

RESEARCH ARTICLE

Supporting the Transition to Postsecondary Institutions for Students with Mental Health Conditions: A Scoping Review

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Abstract

Objective: To conduct a scoping review to identify programs and interventions to support youth with mental health conditions (MHCs) with their transition to postsecondary institution (PSI). **Method:** A database search of MEDLINE, PsycINFO, Embase, SocINDEX, ERIC, CINHALL, and Education Research Complete was undertaken. In this review, MHC was defined as a mental, behavioural, or emotional condition, or problematic substance use, and excluded neurodevelopmental or physical disorders. Two reviewers independently screened studies and extracted the data. Included studies are described and a risk-of-bias assessment was conducted on included studies. **Results:** Nine studies were included in this review, describing eight unique interventions. Sixty-two percent of interventions were nonspecific in the MHCs that they were addressing in postsecondary students. These interventions were designed to support students upon arrival to their PSIs. Peer mentorship, student engagement, goal setting, and interagency collaboration were some of the strategies employed. However, the overall quality and level of evidence in these studies was low and the effectiveness of these programs was not established. **Conclusion:** The volume of research identified was limited, no reliable nor policy informing conclusions can yet be made about the impact of these interventions as the evaluation methods, quality of the research methodologies, and the levels of evidence available were of low-quality. Future randomized control trials are required that are designed to target and improve transitions from secondary education to PSIs for those with MHCs.

Key Words: *transition-aged youth; mental health; postsecondary education; student wellbeing*

Résumé

Objectif: Mener une étude de la portée afin d'identifier les programmes et interventions qui soutiennent les jeunes souffrant de troubles de santé mentale (TSM) dans leur transition à une institution post-secondaire (IPS). **Méthode:** Une recherche des bases de données MEDLINE, PsycINFO, Embase, SocINDEX, ERIC, CINHALL, et Education Research Complete a été entreprise. Dans cette revue, les TSM étaient définis comme un trouble mental, comportemental ou

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émotionnel, ou une utilisation de substances problématique et excluait les troubles neurodéveloppementaux ou physiques. Deux réviseurs ont examiné indépendamment les études et extrait les données. Les études incluses sont décrites et une évaluation du risque de biais a été menée sur les études incluses. **Résultats:** Neuf études ont été incluses dans cette revue, qui décrivaient huit interventions uniques. Soixante-deux pour cent des interventions étaient non spécifiques dans les TSM qu'ils abordaient chez les élèves du post-secondaire. Ces interventions étaient conçues pour soutenir les élèves à leur arrivée à leur IPS. Le mentorat par les pairs, l'engagement des élèves, l'établissement de buts, et la collaboration inter-agence étaient certaines des stratégies employées. Toutefois, la qualité globale et le niveau des données probantes de ces études étaient faibles et l'efficacité de ces programmes n'a pas été établie. **Conclusion:** Le volume de recherche identifié était limité, rien de fiable ni aucune politique éclairant les conclusions ne peut encore révéler l'impact de ces interventions comme méthodes d'évaluation, la qualité des méthodologies de recherche, et les niveaux des données probantes disponibles étaient de faible qualité. Il faut de futurs essais randomisés contrôlés qui sont conçus pour cibler et améliorer les transitions de l'éducation secondaire aux IPS pour ceux qui souffrent de TSM.

Mots clés: *jeunes en âge de transition; santé mentale; éducation post-secondaire; bien-être étudiant*

Introduction

The transition from high school to post-secondary education is a critical milestone for independence (1,2). However, this life stage frequently coincides with the emergence of many mental health conditions (MHCs; 3,4). In this paper, MHCs were defined as a mental, behavioural, or emotional condition, or problematic substance use, and excluded neurodevelopmental or physical disorders (5,6). Youth with MHCs are the most challenging demographic to keep engaged with mental health care (7,8). Thus, without adequate support to assist with the transition to post-secondary institutions (PSIs), the mental health of arriving students with existing MHCs may decline or remain unmet (9-11). Declining mental health is associated with students withdrawing from both secondary education and PSIs (12). Thus, ensuring a positive and supportive transitional experience as students move between education levels may be important for future success (13).

Recent studies indicate that youth with MHCs often experience disproportionate challenges when transitioning into PSIs, compared to those without such conditions (2,14). In addition, Canadian youth are more likely to enroll in PSIs if they have not been diagnosed with an MHC (15). These patterns warrant greater attention as to how PSIs may better support youth with MHCs as they embark on the transition into postsecondary education.

To date, only one systematic review was conducted that focused on students whose MHC required occupational therapy to facilitate the transition to postsecondary education (16) and found that the quality of research was limited and that more research is required to determine the best practices for these transition services. One limitation of the previous review was that it solely focused on those who required occupational therapy with MHCs, thus more research is required to understand the best practices in transition services

for individuals with MHCs above and beyond those who require occupational therapy. To the best of our knowledge no systematic or scoping review has been conducted to examine all the available literature on interventions for supporting the transition to PSIs for students with MHCs.

Thus, this scoping review sought to identify best practices and interventions for supporting the transition to PSIs for students with MHCs and problematic substance misuse. The objectives of this scoping review were to identify and summarize: (1) research interventions that support youth with MHCs during the transition to PSIs; (2) describe the key components of these interventions and methodologies utilized; and (3) assess the level of evidence and quality of this literature to date.

Methods

Protocol

A protocol was registered prior to conducting this scoping review (17). This scoping review followed the methodological framework developed by Arksey and O'Malley (18) with guidance from Levac, Colquhoun, and O'Brien (19), the Joanna Briggs Institute's Manual for Evidence Synthesis (20), and the scoping review extension of the Preferred Reporting for Systematic Reviews and Meta-Analyses (PRISMA) checklist (21; Supplemental details available from the authors on request).

Search Strategy

A comprehensive search of the literature was conducted in the following online databases: MEDLINE, PsycINFO, Embase, SocINDEX, ERIC, CINHALL, and Education Research Complete, on May 29, 2020, with English language restrictions and no date restrictions. Search strategies were developed with the expertise of a health sciences librarian. A database search example is provided in the Supplemental

Material (available from authors on request). Once duplicate articles were removed, two reviewers independently performed title and abstract screening using Covidence systematic review software (22). Full text articles were then independently reviewed by two reviewers to determine final inclusion in this review. The reference lists of included articles were hand searched for relevant studies not found through online database searching.

Selection Criteria

Studies that met the following criteria, as judged by two reviewers, were considered eligible for inclusion in this scoping review: (1) studies must be primary research, or protocols outlining a primary research study; (2) mean age of study participants must fall between 16-24 years old, and be diagnosed with, or seeking support regarding an MHC; and (3) the intervention intended to support participants' transition into PSIs (e.g., an intervention primarily designed to recruit and aid individuals with MHCs in their transition from secondary to postsecondary education). Initial agreement on title/abstract screening was assessed using the kappa statistic for interrater reliability between reviewers. Disagreements were discussed as a group and a final decision was rendered by T.L.

Data Extraction

Data extraction was completed independently by reviewers T.L. and P.M. and included the following study characteristics: first author, year of publication, location of study (institution, city, country), study design, sample size, age of participants (mean and range), gender composition, summaries of intervention components, research methods (data collection, types of data), and key findings and components associated with the intervention.

Level of Research Evidence

The level of research evidence was also determined for each study using the hierarchy of evidence by Ackley et al. (23). The hierarchy of evidence consists of seven levels of evidence (e.g., Level 1 indicates the best level of evidence found from reviews of RCTs whereas Level 7 represents the lowest form of evidence from the opinions of experts), which is assigned to individual studies based on the studies a) methodological quality of their design, b) validity, c) and applicability to patient care.

Quality Assessment of Included Studies

The third study objective was to understand the methods of intervention evaluation and identify methodological limitations. Included studies were independently evaluated for quality by two reviewers (T.L. and D.T.). Studies were

assessed for quality using a modified Downs and Black (24) instrument. The modified checklist utilizes 14 items to evaluate studies that are cross-sectional in nature (i.e., one time point) and 17 items to evaluate studies that are longitudinal, generating a total score ranging up to 15 or 18 points, respectively. Higher scores indicate greater overall quality. This checklist assesses studies across five domains of study quality: external validity, study bias, confounding/selection bias, and study power.

Results

Search Results

Through online database searching, 2421 records were identified, and 52 additional records were identified through handsearching (figure 1). After duplicates were removed a total of 1,773 abstracts and titles were screened. The level of agreement between the two reviewers for screening was moderate ($\kappa=0.74$). A total of 158 studies were reviewed in full text. Altogether, nine studies met the inclusion criteria for this scoping review.

Study and Participant Characteristics

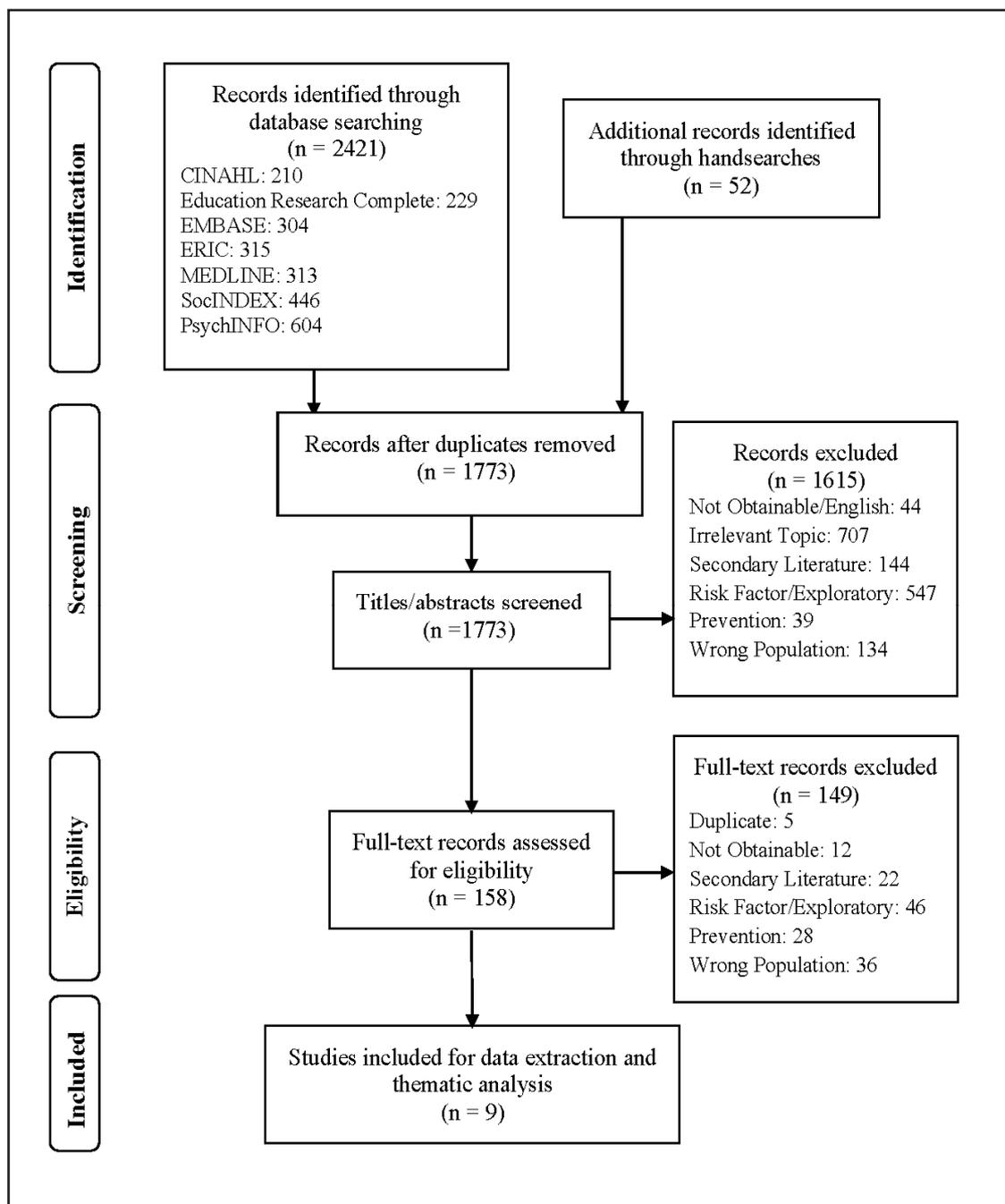
The data available from individual studies was limited, with a low level of evidence, which is summarized in Table 1. Studies and interventions identified by this review are summarized in Table 2. Two studies evaluated the same intervention representing the same trial (25,26). All studies were conducted in North America with a combined total of 275 unique participants. Sample sizes ranged from 8-83 participants in individual studies. The mean age was 20.13 years in studies that reported means ($n=5$), and the percentage of females was 48.36%.

Five interventions targeted participants with unspecified MHCs, and one intervention targeted only those with substance use disorder (27). Two interventions sought participants with specific MHCs (e.g., mood and anxiety disorders), and while other conditions such as problematic substance use could co-occur, comorbidities were not a factor in their participant inclusion criteria (28,29). Eight studies were published as journal articles, and one was a doctoral thesis (29).

Key Components of Interventions

Eight unique interventions were found from this review. Table 3 summarizes the key components of intervention programs in all eight interventions identified by this review. Of these, 37.5% of interventions were preparatory in nature and delivered to students prior to arrival or enrolment in PSIs (pre-arrival interventions, see Table 3), while the

Figure 1. Search Flow Diagram



other 62.5% were delivered to freshmen students as they arrived (post-arrival interventions). No interventions offered transitional support pre- and post-arrival. All but one intervention was delivered at a PSI. McClintick-Greene (29) was the only study to identify a pre-arrival intervention program delivered by secondary schools. Pre-arrival interventions worked with prospective students to develop skills and knowledge for independently navigating the transition,

set goals, and develop personalized strategies for maintaining mental health. Similarly, post-arrival interventions also worked on setting early goals for academic success and adjusting to independently managing their MHCs.

Partnerships between PSIs and external agencies were observed in 75% of intervention programs. Collaboration was sought from health clinicians, child welfare professionals, and counselling agencies to identify and refer participants

Table 1. Methods employed to evaluate intervention programs

Evaluation Approach	Study							
	Chugani 2020	Karpur 2005	Geenen 2015 & Phillips 2015	Botzet 2007	McClintick -Greene 2012	Ryglewicz 1993	Stringari 2003	Vallianatos 2019
Evidence Level*	VI	III	II	IV	VI	VI	VI	Protocol
Quantitative Methods	√	√	√	√			√	√
Questionnaire Instruments	√		√	√				
Administrative Data Analysis		√					√	√
Qualitative Methods				√	√	√	√	√
Interviews				√	√			√
Focus Groups								√
Open-ended surveys				√			√	
Case reports						√	√	
Study design	Cross-sectional	Longitudinal	RCT	Survey	Qualitative	Brief case studies	Descriptive	Mixed-Methods

*Note: Based on Swan, Ladwig, & Tucker's (2008) hierarchy of evidence: [Level II: Evidence obtained from at least one well-designed RCT, Level III: Evidence obtained from well-designed controlled trials without randomization (i.e. quasi-experimental), Level IV: Evidence from well-designed case-control or cohort studies. Level VI: Evidence from a single descriptive or qualitative study.] RCT= randomized control trial.

to intervention programs, and to deliver services (25, 26, 29, 30, 31). For example, in the Transition to College Program, examined by Stringari (30), the College of San Mateo brought in community social workers to provide on-campus support as case managers, teach special career seminars, and trained peer support workers for the program. The use of external collaborators with interdisciplinary knowledge may have provided additional support to student needs during the transition to postsecondary education. Some intervention approaches aimed to address more than just a single determinant of successful postsecondary transition such as academic performance (30) and financial security (32).

The use of peers to mentor participants was employed in 50% of identified interventions. Traditional mental health supports such as group or individual therapy was offered in 75% of interventions. Another identified practice was the use of student engagement throughout the program found in only 50% of interventions. StepUP (27), Better Futures (26) and ACCESS Open Minds (31) continually engaged with students on how the program could be improved. Engagement typically took the form of student committees that program administrators would routinely consult with. The Services for Teens at Risk (STAR) program also engaged students and their caregivers during the intervention's pilot phase to identify key areas to target during the transition to postsecondary education (13).

Description Intervention Research Design

There was considerable heterogeneity in the methods and study design utilized to study these interventions ranging from survey data to one RCT (see Table 1). Four studies gathered quantitative data, two gathered qualitative data, and three used a mixed methods approach. Quantitative data was gathered either from questionnaire instruments or administrative panel data, but no study employed multiple techniques to gather numerical data. Qualitative data tended to be gathered through multiple techniques such as a combination of focus groups, interviews, or descriptive case history reports.

Level of Evidence of Studies

The level of research evidence of studies included in this review were generally poor and most studies did not employ a research design that would allow for effectiveness to be established (i.e., only one RCT). We found that 86% of the studies were considered to be between Levels III and VI studies, with the majority of these studies having evidence that only came from a single descriptive or qualitative study (see Table 1). We identified only one RCT that was longitudinal in nature (25), which was rated as Level II evidence, meaning that the evidence from this study was obtained from a well-designed RCT. This RCT clearly randomized participants to either the intervention group versus a control

Table 2. Summary of data extracted from included studies

Author, Year	Location	N	Age, mean (min, max)	MHC Profile	Intervention Duration	Intervention/Program Model	Key Findings
Chugani, 2020	Pittsburgh, US	39	18.1 [17.3-19.3]	87% Depression 8% Bipolar 5% Anxiety	6 months before arrival at PSI	<u>Services for Teens at Risk (STAR)</u> : Multiple brief group sessions given to prospective students, focused on building knowledge about the transition process, and to manage their condition independently.	Majority were satisfied with intervention length, content, would recommend it to others
Botzet, 2007	Minneapolis, US	83	Students: 20.8 [18-27] Alumni: 24.5 [19-32]	Substance abuse	Upon arrival at PSI	<u>StepUP</u> : A four-part program including substance-free living provisions, weekly meetings to discuss recovery and academics, individual sobriety contracts, social activities in a substance-free setting.	Majority reported substance abstinence, regular self-help group attendance
Karpur, 2005	Miami, US	43	[18-22]	Emotional/ Behavioural Disturbances	Pre-arrival/ enrolment at PSI	<u>Steps-to-Success</u> : A multifaceted intervention involving planning and goal setting sessions, peer mentoring, therapy/counselling services and an academic curriculum/ training emphasizing employability.	PSI Enrolment by program graduates reached norm levels and above the comparison group
Ryglewicz, 1993	Suffern, US	35	[21-36]	Unspecified MHC; Inpatient history	Upon arrival at PSI after care discharge	<u>Project CHANGE</u> : A specialized course where students in recovery set goals, explored personal interests, and strengths.	Majority experienced success in courses.
Geenen, 2015	Portland, US	67	16.76 [16-18]	Unspecified MHC in foster youth	Pre-arrival/ enrolment at PSI	<u>Better Futures</u> : A multiday on-campus preparatory event for foster youth; bimonthly peer support sessions; mentoring workshops with foster youth facilitated by mental health experts.	Significant gains in enrolment, preparation, self-determination, compared to control group. Strong program endorsement and satisfaction on the social validity survey by participants
Phillips 2015	Portland, US	36	16.78 [16-18]				

continued

Table 2. continued							
Author, Year	Location	N	Age, mean (min, max)	MHC Profile	Intervention Duration	Intervention/Program Model	Key Findings
Vallianatos, 2019	Edmonton, Canada	n/a	[18-25]	Unspecified MHC	Upon arrival at PSI	<u>ACCESS Open Minds</u> : An integrated youth mental health service on campus to enhance rapid access to appropriate care for first year students. Self-referred or referred to ACCESS clinicians through an interprofessional care network.	Not Applicable (Study Protocol)
McClintick Greene, 2012	Iowa, Atlanta, Chicago, US	8	21.36 [19-26]	Internalizing Disorders	Pre-arrival/enrolment at PSI	Multiple programs (required by the Individuals with Disabilities Education Act) offering transition planning services to prospective post-secondary students in senior years of high school as well as supports outside of high school to aid in transition.	Transition services reflect best practice from the literature. None reported seamless transition.
Stringari, 2003	San Mateo, US	n/a	n/a	Unspecified MHC	Upon arrival at PSI	<u>Transition to College Program</u> : College-provided academic/career and mental health counselling, and peer support to arriving students with mental health needs. External partners supported students as case managers, instructors, and peer support trainers.	Retention rates and grades increased for program participants
Notes: Mental Health Conditions (MHC), Postsecondary Institution (PSI)							

group, there were no significant group differences at baseline, attrition was similar across groups over the four time-points, the investigators reported on all outcomes, and the study was free from other sources of bias such as funding from corporations. In this one RCT, the researchers found significant group differences of moderate to large effect sizes from baseline to intervention follow-up on measures of self-determination, mental health empowerment, postsecondary preparation, transition planning, hope, and twice the level of postsecondary participation at follow-up in the intervention group. There are two potential drawbacks to this RCT. The smaller sample size of 67 participants may have impacted their ability to detect a difference for other

outcomes between the groups such as mental health recovery, high school completion rates, and quality of life. In addition, the generalizability of the findings are limited as the study participants were recruited from only youth with MHC in foster care.

Quality of Research Design

Eight of the nine studies were assessed for methodological quality. Vallianatos et al. (31) was not assessed as it provided only a high-level description of future research. Most studies were cross-sectional studies in nature (measuring at one time point), for these studies the mean Downs & Black score was 7.8/15, indicating relatively poor quality across

Table 3. Key components of intervention programs

Intervention component	Study								
	Chugani 2020	Karpur 2005	Geenen 2015	Phillips 2015	Botzet 2007	McClintick -Greene 2012	Ryglewicz 1993	Stringari 2003	Vallianatos 2019
Program	STAR	Steps-to-Success	Better Futures		StepUP	IDEA	Project CHANGE	Transition to College Program	ACCESS OM
Pre-enrolment Involvement	√		√			√			
Post-enrolment Involvement		√			√		√	√	√
Peer involvement/ Support			√		√			√	√
Skills/ Knowledge Preparation	√		√			√			
Student Engagement	√		√		√				√
External Collaboration		√	√			√	√	√	√
Traditional Mental Health Supports	√	√				√	√	√	√
Goal Setting	√	√	√			√	√		
Delivered at Post-Secondary Campus	√	√	√		√		√	√	√

studies. All cross-sectional studies failed to identify and adjust for potential confounders, and none reported actual probabilities or estimates of random variability. For the two longitudinal studies (i.e., one longitudinal RCT and one longitudinal cohort follow-up study), the mean Downs & Black score was 13.5/18, indicating relatively good quality across studies. However, both studies failed to adjust for confounders, and one did not acknowledge the potential for confounding. Across all eight studies the language describing sampling methods was vague and at times inconclusive to determine if participants were representative of the source population.

Limitations of Studies

Overall, there was a paucity of literature available on this subject. In the few studies that we identified the quality of research designs and level of evidence of studies included in this review were poor. The majority of studies had relatively small sample sizes and employed a research design that would not allow for effectiveness to be determined.

Even in the one well-designed RCT, the findings were severely limited due to power and generalizability issues.

Discussion

Effective interventions for supporting the postsecondary transition of youth with MHCs is an important topic as there is a high incidence of MHCs at this stage of life (3,4). Although much has been published on student mental health theories and transition practices (33,34) there is a very limited amount of research on interventions that either tests or mobilizes these theories to support youth with MHCs and their transition to PSIs. This review identified eight programs which relied on peer mentorship, active student engagement, and/or interagency collaboration to support youth in their transition to PSIs. Overall, the research identified lacked higher quality evidence and evidence of effectiveness of these interventions for mental health and substance use conditions remains inconclusive.

Given the low level of evidence reported in the individual studies included in this review there is a clear need to

develop and test interventions to support transitions to PSIs for those with MHCs to see if these interventions are effective. These future interventions should take the form of well-design RCTs to examine the long-term outcomes and effectiveness of these interventions compared to control groups. The majority of interventions reported in the individual studies were broad and vague, such that the components of peer support, case management, and skill development were not well documented. Thus, there is also a need for quality interventions that give detailed reports regarding the key components involved in the interventions employed.

Unfortunately, based on the findings of this scoping review there is not enough evidence available to help inform policy specific to the topic of transition to PSIs for those with MHCs. Currently, RCTs co-designed by PSIs, researchers, and youth with MHCs are needed to help inform policy. These policies should be based on clear and evidence regarding what service, and program and support approaches support positive mental health and academic success in young people with MHCs. This approach will help policy makers develop guidelines and fund impactful approaches. Despite the lack of established effectiveness, some elements should be at least considered in future studies such as policies that may support external agency collaboration and collaborations between secondary education to PSI. The core objective of a PSI is to provide an education and vocational training to students and thus this core PSI mandate may be a potential barrier to supporting these programs due to staffing and funding limitations if they were found to be effective. To build capacity, many of the interventions identified in this review leveraged external partnerships to support arriving students with complex mental health needs. Multidisciplinary collaboration has become a key piece to establishing accessible mental health care (35,36) and collaborating with external agencies can bridge otherwise disconnected services (35, 37, 38).

Recommendations for Future Research

Although peer support, collaboration, and engagement have the potential to help those transitioning to post-secondary education with MHCs, these themes are unsupported by current data and evidence presented. The research evaluating postsecondary education transition interventions for youth with MHCs varied from one RCT (25) to brief case studies such as Ryglewicz and Glynn (32). This heterogeneity of research approaches in such a limited volume of literature creates uncertainty regarding which intervention practices contributed to its successes. To date, only one RCT examining the impact of these interventions on transition to PSIs was found to be effective (25), however this study suffered

from a low sample size and generalizability issues (i.e., recruiting youth in foster care with MHCs). Clearly there is a need to design large RCTs to examine the impact of these types of transition interventions in a sample that is more generalizable. If other research designs are to be employed, the quality could be improved by clearly identifying and adjusting for confounding variables, and by employing a mixed methods strategy to assess outcome metrics through a qualitative perspective. Qualitative methods provide a means to explore contextual variables that facilitate intervention effectiveness (39), which several quantitative studies in this review lacked. The literature found in this review provided no indication of whether these interventions are more effective or cost-effective than the status quo. Future research should measure intervention effectiveness and assess effectiveness in relation to intervention costs, thereby providing evidence-based options for senior decision-makers in the postsecondary education sector (40). Finally, addressing both mental health status of students and retention as outcomes; may require a participatory action research and/or youth engagement approach to meaningfully involve youth as research partners which could aide in salient meaningful outcomes and measures.

Strengths and Limitations

The methodological strengths of this scoping review include the use of multiple well-established scoping review frameworks to guide this study (18, 20, 21). The breadth of bibliographic screening by independent reviewers was ensured. The volume of relevant studies identified was low but consistent with other reviews on postsecondary education transition interventions for students with neurodevelopmental conditions or students whose MHC required occupational therapy to facilitate the transition to postsecondary education (14, 16).

The limitations of this scoping review include the possibility that some relevant articles may have been missed by our search strategy. This review excluded articles not published in English. This is a source of publication-bias since potentially relevant articles may have been missed due to the research team's inability to appropriately assess them. Efforts were devoted to identifying relevant studies in the scholarly literature only, thus this scoping review cannot offer a conclusion on what evidence may exist in the grey literature. Since only studies in high-income jurisdictions were found, the findings of this review may not be applicable to low- or middle-income jurisdictions. In addition, there are limitations in regard to data extraction in that only high-level outcomes were reported in the tables and results which is consistent with reporting in scoping reviews. The level of evidence reported in individual studies was also low in that

many did not report greater details about the intervention components, some articles were vague, and others lacked precision in their reporting.

There are several areas to consider related to the limitations in the area of practice, policy, and research. First, the role and existence of post-secondary student wellness services may create jurisdictional and accountability vacuums in that there is a clear lack of collaboration between secondary and PSIs that help guide the transition. Next, there is a strong need to document the engagement and outcomes for Indigenous, LGBTQ-2 spirited, racialized, and marginalized young people with MHCs during and after their transition to PSIs. Finally, both peer support and engagement interventions were poorly documented and had very low-quality assessment scores, which undermined the impact of both the qualitative and experiential data.

Conclusion

The volume of research identified was limited, no reliable nor policy informing conclusions can yet be made about the impact of these interventions as the evaluation methods, quality of the research methodologies, and the levels of evidence available were of low-quality. Future randomized control trials are required that are designed to target and improve transitions from secondary education to PSIs for those with MHCs.

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Conflicts of Interest:

All authors report no conflicts of interest with this study.

References

- Lindsay S, Lamptey D-L, Cagliostro E, Srikanthan D, Mortaji N, Karon L. A systematic review of post-secondary transition interventions for youth with disabilities. *Disabil Rehabil*. 2019;41(21):2492-505.
- Davis MT, Cumming IK. Practical strategies for improving postsecondary outcomes for students with EBD. *Preventing School Failure: Alternative Education for Children and Youth*. 2019;63(4):325-33.
- Arnett JJ, Žukauskienė R, Sugimura K. The new life stage of emerging adulthood at ages 18–29 years: implications for mental health. *The Lancet Psychiatry*. 2014;1(7):569-76.
- Srivastava R, Srivastava R. *Supporting Post-secondary Youth Mental Health Through Inclusive Practices Attuned to Culture*. Cham: Cham: Springer International Publishing; 2019. p. 225-42.
- Center for Behavioral Health Statistics and Quality. *Behavioral Health Trends In The United States: Results From The 2014 National Survey On Drug Use And Health (NSDUH)2015*; HHS Publication No. SMA 15-4927, NSDUH Series H-50. Available from: <https://www.samhsa.gov/data/report/behavioral-health-trends-united-states-results-2014-national-survey-drug-use-and-health>.
- Tam T. The Chief Public Health Officer's Report on the State of Public Health in Canada 2018: Preventing Problematic Substance Use in Youth. Public Health Agency of Canada [Internet]. 2018. Available from: <https://www.canada.ca/en/public-health/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/2018-preventing-problematic-substance-use-youth.html#app1>.
- Henderson C, Evans-Lacko S, Thornicroft G. Mental illness stigma, help seeking, and public health programs. *Am J Public Health*. 2013;103(5):777-80.
- Wang M-T, Fredricks JA. The Reciprocal Links Between School Engagement, Youth Problem Behaviors, and School Dropout During Adolescence. *Child Dev*. 2014;85(2):722-37.
- McEwan RC, Downie R. College Success of Students with Psychiatric Disabilities: Barriers of Access and Distraction. *Journal of Postsecondary Education and Disability*. 2013;26(3):233-48.
- Kuwabara SA, Van Voorhees BW, Gollan JK, Alexander GC. A qualitative exploration of depression in emerging adulthood: disorder, development, and social context. *General hospital psychiatry*. 2007;29(4):317-24.
- Linden B, Stuart H. Post-Secondary Stress and Mental Well-Being: A Scoping Review of the Academic Literature. *Canadian Journal of Community Mental Health*. 2020;39(1):1-32.
- Dupéré V, Dion E, Nault-Brière F, Archambault I, Leventhal T, Lesage A. Revisiting the Link Between Depression Symptoms and High School Dropout: Timing of Exposure Matters. *Journal of Adolescent Health*. 2018;62(2):205-11.
- Chugani CD, Goldstein TR, Salk RH, Poling K, Sakolsky D, Brent D. Group Intervention for Young Adults With Mood and Anxiety Disorders Transitioning to College. *Journal of psychiatric practice*. 2020;26(2):120-5.
- Di Rezze B, Nguyen T, Mulvale G, Barr NG, Longo CJ, Randall GE. A scoping review of evaluated interventions addressing developmental transitions for youth with mental health disorders. *Child: Care, Health and Development*. 2016;42(2):176-87.
- Arim R, Frenette M. Are Mental Health and Neurodevelopmental Conditions Barriers to Postsecondary Access? Statistics Canada, Analytical Studies Branch Research Paper Series [Internet]. 2019; 417. Available from: <https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2019005-eng.htm>.
- Spencer B, Sherman L, Nielsen S, Thormodson K. Effectiveness of Occupational Therapy Interventions for Students with Mental Illness Transitioning to Higher Education: A Systematic Review. *Occupational therapy in mental health*. 2018;34(2):151-64.
- Dimitropoulos G, Lange TC, Schraeder K, Zwicker J, Vallianatos H, Bruckner D, et al. Transitional supports for youth with mental illness and problematic substance use entering higher education: A scoping

- review protocol [Internet]. OSF; 2020. Available from: osf.io/3b5hp
18. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*. 2005;8(1):19-32.
 19. Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implementation Science*. 2010;5(1):69.
 20. Peters M, Godfrey C, McInerney P, Munn Z, Tricco AC, Khalil H. Chapter 11: Scoping reviews. 2020. In: *JBIMES-20-12*. JBI Manual for Evidence Synthesis [Internet]. JBI. Available from: <https://doi.org/10.46658/JBIMES-20-12>.
 21. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Med*. 2018;169(7):467-73.
 22. Veritas Health Innovation. Covidence systematic review software Melbourne, Australia2019 [Available from: <http://www.covidence.org>].
 23. Ackley BJ, Swan BA, Ladwig G, Tucker S. Evidence-based nursing care guidelines: medical-surgical interventions. St. Louis, Mo: Mosby Elsevier; 2008. p. 7.
 24. Downs SH, Black N. The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of Epidemiology and Community Health*. 1998;52(6):377 LP-84.
 25. Geenen S, Powers LE, Phillips LA, Nelson M, McKenna J, Wings-Yanez N, et al. Better Futures: a Randomized Field Test of a Model for Supporting Young People in Foster Care with Mental Health Challenges to Participate in Higher Education. *J Behav Health Serv Res*. 2014;42(2):150-71.
 26. Phillips LA, Powers LE, Geenen S, Schmidt J, Wings-Yanez N, McNeely IC, et al. Better Futures: A validated model for increasing postsecondary preparation and participation of youth in foster care with mental health challenges. *Children and youth services review*. 2015;57:50-9.
 27. Botzet AM, Winters K, Fahnhorst T. An Exploratory Assessment of a College Substance Abuse Recovery Program: Augsburg College's StepUP Program. *Journal of Groups in Addiction & Recovery*. 2008;2(2-4):257-70.
 28. Karpur A, Clark HB, Caproni P, Sterner H. Transition to Adult Roles for Students With Emotional/Behavioral Disturbances: A Follow-Up Study of Student Exiters From Steps-to-Success. *Career Development for Exceptional Individuals*. 2005;28(1):36-46.
 29. McClintick-Greene HA. College bound: Examining the adequacy of high school transition planning for youth with internalizing disorders: ProQuest Dissertations Publishing; 2012.
 30. Stringari T. Community Partnerships Increase Services and Outcomes for Students with Psychological Disabilities. *iJournal*. 2003(4).
 31. Vallianatos H, Friese K, Perez JM, Slessor J, Thind R, Dunn J, et al. ACCESS Open Minds at the University of Alberta: Transforming student mental health services in a large Canadian post-secondary educational institution. *Early Interv Psychiatry*. 2019;13(1):56-64.
 32. Ryglewicz H, Glynn L. Project CHANGE Revisited: An Experiment in Entry or Reentry into College. *Psychosocial rehabilitation journal*. 1993;17(1):69-81.
 33. Martel A, Derenne J, Leebens PK. Promoting Safe and Effective Transitions to College for Youth with Mental Health Conditions: A Case-Based Guide to Best Practices. Cham: Cham: Springer International Publishing AG; 2018.
 34. Chan V, Moore J, Derenne J, Fuchs DC. Transitional Age Youth and College Mental Health. *Child and Adolescent Psychiatric Clinics of North America*. 2019;28(3):363-75.
 35. Pomare C, Long JC, Churruka K, Ellis LA, Braithwaite J. Social network research in health care settings: Design and data collection. *Social networks*. 2019.
 36. Piat M, Sabetti J. The development of a recovery-oriented mental health system in Canada: What the experience of commonwealth countries tells us. *Can J Commun Ment Health*. 2009;28(2):17-33.
 37. Darlington Y, Feeney JA, Rixon K. Interagency collaboration between child protection and mental health services: Practices, attitudes and barriers. *Child Abuse & Neglect*. 2005;29(10):1085-98.
 38. Halsall T, Manion I, Iyer SN, Mathias S, Purcell R, Henderson J. Trends in mental health system transformation: Integrating youth services within the Canadian context. *Healthc Manage Forum*. 2019;32(2):51-5.
 39. Rolfe DE, Ramsden VR, Banner D, Graham ID. Using qualitative health research methods to improve patient and public involvement and engagement in research. *Res Involv Engagem*. 2018;4(1):49.
 40. Levin HM, Belfield C. Guiding the Development and Use of Cost-Effectiveness Analysis in Education. *Journal of research on educational effectiveness*. 2015;8(3):400-18.