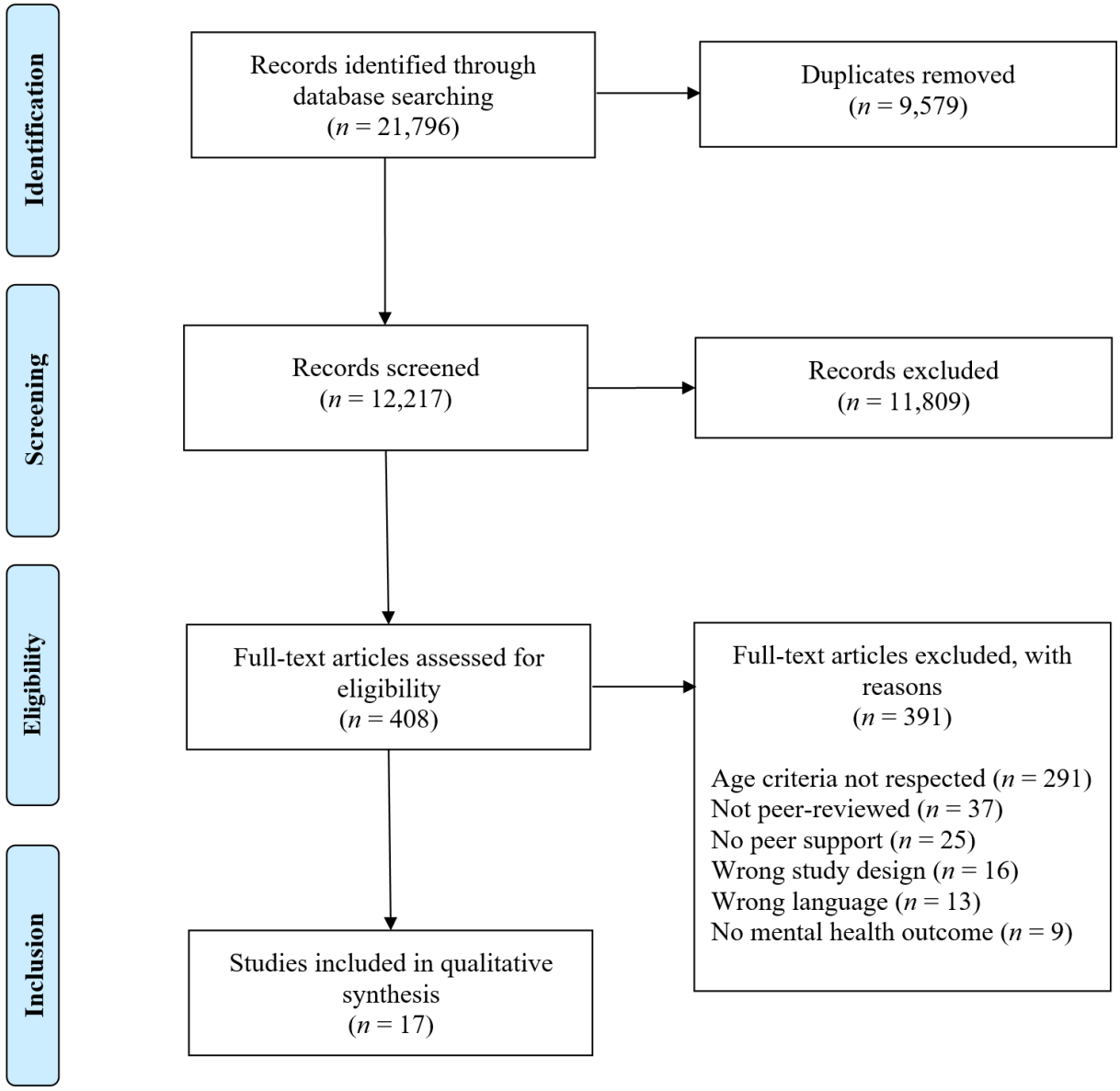

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

Appendix I

Summary of studies investigating the effect of peer support on the mental health of young adults

Author	Study type	Objective	Method of providing peer support (PS); how PS was measured	Participant characteristics	Mental health outcome and instrument	Findings
Armstrong-Carter et *al.* [44]	Cohort	To determine if providing instrumental and emotional support to friends and roommates during the first year of college is associated with positive or negative affect.	Individual PS provided by untrained friends and/or college roommates; Instrumental and emotional support: Checklist of perceived daily helping behaviour	First-year college students living in university housing with a roommate; n = 411 Male = 34% Female = 66% M_{age} = 18.62 years (SD = 0.37)	Daily emotional well-being including positive and negative affect: Profile of Mood States.	Providing greater instrumental support to a friend resulted in greater levels of positive affect over and above the previous day ($p < 0.05$). There were no other significant direct associations between daily helping behaviours and positive or negative affect. Young adults who provided more instrumental support to a friend on average across days experienced more positive affect ($p < 0.01$) compared to young adults who provided less instrumental support. Young adults who provided more instrumental support to a roommate on average across days experienced more negative affect ($p < 0.001$) compared to young adults who provided less instrumental support. The daily association between the provision of instrumental support to friends and negative affect was significantly moderated by gender ($p < 0.01$); providing instrumental support to a friend was associated with greater negative affect for young men but not young women. The interactions between empathy and provision of support were not significant.
Byrom et *al.* [46]	Cohort	To understand who attends peer support groups via self-referral and what the effects of peer support are on wellbeing.	Group PS provided by trained volunteers (with or without lived experience of depression); N/A	University students attending the peer support programme regardless of current mental health; n = 65 Male = 22% Female = 70% Other = 8% M_{age} = 20.4 years (SD = 2.72)	Mental well-being: Warwick-Edinburgh Mental Well-being Scale.	Students with lower levels of mental wellbeing were more likely to complete the course. By the second measurement period, there was a significant increase in mental wellbeing ($p < 0.01$), from an average of 17.94 (SD = 2.21) at the start of the programme to 19.71 (SD = 3.92). For those completing the whole programme (third measurement), there was a linear trend in improvement in mental wellbeing across the course. A repeated measures ANOVA showed a significant effect of session number on mental wellbeing ($p < 0.01$) with a significant increase in mental wellbeing between Time 1 and Time 2 ($p < 0.01$) and a smaller, non-significant increase in mental wellbeing between Time 2 and Time 3 ($p = 0.092$). Overall, 69% felt the session improved their ability to take care of their own mental health and 54% felt the session improved their knowledge of mental health.
Duncan et *al.* [52]	Cross-sectional	To determine whether higher levels of social leisure engagement are associated with lower levels of depressive symptoms and to assess whether this relationship is	Individual PS provided by untrained friends; Perceived peer support: friend subscale of the Multidimensional Scale of Perceived Social Support.	University students; n = 270 Male = 12.6% Female = 87.4% Age range: 18-25 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Social leisure engagement, peer support, depressive symptoms and gender were generally moderately and significantly correlated (ranging from r = .27-.30) indicating related but distinct constructs. There was a significant negative association between peer support and depressive symptomology ($p < 0.01$). Those who reported higher levels of social leisure engagement reported lower perceptions of depressive symptoms indirectly through increased peer support. Higher levels of social leisure engagement were significantly related to higher levels of peer support ($p <$ .001), and higher levels of peer support were significantly

		mediated by perceived peer support.				associated to lower levels of depressive symptomology (p < .001). The direct path remained significant (p < .001). The model accounted for 7% of the variance in peer support and 14% of the variance in depressive symptomology. The Sobel test was significant (p < .01) meaning the relationship between social leisure engagement and depressive symptomology was indirectly linked through peer support.
Gibbs et *al.* [45]	Cross-sectional	To assess which levels of social context are most influential on the depression symptoms of sexual minority male youth.	Individual PS provided by untrained individuals most important to the participant (e.g., friends, co-workers); Perceived support/emotional support	Sexual minority male youth (SMMY), including men who identify as a sexual minority (i.e., homosexual, bisexual and queer) and those who do not (e.g., heterosexual, questioning) using *Grindr* in West Hollywood; n = 195 Males = 100% M_{age} = 22.25 years (SD = 1.63) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, participants had moderately supportive networks, with 61% providing emotional support and 52% providing instrumental support. In the regression model, four variables were found to be significantly associated with depressive symptoms when accounting for all other included social context factors: lifetime experiences of homophobia (p < 0.001), enacted gay community connection (p = 0.047), the presence of an objecting alter (p = 0.009), and greater network emotional support (p = 0.034).
Horgan et *al.* [43]	Mixed methods	To determine if an online peer support intervention for students will help decrease depressive symptoms.	PS delivered via an online forum in which untrained students provide PS to each other; Qualitative analysis of forum posts including themes of peer support.	University students experiencing depressive symptoms n = 118 Male = 64.4%, Female = 35.6% M_{age} = 20.6 years (SD = 1.8) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, the median CES-D score was 37 at baseline and 33.5 at post-intervention (p = 0.133). Various themes emerged from forum posts including symptoms of depression and loneliness during college life, benefits of the website/sharing and identifying with others, advice giving and receiving emotional and informational support, and increased pressure of third level education/'academic crisis'.
Hughes et *al.* [47]	Non-randomized comparison between groups	To evaluate biopsychosocial services for young adults experiencing psychological distress and compare it to usual	Group PS provided by trained, therapists-in-training and healing practitioners in the community who aligned philosophically with the program model; some also worked as professional therapists	Young adults with moderate-to-severe symptoms of depression and/or anxiety n = 26 Male = 23%	Depression and anxiety: Symptoms Checklist-90-Revised (SCL-90-R) depression and anxiety subscales and global severity index (GSI).	A significant time by group interaction term was found for each primary outcome variable: depression (p = 0.003), anxiety (p = 0.031), and global severity (p = 0.029) indicating that change over time in all mood variables was significantly different between the program and comparison groups. By two-month follow up, program participants showed a clinically meaningful improvement in mood. Program participants demonstrated continued improvement in depression (p = 0.03) and anxiety (p = 0.032) from

		outpatient psychiatric care.	and were instructed on ways to de-professionalize their role; N/A	Female = 77% Age range: 18-25 years		intervention endpoint to two-month follow-up. No sufficient evidence of change in depression or anxiety was found for the comparison group over the study period.
Jibeen et *al.* [51]	Cross-sectional	To evaluate how social support is associated with mental health problems among Pakistani university students, and to determine the type social support that is most strongly associated with mental health problems in	Individual PS provided by untrained friends and significant others; Perceived support: Multidimensional Scale of Perceived Social Support.	University students n = 912 Male = 60% Female = 40% M_{age} = 20.50 years (SD = 1.77) Age range: 19-26 years	Depression, anxiety, obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, hostility: Brief Symptom Inventory (BSI).	A weak negative correlation between friends' support and depression, anxiety, obsession-compulsion, and interpersonal sensitivity (correlations range from -.10 to -.16; obsession-compulsion was non-significant). In the univariate model, friends support was not a significant predictor of psychological problems. In the univariate model, support from significant others was a significant predictor ($p < 0.05$), with the effects in this model being significant only for depression ($p < 0.01$).
Johnson et *al.* [31]	Non-randomized comparison between groups	To examine the psychosocial effect of providing mental health peer support on college student peer support workers as compared to other trained student workers.	Individual PS provided by trained peer supporters consisting of volunteer students and/or volunteer emergency response medical service workers EMT; ERMS); Social support: 12-item Interpersonal Support Evaluation List.	Undergraduate students trained to provide mental health peer support and student workers not trained in providing peer support n = 75 Male = 19% Female = 81% Age range: 18 and over	Social, emotional, and psychological flourishing: Mental Health Continuum Short Form (MHC-SF). Coping (appraisal, challenge, avoidance, social); Deakin Coping Scale.	Peer supporters displayed significantly lower appraisal and challenge coping, as well as a trend toward higher avoidance scores than the control group. Peer supporters displayed trends toward lower total flourishing due to lower psychological and emotional flourishing than controls based on scores, but this was non-significant. Comparing in-group differences (post-training vs. post-working), peer supporters experienced a significant reduction in their reliance on avoidant coping over the course of their work, as well as a significant increase in their sense of belonging-type social support. Contrary to this, EMT recruits showed no significant differences when compared to the control group.
Li et *al.* [53]	Cross-sectional	To determine the relationship between parental support and peer support as predictors of depression and self-esteem among college students.	Individual PS provided by untrained peers; Support by peers: Inventory of Parent and Peer Attachment (IPPA)	College undergraduates from an urban, private university in the United States Midwest; n = 197 Male = 39% Female = 61% M_{age} = 18.38 years (SD = 0.66) Age range: 17-21 years	Depression: Beck Depression Inventory, Second Edition (BDI-II). Self-esteem: Rosenberg Self-Esteem Scale (RSES).	Significant relationships were noted between peer support and psychological adjustment ($p < 0.01$). There were no significant gender differences on measures of age or peer support. Depression and self-esteem were significantly negatively correlated with peer support.

Llamas et *al.* [54]	Cross-sectional	To determine whether perceived social support by friends mediates the role of intragroup marginalization on acculturative stress and college adjustment.	Individual PS provided by untrained friends; Perceived Social Support from Friends Measure (PSS-Fr)	Latino undergraduate college students n = 83 Male = 31.3% Female = 68.7% M_{age} = 19.39 years (SD = 1.30)	Acculturative stress: Revised Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale. College adjustment: The Student Adaptation to College Questionnaire.	The regression coefficient indicated that the association between intragroup marginalization and acculturative stress, in the presence of perceived social support, did decrease. However, the decrease was not significant; intragroup marginalization remained a significant predictor of acculturative stress ($p < .001$). For college adjustment, the regression coefficient indicated that the association between intragroup marginalization and college adjustment, in the presence of perceived social support, did significantly decrease this relative association; intragroup marginalization was no longer a significant predictor of college adjustment ($p < .01$).
Lopez et *al.* [48]	Cohort	To evaluate a peer mentoring program at a dental school in the United States Midwest and determine student perceptions of its benefits.	Individual PS provided by untrained mentors. N/A	University dental students (D1-D4); n = 256 Male = 45% Female = 51% Other = 4% Five age categories reported, with 51.6% of the sample being between the age of 20 and 25.	Relief from anxieties about dental school: Questionnaire responses	Overall, having a dental school mentor allowed students to experience relief from their anxieties about dental school (53% of individuals aged 21 to 25 agreed), with females (55%) agreeing more than males (45%; $p \leq .05$). Having a mentor helped them feel more confident about being in medical school (54% of individuals aged 21 to 25 agreed).
McBeath et *al.* [42]	Qualitative	To explore the relationship between peer support and sense of belonging on the mental health and overall well-being of students in a work-integrated learning (WIL) program to those in a traditional non-WIL program.	Individual PS provided by the untrained social circle of an individual; Interview responses (coded for perceived support).	Participants at a large Canadian university offering both WIL and non-WIL programs (i.e. co-op); n = 25 Male = 44% Female = 56% Age range: 18-24 years	Mental health, sense of belonging, well-being: identification of related themes from qualitative interview.	Peer support and sense of belonging were protective factors for university student's mental health and well-being. A shared concept of sense of belonging emerged whereby both WIL and non-WIL students described it as a feeling of being accepted and recognized within the university community. This contributed to an elevated sense of acceptance, stronger engagement, and higher levels of motivation. A strong sense of belonging and access to high-quality peer support in the context of the school community were critical factors for student mental health and well-being and strengthened their confidence in school-to-work transitions after graduation.
Morelli et *al.* [49]	Cohort	To determine if emotional and instrumental support provision would interact to predict provider well-being.	Individual PS provided by untrained friends; Instrumental support (number of emotional disclosures heard by the provider and tangible assistance provided as measured by the Self-Report Altruism Scale).	Undergraduate students n = 98 Male = 51% Female = 49% M_{age} = 19.41 years (SD = NR)	Loneliness: UCLA loneliness scale. Perceived stress: Perceived Stress Scale. Daily Anxiety: four adjectives (i.e., anxious, stressed, upset, and scared). Daily Happiness: four items (i.e., happy, joyful, excited, and elated).	Provided emotional support moderated the effect of provided instrumental support on loneliness ($p = .06$), perceived stress ($p = .01$), anxiety ($p = .04$), and happiness ($p = .03$). Regarding happiness, those reporting higher levels of emotional support provision were happier as instrumental support provision increased ($p = .003$). Provided instrumental support predicted less stress ($p = .011$), anxiety ($p = .017$), and loneliness ($p = .001$) for people with high emotional support provision. Instrumental support provision did not relate to stress ($p = .94$), anxiety ($p = .85$), and

			Emotional support (empathy and emotional responsiveness to positive and negative events).			loneliness (p = .44) for providers with lower levels of emotional support provision. Previous day emotional support provision significantly predicted decreases in current day loneliness (p < .05). In addition, previous day emotional support provision showed a marginally significant negative relationship with current day perceived stress (p = .07). However, previous day emotional support provision did not have a significant relationship with current day happiness or current day anxiety. Receiving higher levels of instrumental support predicted less loneliness for those receiving high levels of emotional support (p = .001), whereas receiving instrumental support did not predict loneliness for those receiving low levels of emotional support (p = .13). Given the interaction, receiving higher levels of instrumental support predicted greater happiness for those receiving high emotional support (p < .001), whereas for those receiving low emotional support, receiving instrumental support predicted more modest increases in happiness (p = .047). Effects on perceived stress and anxiety were in a similar, though non-significant direction for those who received high and low levels of emotional support (p = .11).
Parra et *al.* [55]	Cross-sectional	To predict how perceived negative familial attitudes toward homosexuality, experiences of family victimization, and peer support are associated with anxiety, depression, internalized homonegativity and self-esteem	Individual PS provided by untrained friends; Perceived social support: Interpersonal relationship inventory	Lesbian and bisexual young men and women (in college or university) n = 62 Male = 56% Female = 43% Other = 1% M_{age} = 21.34 years (SD = 2.65)	Anxious symptoms: Beck Anxiety Inventory (BAI). Depressive symptoms: Beck Depression Inventory, Second Edition (BDI-II). Internalized homonegativity (IH): Nungesser Homosexual Attitudes Inventory Revised. Self-esteem: Rosenberg Self-Esteem Inventory.	English-speaking participants reported greater depression, lower self-esteem, and lower peer social support than French-speaking participants (p < .05). Participants who reported greater peer social support also reported less depression and IH. Peer support moderated the link between family attitudes and anxiety and between family victimization and depression. More negative family attitudes significantly predicted greater anxious symptoms, but only when LGB emerging adults reported low peer social support (p < .05). There was no association between family attitudes toward homosexuality and anxiety symptoms when peer support was higher (p > .05). Greater family victimization significantly predicted greater depression symptoms when LGB emerging adults reported low peer support (p < .001). There was no association between family victimization and depression when peer support was higher (p > .05).
Pereira et *al.* [50]	Mixed-methods (cross-sectional & qualitative)	To investigate the feelings, behavioural and support needs of students working at a student Nightline services.	A PS helpline in which PS is provided by trained students; Not measured, assessed peer supporters.	Students working on a nightline in the UK and Portugal n = 65 Male = 29% Female = 71% M_{age} = 20.97 years (SD = NR)	Emotions/feelings (including stress and anxiety) and coping strategies: questions developed by the authors	Peer supporters that were working reported a mixture of feelings, being anxious, apprehensive, yet eager for calls. When waiting for calls both groups reported being slightly nervous; the Portuguese students were significantly more hopeful and confident (2.81 compared to 1.48), while only the UK students said they were bored. The UK group did not find duties particularly stressful, present stressors could be reduced by talking about stressful calls, encouraging other peer supporters to come in and talk, and knowing their partner better. The Portuguese group, who had many fewer calls, were stressed by the lack of calls, and the other organizational duties put upon them. There was general agreement that calls were stressful and demanding. The most

						stressful were suicide calls, and for the UK sample, also sex-related calls; surprisingly manipulative/hoax calls were also consistently reported as being stressful. Common ways of coping were to talk about it and take deep breaths. When putting the phone down the most common response was to turn and talk to their partner, take a deep breath, and drink, eat or smoke; the Portuguese supporters tended to stand up, and unlike the English, hug/kiss their partner. Males rated themselves as more anxious during a call than females and were more likely to write or doodle at this time. After a call, females were more likely to take deep breaths, and smoke. They also reported being more relaxed at the end of a shift. These were the only gender differences found and in each case were statistically significant ($p < 0.05$).
Sprengel et *al.* [56]	Cohort	To evaluate the value of peer mentoring for nursing students early in the curriculum	Individual PS provided by untrained mentors (second-year students); Peer mentoring: The Clinical Experience Evaluation Forms.	Freshman and sophomore nursing students; n = 30 Sex note reported. Age range: 18-20+ years	Anxiety-provoking situations: The Clinical Experience Evaluation Forms.	Short-term benefits for both groups of students include verbalizing less anxiety, less confusion, and a more positive environment for learning to occur. Peer mentoring encourages greater student responsibility and promotes active learning. Sophomores lacking assertiveness, confidence, or with less knowledge, were found to be poor mentors. Freshmen were more likely to report that working with a sophomore student helped boost my self-confidence and sophomores reported that assisted to help lessen the freshmen student's anxiety today.
Talebi et *al.* [57]	Cross-sectional	To assess psychosocial factors that contribute to the perceived stigma of seeking help for mental health problems among students as they transition into university.	Individual PS provided by untrained friends and partners; Perceived social support: Social Provisions Scale	First year university students at Carleton University in Ottawa, Ontario; n = 328 Male = 30% Female = 70% M_{age} = 18.79 years (SD = 1.74)	Depressive symptoms: Beck Depression Inventory (BDI). Coping: Survey of Coping Profiles Endorsed (SCOPE).	Greater depressive symptoms were associated with lower perceptions of support and more unsupportive interactions with peers. Diminished social support resources appeared to have consequences for how individuals coped with distress, in those perceptions of greater peer support were related to endorsement of more problem-focused coping strategies, and those who experienced more unsupportive responses from their peers were less likely to endorse problem-focused coping and more likely to engage in emotion-focused coping efforts.

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4-5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5-6
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	6
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6-8
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6-9
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	7
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	8
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	8-9
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7-8
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	8-9
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	9
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	9-11
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	11-14; Appendix I
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	11-14; Appendix I
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	14-17
Limitations	20	Discuss the limitations of the scoping review process.	16-17
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	17
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	18

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

BMJ Open

Scoping review to evaluate the effects of peer support on the mental health of young adults

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-061336.R2
Article Type:	Original research
Date Submitted by the Author:	22-Jun-2022
Complete List of Authors:	Richard, Jérémie; McGill University, Educational and Counselling Psychology; Canadian Peer Support Network Rebinsky, Reid; McMaster University, Michael G. DeGroote School of Medicine; Canadian Peer Support Network Suresh, Rahul; McGill University, Department of Neurology and Neurosurgery; Canadian Peer Support Network Kubic, Serena; Canadian Peer Support Network Carter, Adam; Canadian Peer Support Network Cunningham, Jasmyn; Canadian Peer Support Network; McMaster University, Michael G. DeGroote School of Medicine Ker, Amy; Canadian Peer Support Network Williams , Kayla; Canadian Peer Support Network Sorin, Mark; McGill University, Department of Human Genetics; Canadian Peer Support Network
Primary Subject Heading:	Mental health
Secondary Subject Heading:	Evidence based practice
Keywords:	Depression & mood disorders < PSYCHIATRY, MENTAL HEALTH, Child & adolescent psychiatry < PSYCHIATRY, Adult psychiatry < PSYCHIATRY

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Journal: BMJ Open – Original Article/Review

Title: Scoping review to evaluate the effects of peer support on the mental health of young adults

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Word Count: Original: 3805 words; Revised version: 4318 words; Revision 2: 4603

Keywords: depression; mental health; peer support; university students; well-being; young adult

ABSTRACT

Objectives: Young adults report disproportionally greater mental health problems compared to the rest of the population with numerous barriers preventing them from seeking help. Peer support, defined as a form of social-emotional support offered by an individual with a shared lived experience, has been reported as being effective in improving a variety of mental health outcomes in differing populations. The objective of this scoping review is to provide an overview of the literature investigating the impact of peer support on the mental health of young adults.

Design: A scoping review methodology was utilized to identify relevant peer-reviewed articles in accordance with PRISMA guidelines across six databases and a search of the grey literature. Overall, 17 eligible studies met the inclusion criteria and were included in the review.

Results: Overall, studies suggest that peer support is associated with improvements in mental health including greater happiness, self-esteem, and effective coping, and reductions in depression, loneliness, and anxiety. This effect appears to be present among university students, non-student young adults and ethnic/sexual minorities. Both individual and group peer support appear to be beneficial for mental health with positive effects also being present for those providing the support.

Conclusions: Peer support appears to be a promising avenue towards improving the mental health of young adults, with lower barriers to accessing these services when compared to traditional mental health services. The importance of training peer supporters and the differential impact of peer support based on the method of delivery should be investigated in future research.

Strengths and limitations of this study

- Literature from six electronic databases and grey literature sources were screened to comprehensively describe the literature.
- Inclusion criteria were developed based on clear definitions of peer support, mental health, and young adulthood.
- Only published peer-reviewed research articles in English or French were included.
- Inconsistencies in the ways peer support and mental health were measured make it difficult to synthesize results across studies.

BACKGROUND

Young adults, aged 18 to 25, are disproportionality affected by mental health disorders when compared to the rest of the population.[1] The transition to university often coincides with young adulthood and a peak of mental illness onset due to decreased support from family and friends, increased financial burden, loneliness, and intense study periods.[2-4] Psychological and emotional problems in university students have been on the rise, both in frequency and severity.[5-7] In fact, psychological distress has been reported as being significantly higher among university students.[8-11] For instance, the WHO World Mental Health Surveys International College Student Project surveyed 13,984 undergraduate freshman students across eight countries and found that one-third of students had an anxiety, mood, or substance disorder.[12] Moreover, university students face a host of academic, interpersonal, financial, and cultural challenges.[10, 13-15] Due to the chronic nature of mental health issues, poor mental health in university students has the potential to result in significant future economic consequences on society. This is both at an indirect level in terms of absenteeism, productivity loss and under-performance, as well as at a direct level in terms of the need for hospital care, medication, social services, and income support.[16] Additionally, depression, substance use disorder and psychosis are the most important psychiatric risk factors for suicide.[17] The high prevalence of psychological distress indicates the importance of developing and establishing programs that address such problems.[13]

Previous research indicates that between 45% and 65% of university students experiencing mental health problems do not seek professional help.[10, 18, 19] Barriers to mental health help-seeking among university students include denial, embarrassment, lack of time and stigma.[20, 21] As a result, university students often choose informal support from

family and friends, or other resources, such as self-help books and online sites.[22] In addition, when students do reach out to counseling services, long wait lists (typically ranging from four to six weeks) are frequently listed as an obstacle for receiving help.[22] These attitudes and the barriers associated with help seeking behaviors must be addressed when providing supportive services.

Currently, universities are more challenged than ever when it comes to providing cost-effective and accessible services that meet the broad range of concerns faced by their student population. Beyond counselling and psychiatric services, an emerging resource for help-seeking young adults is peer support. Peer support, in the context of mental health, has previously been defined as a form of social emotional support offered by an individual who shares a previously lived experience with someone suffering from a mental health condition in an environment of respect and shared responsibility.[23] Various forms of peer support exist; they can be classified based on the setting in which peer support is provided (e.g., hospital, school, online), the training of the individual offering the service (e.g., prior training in active listening/supportive interventions, no previous training), shared characteristic or past experience(s) between the supporter or person receiving support, and/or the administration overseeing the service.[23] Furthermore, peer support has been identified as having the potential to serve individuals, for example ethnic and sexual minorities, who are in need of mental health services yet feel alienated from the traditional mental health system.[24]

Reviews of the outcomes of peer support interventions for individuals with severe mental illness have generally come to positive conclusions, yet results are still tentative given the infancy of this research area.[25-28] Beyond the effects to those receiving support, there are also promising findings related to the benefits of providing peer support.[29, 30] Some of the positive

reported outcomes reported include improvements in self-esteem, self-efficacy, self-management, and in the recovery from addiction or bereavement.[31-33] Nevertheless, findings are mixed when it comes to the effects of peer support. In a systematic review investigating the role of online peer support (i.e., Internet support groups, chat rooms) on the mental health of adolescents and young adults, only two of the four randomized trials reported improvements in mental health symptoms, with the two other studies included in the review showing a non-statistically significant decrease in symptoms.[34]

Overall, these results indicate the need for reviews that are broader in scope which can nuance the effects of different forms of peer support (e.g., online vs. in-person; individual vs. group) on specific mental health outcomes among young adults. Moreover, as a number of challenges are present in the evaluation of peer support services (e.g., difficulties with random assignment, varied roles of peer supporters, differences in training and supervision),it is critical to evaluate the state of the peer-reviewed research evidence as it relates to these variables.[35] As such, the primary aim of this review was to synthesize the available peer-reviewed literature regarding the relationship between peer support and mental health among young adults. The following research questions were established for this scoping review (i) How is peer support being delivered to young adults?; and (ii) What is the effect of peer support on the mental health of young adults?

METHODS

Patient and public involvement

This study is a scoping review based on study-level data and no patients were involved in the study.

Search strategy

A scoping review is a systematic approach to mapping the literature on a given topic. The aims of scoping reviews generally include determining the breadth of available literature and identifying gaps in the research field of interest. An iterative approach was taken to develop the research questions for the present scoping review, which included identifying relevant literature, such as reviews and editorials, and having discussions with stakeholders who have firsthand experience with university peer support centres. The present scoping review is congruent with the recommended six-step methodology as outlined by Arksey and O'Malley [36] and follow the PRISMA extension for scoping reviews (PRISMA-ScR).

To methodically search for peer-reviewed literature addressing these research questions, a broad search strategy was developed and employed across several databases. In January 2021, the following databases were searched for studies published up to the end of December 2020: Medline, EMBASE, PsycInfo, Web of Science, CINAHL, and SocIndex. The search terms used were centred around three principal topics: peer support, mental health, and young/emerging adulthood. An example of the search strategy is provided in Table 1. Previous literature reviews on related topics, as well as discussions with research librarians were utilized to help inform these terms. Additionally, a grey literature search was conducted in January 2021 and included the top 50 results from Google and Google Scholar. All articles were imported to EndNote and were uploaded to the Covidence Systematic Review Software for removal of duplicates.

Table 1

Keywords for database searches

Grouping terms	Keywords

Table 1

Keywords for database searches

Peer Support	(“peer support” OR “online peer support” OR “peer to peer” OR “peer counsel*” OR “peer mentor*” OR “support group*” OR “emotional support” OR “psychological support” OR “help seeking” OR “peer support cent*” OR “peer communication” OR “social support”) AND
Mental Health	(“mental health” OR “college mental health” OR “university mental health” OR “student mental health” OR “emotional well*being” OR “psychological well*being” OR “social isolation” OR loneliness OR stress OR “psychological distress” OR “psychological stress” OR “academic stress” OR depression OR “depressive symptoms” OR anxiety OR “anxious symptoms” OR suicide* OR grief OR “psychological resilience”) AND
Young/emerging adulthood	(“young adulthood” OR “emerging adulthood”)

Inclusion and exclusion criteria

Eligibility for study inclusion in the present review was based on the following criteria: original peer-reviewed articles published in English or French; participants or specified groups of participants within a study aged 18 to 25 (if range not reported, the mean age had to fall between 18 to 25, with a standard deviation ± 1.75); measured or assessed the provision of peer support (defined as social or emotional support that is provided by people sharing similar experiences to bring about a desired emotional or psychological change) or peer mentoring; assessed a mental health outcome (i.e., mental health, depression, anxiety, mood, suicidality, loneliness/social isolation, grief, psychological or academic stress, psychological, emotional wellbeing, self-esteem, resilience and psychological or emotional coping); and described a relationship between peer support and the mental health outcome of either the supporters (i.e. individuals providing peer support) or supportees (i.e., individuals receiving peer support). No limitations were included specific to geographic location of the study.

Studies were excluded if they were: literature reviews, study protocols, dissertations, case reports, or presentations/conference abstracts; assessed social support more generally or as provided by non-peers (e.g., family members, mental health care providers); assessed other forms of peer communication that were not defined as peer support; or investigated the association between peer support and non-mental health outcomes (e.g., medical, social, or occupational variables).

Study selection

Screening of titles and abstracts was performed by two independent reviewers (JR, RR, JC, AC, KW, SK, AK, MS) using the described eligibility criteria using the Covidence Systematic Review Software. Subsequently, full text screening of remaining articles was also carried out by two independent reviewers (JR, RR, JC, AC, KW, SK, MS). At both stages, conflicts were reviewed and resolved by an independent third screener (JR, RR).

Data collection

Data collection and extraction from each included article was conducted independently by two reviewers (JC, AC, SK, MS) and consensus of extracted information was established. The following characteristics were extracted from each study: citation (including authors, title, and year of publication), study design, study objective(s), participant characteristics (e.g., gender, age), type and delivery method of peer support, mental health outcomes measured, and main findings. Main reported findings will include measures of effect size including Pearson correlation coefficients (*r*), standardized beta coefficients (β), beta coefficients (*b*) with standardized errors (*SE*), and Cohen's *d*. Confidence intervals (CI; 90% or 95%) and *p*-values will also be reported when applicable. These extracted characteristics were identified based on previous systematic and scoping reviews investigating peer support and/or mental health

outcomes. No risk of bias assessment was completed as the purpose of conducting a scoping review is to better understand the breadth of a topic of study rather than evaluate study quality. Appendix I presents a table with an overview of the included studies.

RESULTS

Cumulatively, 21,796 articles were identified from the data-base and grey literature searches. After duplicates were removed, 12,217 articles remained, and each title and abstract was reviewed. Of these, 408 passed on to full-text review, following which, 17 articles ultimately met criteria for inclusion. The overall search process and reasons for exclusion for the reviewed full-text articles are included in Figure 1. Geographically, studies were carried out in the United States (n = 10), Canada (n = 3), the United Kingdom (n = 3, with one study recruiting part of their sample from Portugal), and Pakistan (n = 1). Most samples included university students (n = 15), with the remaining studies including young adults from the general population (n = 2).

Measurement of peer support

Overall, there appears to be a significant degree of variation in the methodology utilized to measure peer support. The most common method was through the use of validated self-report measures for perceived support coming from friends or peers. However, these assessment tools varied widely and included the Multidimensional Scale of Perceived Social Support,[37] Perceived Social Support from Friends measure,[38] Inventory of Parent and Peer Attachment,[39] Interpersonal Relationship Inventory,[40] and the Social Provisions Scale.[41] Generally, these scales include items related to perceived social support (e.g., “I get the help and support I need from my friends.”; “I have friends with whom I can share my joys and sorrows.”; “When we discuss things, my friends care about my point of view.”; “Could you turn to your

friends for advice if you were having a problem?") with responses provided on Likert-type scales ranging from strongly disagree/never/no to strongly agree/always/yes.

One of the included studies coded interview responses for instances of perceived support [42] and another conducted a qualitative analysis of online forum posts including themes of social support.[43] Other studies quantitatively measured instances of emotional support,[44, 45] while others did not directly measure social support, but based their study on the fact that they were offering peer support services.[46-48] Finally, three studies investigated the impact of peer support, not based on the response of supportees, but based on the experience of supporters.[31, 49, 50]

Measurement of mental health

The assessed mental health outcomes also varied, with some studies measuring a single outcome and others investigating several. While some of the included studies investigated the alleviation of negative psychological states, other studies researched the effects of peer support on positive psychological outcomes. Specifically, studies measured depression/depressive symptoms (n = 8), anxiety (n = 6), stress (n = 3), negative affect (n = 1), loneliness (n = 1), and internalized homonegativity (n = 1). One study measured various specific mental health problems including obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, and hostility, in addition to depression and anxiety.[51] As for positive psychological outcomes, although less common, some studies measured emotional and/or general well-being (n = 3), self-esteem (n = 2), mental health (n = 1), happiness (n = 1), flourishing (social, emotional, psychological; n = 1), belonging (n = 1), coping (n = 1), and positive affect (n = 1). Details regarding the instruments used to measure the mental health outcomes are provided in Appendix I.

Delivery of peer support and characteristics of supporters

Eleven of the included studies investigated peer support delivered individually and in-person,[44, 45, 48, 49, 51-57]. Two studies investigated in-person group peer support,[46, 47] two studies investigated individual online peer support,[31, 43] and one looked at helplines for individual peer support.[50] Finally, a single study qualitatively investigated the importance and significance of peer support in a university setting.[42]

The roles of individuals providing peer support also varied greatly, with some studies including multiple different types of supporters. These roles included friends (n = 8), significant others (n = 3), other university students (n = 4), volunteer peer supporters (n = 2), mentors (n = 2), and therapists-in-training/healing practitioners acting as peer supporters (n = 1).

All individuals providing peer-support services in a group context or through helplines were trained.[46, 47, 50] These individuals were less likely to be friends or family members and were more likely to be volunteer peer supporters or therapists-in-training. The studies investigating online peer support had both trained and untrained supporters, although untrained supporters nevertheless had previous knowledge of additional resources for students experiencing depression.[31, 43]

Effects of peer support on supportee mental health

Individual Peer Support

A total of nine studies investigated the impact of individual peer support on the mental health of young adults. Overall, peer support was significantly associated with various mental health benefits for supportees, including increases in happiness (β = .38, p = .03),[49] self-esteem (r = .40, p < .01),[53] problem focused coping strategies (β = .17, p < .01),[57] as well as marginal reductions in loneliness (β = −.49, p = .06),[49] depression (r = -.12 to -.32, p

<.05),[51-53] and anxiety (r = -.15, p <.01).[51] None of these studies included confidence intervals relevant to their measures of effect size. Moreover, qualitative analyses identified benefits of peer support such as a majority of students (77%) experiencing a sense of relief from their anxieties about dental school,[48] nursing students experiencing decreases in anxiety regarding first experiences in hospital,[56] and general improvements in university student mental health and well-being.[42]

One study did not identify a significant effect of peer support in reducing depressive symptoms based on an alpha level of 0.05.[43] This study investigated the effect of an online peer support intervention for students by untrained supporters. Although a numerical decrease in depressive symptoms was present when the baseline to post-intervention scores were compared (mean CES-D scores from 37.0 to 33.5), this difference did not meet the threshold of statistical significance (p = 0.13). Overall, these studies suggest that individual peer support generally has an effect relevant to mental health, including increases in happiness, self-esteem, and effective coping, and decreases in depression, loneliness, and anxiety.

A total of three articles investigated the role of individual peer support on the mental health of specific minority groups including marginalized Latino undergraduates,[54] lesbian, gay and bisexual (LGB) young adults,[55] and sexual minority men.[45] In the study investigating peer support among Latino students, Llamas and Ramos-Sánchez [54] found that perceptions of support from peers significantly decreased the association between intragroup marginalization and college adjustment, whereby intragroup marginalization was no longer a significant predictor of college adjustment when social support was present ($\beta = -.17$, $p > .05$). Specific to LGB young adults, greater peer support was associated with reductions in depression (r = -.28, $p < .05$) and internalized homophobia (r = -.30, $p < .05$). It was also a significant

moderator in the relationship between family attitudes and anxiety (β = .26, 95% CI [0.002, 1.154]), as well as family victimization and depression (β = -.23, 95% CI [-0.444, -0.010]).[55] In other words, peer support buffered against the mental health consequences of negative family attitudes and family victimization. Finally, Gibbs and Rice [45] qualitatively identified factors associated with depression in sexual minority men. Of note, greater connections within the gay community (b = -.01, SE = 0.006, p = .047) and the increased availability of emotional support (b = -.35, SE = 0.161, p = .03) was associated with decreases in depressive symptoms. Overall, peer support appears to be beneficial for ethnic and sexual minorities, with noted improvements in college adjustment and decreases in anxiety and depression.

Group Peer Support

Two studies investigated the effect of group peer support on mental health.[46, 47] Both studies had predominantly female samples (70% and 77%, respectively) and featured trained peer supporters. Byrom [46] identified that individuals with lower initial mental wellbeing participated in the peer support program for longer and had greater increases in mental wellbeing from beginning to end of the program (effect size of d = 0.66, 95% CI [0.23, 1.08] from baseline to week 3, and d = 0.39, 95% CI [-0.06, 0.83] from week 3 to week 6). Specifically, attending a greater number of sessions was associated with greater improvements in wellbeing from baseline to follow-up six weeks later, while also increasing a supportee's knowledge of mental health and ability to take care of their own mental health. Similarly, the study by Hughes and colleagues [47] found that young adults in outpatient care for psychological distress experienced decreases in severity of both depressive (p = .003) and anxious (p = .031) symptoms following peer support group; this improvement was maintained for up to two-months post-treatment. Overall,

group peer support appears to have a positive impact on increasing wellbeing and reducing symptoms of depression and anxiety.

Effect of peer support on supporter mental health

Four studies investigated the effect of peer support on the individuals providing the support. Two of these studies had untrained, in-person, individual peer supporters providing both emotional and instrumental support. These studies evaluated whether providing these types of support led to improvements in either affect or wellbeing.[44, 49] The first, by Armstrong-Carter and colleagues [44] noted that providing instrumental support to a friend resulted in greater positive affect that same day and across multiple days ($r = .17$, $p < .001$) if they continued providing this support. However, over extended periods of providing instrumental support, negative affect also increased ($r = .07$, $p < .01$), with this association being significantly moderated by gender (i.e., negative affect was present for men but not for women). The second study by Morelli and colleagues [49] identified that emotional support had the greatest effect in decreasing loneliness ($\beta = -.29$, $p < .01$), stress ($\beta = -.17$, $p < .01$), anxiety ($\beta = -.14$, $p < .01$) and increasing happiness ($\beta = .25$, $p < .01$).

The remaining two studies investigated peer support provided by trained supporters either online [31] or through helplines.[50] Investigating the coping styles of peer supporters, Johnson and Riley [31] found that following the peer support training, peer supporters reported a decrease in avoidance-based coping ($d = 0.51$, $p = 0.02$) and an increased sense of belonging ($d = 0.43$, $p = 0.04$). Pereira and colleagues [50] focused more on the effects of working for the helpline and noted that the two most stressful aspects of the work reported by peer supporters were waiting for calls and receiving calls concerning more serious topics (e.g., suicidality). They noted that having a colleague provide support was a helpful way to cope with resulting distress. Overall,

providing peer support appears to be beneficial to supporters although some aspects of the work appears to be distressing to some supporters.

DISCUSSION

The purpose of this scoping review was to synthesize evidence describing and evaluating the impact of peer support on the mental health of young adults. According to published literature, peer support among young adults is being evaluated as delivered predominantly via in-person modality, though several studies investigated group peer support and other modalities of delivery (i.e., over the Internet or phone). The majority of studied peer support was provided by friends or significant others, although school peers and volunteer peer supporters were also represented in the included studies. Trained peer supporters were overrepresented in the studies that investigated group-based, Internet-based, and telephone-based support compared to individual in-person peer support. Overall, these results indicate that there are multiple ways that peer support interventions could be delivered with positive results across modalities.

This scoping review represents an initial attempt at determining the breadth of the available literature on the effectiveness of peer support in addressing the mental health concerns of young adults. An initial review of the evidence by Davison and colleagues [24] indicated that peer support groups may improve symptoms of severe mental illness, enhance quality of life, and promote larger social networks. More recently, John and colleagues [25] conducted a systematic review of the literature specific to university students and they identified three studies with mixed findings related to mental wellbeing. The present review represents an updated summary and synthesis of the peer support literature as it relates to young adults irrespective of university status, which captures a broad array of mental health outcomes. Overall, results from the reviewed studies indicate that peer support has predominantly positive effects on mental health

outcomes of young adults including depressive symptoms, anxious symptoms, psychological distress and self-esteem. Notwithstanding these results, there remains a paucity of controlled and prospective studies investigating the impact of peer support.

Peer support has been identified as an accessible, affordable and easy-to-implement mental health resource that has beneficial effects across populations.[58] The long wait times and numerous barriers to accessing professional mental health services highlight the importance of more accessible and less stigmatized mental health services. As highlighted by the studies included within the present review, peer support can be effective in improving the depressive symptoms, stress and anxiety that young adults can experience. The results of this review suggest that peer support may represent a valuable intervention for improving mental health outcomes among young adults; specifically, among those attending college or university. Based on the results of the present review, it is recommended that future research investigate the feasibility and cost-effectiveness of formalized peer support services on improving the mental wellbeing of young adults.

To our knowledge, this is the first scoping review examining the impact of peer support on the mental health of young adults beyond university students. Strengths of the present review include that rigorous search criteria were utilized to initially captures over 12,000 articles from multiple databases and grey literature. Moreover, all articles were screened and extracted by multiple reviewers. However, results of the present review are limited by significant methodological heterogeneity between included studies. For instance, a majority of the included studies utilized quantitative approaches with different peer support and mental health measurements being used across studies, with other studies utilizing a qualitative approach to measuring the benefit of peer support. Moreover, studies investigating the effect of peer support

on mental health through the use of statistical approaches are limited in that they do not fully consider individuals, their peculiarities, and unique characteristics, emphasizing the importance of qualitative research in this research domain. Another limitation of the statistical findings reported in most included studies is that they do not include confidence intervals for measures of effect size. The absence of such reported findings limits the accuracy of statements regarding effect sizes and consequent interpretations of the data. Furthermore, peer supporters varied in their background and whether or not they had received peer-support related training. These variations highlight the need for greater consistency in what comprises peer-support within the research literature. Additionally, there was a lack of standardization in the recruitment procedures for the participants within the included studies. As such, a number of unmeasured confounding variables could have been relevant to the changes in mental health detected within the studies, such as accessing other mental health services or the use of medications for various mental health conditions. Future research utilizing more thorough screening procedures and randomization procedures are recommended to substantiate the results of the available literature. Although 17 studies were examined in this scoping review, only two studies provided longitudinal evidence investigating the direct effect of peer support on mental health outcomes among young adults. Future research should assess the impact of peer support on the mental health of young adults through randomized prospective trials. Additionally, there is a need to investigate the potential long-term effects of peer support on mental health outcomes, as well as the potential benefits of peer supporters themselves having access to relevant services.

Limitations should also be noted specific to the scoping review methodology. First, the risk of bias of the included papers was not assessed. Second, only peer-reviewed journal articles were included within the present review, with it being possible that additional commentaries,

essays, or program evaluation reports have been written on this subject area. This was done in order to ensure a minimal level of scientific rigor within the included articles. Third, clear inclusion and exclusion criteria were established to limit the number of included studies, with the current review not investigating the impact of peer support among those under the age of 18 and those over the age of 25. Additional reviews are required to synthesize the results specific to the impact of peer support on the mental health of children and older adults. Fourth, only studies with the specified mental health outcomes were included and other available literature investigating the benefits of peer support at the level of physical health and social/relational wellbeing were excluded. Although limiting the scope of the review, this was a predetermined decision to increase the specificity of included scientific articles. Finally, although this scoping review determined the breadth and general findings of the available literature on the effects of peer support for the mental health of young adults, literature reviews utilizing data fusion methods (e.g., Fisher's method in meta-analysis) are necessary to draw firm quantitative interpretations of these effects.

In conclusion, this scoping review highlights the potential benefits of peer support in terms of improving the mental health outcomes of young adults. Importantly, in the included studies, peer support was provided by a wide variety of individuals, ranging from friends and significant others to trained peer supporters. This shows that peer support is being utilized informally in both everyday conversations and in formalized structured settings, pointing to the multitude of existing definitions of this term. From the reviewed studies, peer support has been shown to have largely positive effects on mental health outcomes of young adults as it relates to depressive symptoms, anxious symptoms, psychological distress, and self-esteem. In order to

bolster the present evidence base, future studies should focus on examining the impact of peer support on the mental health of young adults through prospective randomized studies.

Acknowledgements

Author contributions: Jérémie Richard: Conceptualization, Methodology, Literature search, Literature screening, Writing – Original Draft, Writing - Review & Editing, Supervision, Project administration. **Reid Rebinsky:** Conceptualization, Methodology, Literature search, Literature screening, Supervision, Project administration, Funding acquisition. **Rahul Suresh:** Writing – Original Draft, Writing - Review & Editing. **Serena Kubic:** Literature screening, Data extraction. **Adam Carter:** Literature screening, Data extraction. **Jasmyn Cunningham:** Literature screening, Data extraction, Writing - Review & Editing. **Amy Ker:** Literature screening. **Kayla Williams:** Literature screening. **Mark Sorin:** Literature screening, Data extraction, Writing – Original Draft, Writing - Review & Editing, Supervision, Funding acquisition.

Funding sources: Funding was provided for assistance with the costs of open-access publication by the Mary H Brown Fund offered by McGill University (Award/Grant number is not applicable). No funding agencies had input into the content of this manuscript.

Conflicts of interest: The authors declare no conflicts of interest.

Patent consent for publication: Not applicable.

Ethics approval: This study does not involve human participants.

Data availability statement: Data are available upon reasonable request. All data relevant to the study are included in the article or uploaded as supplementary information. Extra data are available by emailing the corresponding author (jeremie.richard@mail.mcgill.ca).

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Figure legend

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

FIGURES

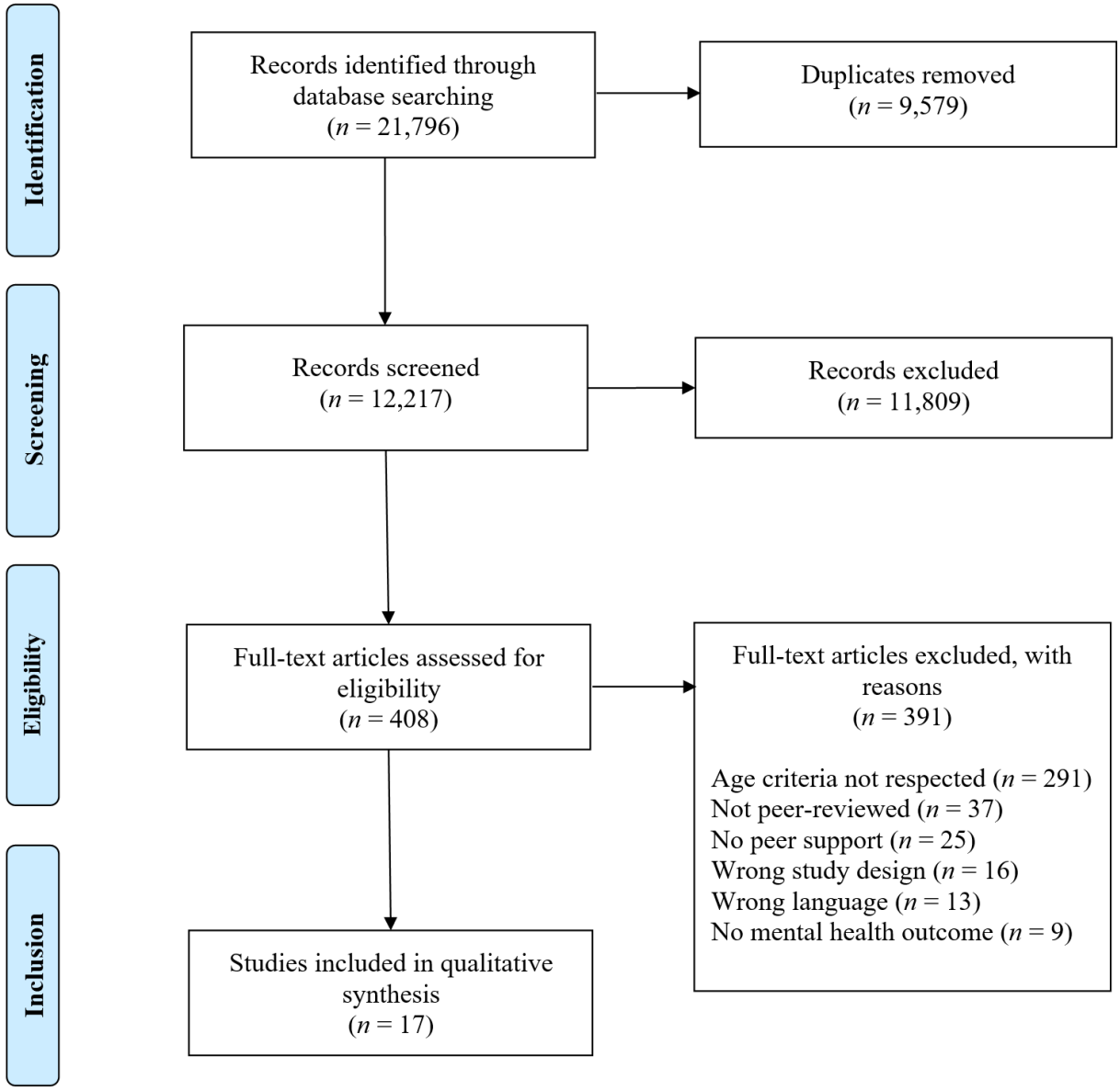

Figure 1. PRISMA flow diagram of the selection process for studies evaluating the impact of peer support the mental health of young adults.

Appendix I

Summary of studies investigating the effect of peer support on the mental health of young adults

Author(s)	Study type	Objective(s)	Method of providing peer support (PS); how PS was measured	Participant characteristics	Mental health outcome(s) and instrument(s)	Main findings
Armstrong-Carter et *al.* [44]	Cohort	To determine if providing instrumental and emotional support to friends and roommates during the first year of college is associated with positive or negative affect.	Individual PS provided by untrained friends and/or college roommates; Instrumental and emotional support: Checklist of perceived daily helping behaviour	First-year college students living in university housing with a roommate; n = 411 Male = 34% Female = 66% M_{age} = 18.62 years (SD = 0.37)	Daily emotional well-being including positive and negative affect: Profile of Mood States.	Providing greater instrumental support to a friend resulted in greater levels of positive affect over and above the previous day ($p < 0.05$). There were no other significant direct associations between daily helping behaviours and positive or negative affect. Young adults who provided more instrumental support to a friend on average across days experienced more positive affect ($p < 0.01$) compared to young adults who provided less instrumental support. Young adults who provided more instrumental support to a roommate on average across days experienced more negative affect ($p < 0.001$) compared to young adults who provided less instrumental support. The daily association between the provision of instrumental support to friends and negative affect was significantly moderated by gender ($p < 0.01$); providing instrumental support to a friend was associated with greater negative affect for young men but not young women. The interactions between empathy and provision of support were not significant.
Byrom et *al.* [46]	Cohort	To understand who attends peer support groups via self-referral and what the effects of peer support are on wellbeing.	Group PS provided by trained volunteers (with or without lived experience of depression); N/A	University students attending the peer support programme regardless of current mental health; n = 65 Male = 22% Female = 70% Other = 8% M_{age} = 20.4 years (SD = 2.72)	Mental well-being: Warwick-Edinburgh Mental Well-being Scale.	Students with lower levels of mental wellbeing were more likely to complete the course. By the second measurement period, there was a significant increase in mental wellbeing ($p < 0.01$), from an average of 17.94 (SD = 2.21) at the start of the programme to 19.71 (SD = 3.92). For those completing the whole programme (third measurement), there was a linear trend in improvement in mental wellbeing across the course. A repeated measures ANOVA showed a significant effect of session number on mental wellbeing ($p < 0.01$) with a significant increase in mental wellbeing between Time 1 and Time 2 ($p < 0.01$) and a smaller, non-significant increase in mental wellbeing between Time 2 and Time 3 ($p = 0.092$). Overall, 69% felt the session improved their ability to take care of their own mental health and 54% felt the session improved their knowledge of mental health.
Duncan et *al.* [52]	Cross-sectional	To determine whether higher levels of social leisure engagement are associated with lower levels of depressive symptoms and to assess whether this relationship is	Individual PS provided by untrained friends; Perceived peer support: friend subscale of the Multidimensional Scale of Perceived Social Support.	University students; n = 270 Male = 12.6% Female = 87.4% Age range: 18-25 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Social leisure engagement, peer support, depressive symptoms and gender were generally moderately and significantly correlated (ranging from r = .27-.30) indicating related but distinct constructs. There was a significant negative association between peer support and depressive symptomology ($p < 0.01$). Those who reported higher levels of social leisure engagement reported lower perceptions of depressive symptoms indirectly through increased peer support. Higher levels of social leisure engagement were significantly related to higher levels of peer support ($p <$ .001), and higher levels of peer support were significantly

		mediated by perceived peer support.				associated to lower levels of depressive symptomology (p < .001). The direct path remained significant (p < .001). The model accounted for 7% of the variance in peer support and 14% of the variance in depressive symptomology. The Sobel test was significant (p < .01) meaning the relationship between social leisure engagement and depressive symptomology was indirectly linked through peer support.
Gibbs et *al.* [45]	Cross-sectional	To assess which levels of social context are most influential on the depression symptoms of sexual minority male youth.	Individual PS provided by untrained individuals most important to the participant (e.g., friends, co-workers); Perceived support/emotional support	Sexual minority male youth (SMMY), including men who identify as a sexual minority (i.e., homosexual, bisexual and queer) and those who do not (e.g., heterosexual, questioning) using *Grindr* in West Hollywood; n = 195 Males = 100% M_{age} = 22.25 years (SD = 1.63) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, participants had moderately supportive networks, with 61% providing emotional support and 52% providing instrumental support. In the regression model, four variables were found to be significantly associated with depressive symptoms when accounting for all other included social context factors: lifetime experiences of homophobia (p < 0.001), enacted gay community connection (p = 0.047), the presence of an objecting alter (p = 0.009), and greater network emotional support (p = 0.034).
Horgan et *al.* [43]	Mixed methods	To determine if an online peer support intervention for students will help decrease depressive symptoms.	PS delivered via an online forum in which untrained students provide PS to each other; Qualitative analysis of forum posts including themes of peer support.	University students experiencing depressive symptoms n = 118 Male = 64.4%, Female = 35.6% M_{age} = 20.6 years (SD = 1.8) Age range: 18-24 years	Depressive symptoms: Centre for Epidemiological Studies Depression Scale (CES-D).	Overall, the median CES-D score was 37 at baseline and 33.5 at post-intervention (p = 0.133). Various themes emerged from forum posts including symptoms of depression and loneliness during college life, benefits of the website/sharing and identifying with others, advice giving and receiving emotional and informational support, and increased pressure of third level education/'academic crisis'.
Hughes et *al.* [47]	Non-randomized comparison between groups	To evaluate biopsychosocial services for young adults experiencing psychological distress and compare it to usual	Group PS provided by trained, therapists-in-training and healing practitioners in the community who aligned philosophically with the program model; some also worked as professional therapists	Young adults with moderate-to-severe symptoms of depression and/or anxiety n = 26 Male = 23%	Depression and anxiety: Symptoms Checklist-90-Revised (SCL-90-R) depression and anxiety subscales and global severity index (GSI).	A significant time by group interaction term was found for each primary outcome variable: depression (p = 0.003), anxiety (p = 0.031), and global severity (p = 0.029) indicating that change over time in all mood variables was significantly different between the program and comparison groups. By two-month follow up, program participants showed a clinically meaningful improvement in mood. Program participants demonstrated continued improvement in depression (p = 0.03) and anxiety (p = 0.032) from

		outpatient psychiatric care.	and were instructed on ways to de-professionalize their role; N/A	Female = 77% Age range: 18-25 years		intervention endpoint to two-month follow-up. No sufficient evidence of change in depression or anxiety was found for the comparison group over the study period.
Jibeen et *al.* [51]	Cross-sectional	To evaluate how social support is associated with mental health problems among Pakistani university students, and to determine the type of social support that is most strongly associated with mental health problems in	Individual PS provided by untrained friends and significant others; Perceived support: Multidimensional Scale of Perceived Social Support.	University students n = 912 Male = 60% Female = 40% M_{age} = 20.50 years (SD = 1.77) Age range: 19-26 years	Depression, anxiety, obsession-compulsion, somatization, interpersonal sensitivity, phobic anxiety, hostility: Brief Symptom Inventory (BSI).	A weak negative correlation between friends' support and depression, anxiety, obsession-compulsion, and interpersonal sensitivity (correlations range from -.10 to -.16; obsession-compulsion was non-significant). In the univariate model, friends support was not a significant predictor of psychological problems. In the univariate model, support from significant others was a significant predictor ($p < 0.05$), with the effects in this model being significant only for depression ($p < 0.01$).
Johnson et *al.* [30]	Non-randomized comparison between groups	To examine the psychosocial effect of providing mental health peer support on college student peer support workers as compared to other trained student workers.	Individual PS provided by trained peer supporters consisting of volunteer students and/or volunteer emergency response medical service workers EMT; ERMS); Social support: 12-item Interpersonal Support Evaluation List.	Undergraduate students trained to provide mental health peer support and student workers not trained in providing peer support n = 75 Male = 19% Female = 81% Age range: 18 and over	Social, emotional, and psychological flourishing: Mental Health Continuum Short Form (MHC-SF). Coping (appraisal, challenge, avoidance, social); Deakin Coping Scale.	Peer supporters displayed significantly lower appraisal and challenge coping, as well as a trend toward higher avoidance scores than the control group. Peer supporters displayed trends toward lower total flourishing due to lower psychological and emotional flourishing than controls based on scores, but this was non-significant. Comparing in-group differences (post-training vs. post-working), peer supporters experienced a significant reduction in their reliance on avoidant coping over the course of their work, as well as a significant increase in their sense of belonging-type social support. Contrary to this, EMT recruits showed no significant differences when compared to the control group.
Li et *al.* [53]	Cross-sectional	To determine the relationship between parental support and peer support as predictors of depression and self-esteem among college students.	Individual PS provided by untrained peers; Support by peers: Inventory of Parent and Peer Attachment (IPPA)	College undergraduates from an urban, private university in the United States Midwest; n = 197 Male = 39% Female = 61% M_{age} = 18.38 years (SD = 0.66) Age range: 17-21 years	Depression: Beck Depression Inventory, Second Edition (BDI-II). Self-esteem: Rosenberg Self-Esteem Scale (RSES).	Significant relationships were noted between peer support and psychological adjustment ($p < 0.01$). There were no significant gender differences on measures of age or peer support. Depression and self-esteem were significantly negatively correlated with peer support.

Llamas et *al.* [54]	Cross-sectional	To determine whether perceived social support by friends mediates the role of intragroup marginalization on acculturative stress and college adjustment.	Individual PS provided by untrained friends; Perceived Social Support from Friends Measure (PSS-Fr)	Latino undergraduate college students n = 83 Male = 31.3% Female = 68.7% M_{age} = 19.39 years (SD = 1.30)	Acculturative stress: Revised Social, Attitudinal, Familial, and Environmental Acculturative Stress Scale. College adjustment: The Student Adaptation to College Questionnaire.	The regression coefficient indicated that the association between intragroup marginalization and acculturative stress, in the presence of perceived social support, did decrease. However, the decrease was not significant; intragroup marginalization remained a significant predictor of acculturative stress ($p < .001$). For college adjustment, the regression coefficient indicated that the association between intragroup marginalization and college adjustment, in the presence of perceived social support, did significantly decrease this relative association; intragroup marginalization was no longer a significant predictor of college adjustment ($p < .01$).
Lopez et *al.* [48]	Cohort	To evaluate a peer mentoring program at a dental school in the United States Midwest and determine student perceptions of its benefits.	Individual PS provided by untrained mentors. N/A	University dental students (D1-D4); n = 256 Male = 45% Female = 51% Other = 4% Five age categories reported, with 51.6% of the sample being between the age of 20 and 25.	Relief from anxieties about dental school: Questionnaire responses	Overall, having a dental school mentor allowed students to experience relief from their anxieties about dental school (53% of individuals aged 21 to 25 agreed), with females (55%) agreeing more than males (45%; $p \leq .05$). Having a mentor helped them feel more confident about being in medical school (54% of individuals aged 21 to 25 agreed).
McBeath et *al.* [42]	Qualitative	To explore the relationship between peer support and sense of belonging on the mental health and overall well-being of students in a work-integrated learning (WIL) program to those in a traditional non-WIL program.	Individual PS provided by the untrained social circle of an individual; Interview responses (coded for perceived support).	Participants at a large Canadian university offering both WIL and non-WIL programs (i.e., co-op); n = 25 Male = 44% Female = 56% Age range: 18-24 years	Mental health, sense of belonging, well-being: identification of related themes from qualitative interview.	Peer support and sense of belonging were protective factors for university student's mental health and well-being. A shared concept of sense of belonging emerged whereby both WIL and non-WIL students described it as a feeling of being accepted and recognized within the university community. This contributed to an elevated sense of acceptance, stronger engagement, and higher levels of motivation. A strong sense of belonging and access to high-quality peer support in the context of the school community were critical factors for student mental health and well-being and strengthened their confidence in school-to-work transitions after graduation.
Morelli et *al.* [49]	Cohort	To determine if emotional and instrumental support provision would interact to predict provider well-being.	Individual PS provided by untrained friends; Instrumental support (number of emotional disclosures heard by the provider and tangible assistance provided as measured by the Self-Report Altruism Scale).	Undergraduate students n = 98 Male = 51% Female = 49% M_{age} = 19.41 years (SD = NR)	Loneliness: UCLA loneliness scale. Perceived stress: Perceived Stress Scale. Daily Anxiety: four adjectives (i.e., anxious, stressed, upset, and scared). Daily Happiness: four items (i.e., happy, joyful, excited, and elated).	Provided emotional support moderated the effect of provided instrumental support on loneliness ($p = .06$), perceived stress ($p = .01$), anxiety ($p = .04$), and happiness ($p = .03$). Regarding happiness, those reporting higher levels of emotional support provision were happier as instrumental support provision increased ($p = .003$). Provided instrumental support predicted less stress ($p = .011$), anxiety ($p = .017$), and loneliness ($p = .001$) for people with high emotional support provision. Instrumental support provision did not relate to stress ($p = .94$), anxiety ($p = .85$), and

			Emotional support (empathy and emotional responsiveness to positive and negative events).			loneliness (p = .44) for providers with lower levels of emotional support provision. Previous day emotional support provision significantly predicted decreases in current day loneliness (p < .05). In addition, previous day emotional support provision showed a marginally significant negative relationship with current day perceived stress (p = .07). However, previous day emotional support provision did not have a significant relationship with current day happiness or current day anxiety. Receiving higher levels of instrumental support predicted less loneliness for those receiving high levels of emotional support (p = .001), whereas receiving instrumental support did not predict loneliness for those receiving low levels of emotional support (p = .13). Given the interaction, receiving higher levels of instrumental support predicted greater happiness for those receiving high emotional support (p < .001), whereas for those receiving low emotional support, receiving instrumental support predicted more modest increases in happiness (p = .047). Effects on perceived stress and anxiety were in a similar, though non-significant direction for those who received high and low levels of emotional support (p = .11).
Parra et *al.* [55]	Cross-sectional	To predict how perceived negative familial attitudes toward homosexuality, experiences of family victimization, and peer support are associated with anxiety, depression, internalized homonegativity and self-esteem	Individual PS provided by untrained friends; Perceived social support: Interpersonal relationship inventory	Lesbian and bisexual young men and women (in college or university) n = 62 Male = 56% Female = 43% Other = 1% M_{age} = 21.34 years (SD = 2.65)	Anxious symptoms: Beck Anxiety Inventory (BAI). Depressive symptoms: Beck Depression Inventory, Second Edition (BDI-II). Internalized homonegativity (IH): Nungesser Homosexual Attitudes Inventory Revised. Self-esteem: Rosenberg Self-Esteem Inventory.	English-speaking participants reported greater depression, lower self-esteem, and lower peer social support than French-speaking participants (p < .05). Participants who reported greater peer social support also reported less depression and IH. Peer support moderated the link between family attitudes and anxiety and between family victimization and depression. More negative family attitudes significantly predicted greater anxious symptoms, but only when LGB emerging adults reported low peer social support (p < .05). There was no association between family attitudes toward homosexuality and anxiety symptoms when peer support was higher (p > .05). Greater family victimization significantly predicted greater depression symptoms when LGB emerging adults reported low peer support (p < .001). There was no association between family victimization and depression when peer support was higher (p > .05).
Pereira et *al.* [50]	Mixed-methods (cross-sectional & qualitative)	To investigate the feelings, behavioural and support needs of students working at a student Nightline services.	A PS helpline in which PS is provided by trained students; Not measured, assessed peer supporters.	Students working on a nightline in the United Kingdom (UK) and Portugal n = 65 Male = 29% Female = 71% M_{age} = 20.97 years (SD = NR)	Emotions/feelings (including stress and anxiety) and coping strategies: questions developed by the authors	Peer supporters that were working reported a mixture of feelings, being anxious, apprehensive, yet eager for calls. When waiting for calls both groups reported being slightly nervous; the Portuguese students were significantly more hopeful and confident (2.81 compared to 1.48), while only the UK students said they were bored. The UK group did not find duties particularly stressful, present stressors could be reduced by talking about stressful calls, encouraging other peer supporters to come in and talk, and knowing their partner better. The Portuguese group, who had many fewer calls, were stressed by the lack of calls, and the other organizational duties put upon them. There was general agreement that calls were stressful and demanding. The most

						stressful were suicide calls, and for the UK sample, also sex-related calls; surprisingly manipulative/hoax calls were also consistently reported as being stressful. Common ways of coping were to talk about it and take deep breaths. When putting the phone down the most common response was to turn and talk to their partner, take a deep breath, and drink, eat or smoke; the Portuguese supporters tended to stand up, and unlike the English, hug/kiss their partner. Males rated themselves as more anxious during a call than females and were more likely to write or doodle at this time. After a call, females were more likely to take deep breaths, and smoke. They also reported being more relaxed at the end of a shift. These were the only gender differences found and in each case were statistically significant ($p < 0.05$).
Sprengel et *al.* [56]	Cohort	To evaluate the value of peer mentoring for nursing students early in the curriculum	Individual PS provided by untrained mentors (second-year students); Peer mentoring: The Clinical Experience Evaluation Forms.	Freshman and sophomore nursing students; n = 30 Sex not reported. Age range: 18-20+ years	Anxiety-provoking situations: The Clinical Experience Evaluation Forms.	Short-term benefits for both groups of students include verbalizing less anxiety, less confusion, and a more positive environment for learning to occur. Peer mentoring encourages greater student responsibility and promotes active learning. Sophomores lacking assertiveness, confidence, or with less knowledge, were found to be poor mentors. Freshmen were more likely to report that working with a sophomore student helped boost my self-confidence and sophomores reported that assisted to help lessen the freshmen student's anxiety today.
Talebi et *al.* [57]	Cross-sectional	To assess psychosocial factors that contribute to the perceived stigma of seeking help for mental health problems among students as they transition into university.	Individual PS provided by untrained friends and partners; Perceived social support: Social Provisions Scale	First year university students at Carleton University in Ottawa, Ontario; n = 328 Male = 30% Female = 70% M_{age} = 18.79 years (SD = 1.74)	Depressive symptoms: Beck Depression Inventory (BDI). Coping: Survey of Coping Profiles Endorsed (SCOPE).	Greater depressive symptoms were associated with lower perceptions of support and more unsupportive interactions with peers. Diminished social support resources appeared to have consequences for how individuals coped with distress, in those perceptions of greater peer support were related to endorsement of more problem-focused coping strategies, and those who experienced more unsupportive responses from their peers were less likely to endorse problem-focused coping and more likely to engage in emotion-focused coping efforts.

Note. Legend: β = standardized beta coefficients; *b* = beta coefficients; *d* = Cohen's *d*; *M* = mean; n = sample size; N/A = not applicable; *p* = p-value; PS = peer support; *r* = Pearson correlation coefficients; SD = standard deviation.

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	4-5
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	5-6
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	6
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	6-8
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6-9
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	7
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	8
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	8-9
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7-8
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	8-9
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	9
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	9-11
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	11-14; Appendix I
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	11-14; Appendix I
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	14-17
Limitations	20	Discuss the limitations of the scoping review process.	16-17
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	17
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	18

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.