

# Employment and Education Interventions Targeting Transition-Age Youth with Mental Health Conditions: A Synthesis

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**Abstract** Transition-age youth with mental health conditions experience adverse employment and educational outcomes and little is known about strategies for improving their outcomes. The purpose of this study was to review education and employment intervention programs that targeted transition-age youth with mental health conditions, to highlight the components, efficacy of the interventions, and predictors of better outcomes. Eighteen studies published between 1990 and 2017 met the inclusion criteria. Results indicate that interventions led to improvement in employment or education outcomes. Common intervention components included: mental health services, career counseling, career development, cognitive adaptation training, interagency collaboration, peer mentoring, functional skills assessment, individualized or person-centered counseling, social skill, and independent living skills training. Being married, active participation in vocational intervention, social support, prior work experience, high score on Social and Occupational Functioning Assessment Scale were

found to be associated with better education and employment outcomes. Implications for research, and practice are discussed.

**Keywords** Transition-age youth · Mental health conditions · Employment outcomes · Education outcomes

## Introduction

Evidence indicates that mental health conditions— anxiety disorders, depression, schizophrenia, substance abuse disorder, mood disorders, and bipolar disorder—are common causes of disabilities amongst transition-age youth. Transition-age refers to the period between adolescence and early adulthood, usually between 14 and 25 years based on recommendation from the Federal Partners in Transition. Epidemiological studies [14, 36, 42] have reported high prevalence of mental health conditions amongst transition-age youth. In fact, the period between adolescence and early adulthood represents the highest rate of onset for most mental health conditions with a quarter of all serious mental illness beginning by the age of 14 and three quarter by age 24 [28, 39].

Evidence also suggests that postsecondary educational attainment or maintaining competitive employment are strong facilitators of successful transition to

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adulthood. Unfortunately, the desire of many transition-age youth with mental health conditions (MHC) to earn higher education degrees, or to secure and maintain competitive employment is far from realization. In fact, in comparison to other transition-age youth with disabilities, transition-age youth with MHC have the poorest education and employment outcomes [39, 58]. Despite this disturbing fact, there is limited knowledge available to guide educators, transition officers, counselors, and other stakeholders on strategies for improving outcomes of these youth. Also, while there are various education and employment interventions for people with MHC, little is known about their components, implementation procedures, and effectiveness for transition-age youth. To fill this gap, the current review aims to identify, and evaluate available education and employment interventions and programs targeting transition-age youths with MHC to highlight the characteristics of the studies, components of the interventions or programs, and variables associated with better outcomes within the studies. An understanding of the characteristics, components, and implementation of these interventions across existing studies can enhance current and future intervention efforts. In addition, information garnered from this review can inform the practices, development of policies, and implementation of interventions to improve education and employment outcomes of transition-age youths with MHC.

#### Education and Employment Challenges Facing Youth with MHC

Youth with MHC experience significant challenges during their transition to adult life [33]. During this stage, young people are generally confronted with the responsibilities of adjusting to adult roles, completing secondary education, obtaining employment, enrolling in post-secondary education or vocational training, and living independently [31, 57]. For young people with MHC, this period may be more challenging because the symptoms associated with MHC. Symptoms such as impaired cognitive functioning, loss of motivation, poor social functioning, and fatigue may affect education, employment, and other life endeavors; thus, resulting in poor outcomes [29, 33]. The poor education and employment outcomes experienced by transition-age youth with MHC are well documented. According to the United States

Department of Education [56], more than one-third of youth with MHC who are enrolled in special education program drop out of school. Also, research has shown that in comparison to their peers with and without disabilities, transition-age youth with MHC are less likely to enroll in or complete post-secondary education [15, 58, 59]. These youth are also at higher risk for school suspension, substance abuse, and involvement with the criminal justice system [12, 51, 59, 60]. Their struggles also extend to employment. Youth with MHC experience significant barriers in securing and maintaining employment; they have the lowest employment rate when compared to other disability categories and transition-age youth in general [43, 58]. Also, it has been documented that they have less job stability, work for fewer hours, earn low wages, experience high rates of job loss, and underemployment [11, 17, 49].

Researchers have responded to these findings by studying the personal and structural factors contributing to adverse education and employment outcomes amongst transition-age youth with MHC. Poor social skills, poor work skills, low self-esteem, low expectations, poor self-efficacy, stigma, limited work experience, lack of transportation, and discrimination are some of the factors that have been identified [8, 22, 32, 33, 54]. The side effects (e.g. confusion, drowsiness, tremor) of antipsychotic, antidepressant, and mood stabilizing medications might also limit education and labor force participation [52]. Additionally, underutilization of mental health services, and transitioning to adult services coupled with difficulty accessing developmentally appropriate services have also been identified as salient issues impacting the outcomes of this population [46, 61].

Likewise, researchers have highlighted certain skills and practices that can enhance the outcomes of these youth. Social skills training, vocational skills, self-determination skills, academic support, career assessment, family involvement, interagency collaboration, workplace support, and community involvement are core skills and practices that have been identified [9, 11, 40]. Also, Lloyd and Waghorn [33] suggested the implementation of a recovery model that integrates evidence-based employment and education practices with mental healthcare to address symptoms of MHC as well as to improve education and employment outcomes.

## Employment and Education Interventions for Individuals with MHC

To provide context for the present study, this section describes the various intervention models that have been investigated with people with MHC. Supported employment is the most prominent evidence-based model that has been implemented with individuals with MHC. Major services provided in a supported employment include job search services, vocational training, job coaching, career counseling, psychosocial rehabilitation, and mental health services. Sheltered workshops have also been investigated with individuals with MHC. With sheltered workshops, the work environment is created to allow individuals with severe MHC to work at their own pace and according to their ability [33]. The non-integrated prevocational model, also known as “train and place” was introduced over three decades ago. The non-integrated prevocational programs provide services (e.g. career assessment, counseling, skill training) and work-related skill training to individuals with disabilities prior to being placed in a job position [41].

In terms of an intervention targeting educational needs, supported education is the most researched intervention model for adults with MHC. The primary goal of supported education is to provide learning supports, accommodations, and services for individuals with MHC to pursue and attain their educational goals within regular secondary or post-secondary education settings [34, 38]. Although all these models have been found to be effective with adults with MHC, the question remains of their efficacy for the transition and developmental needs of youth progressing from adolescence to adult life. The Transition to Independence Process (TIP) is the most prominent transition related model that has been evaluated in the United States. The goal of TIP is to empower and support young people with emotional difficulties to make successful transition to adulthood by facilitating their growth in employment, career, education, living arrangement, interpersonal and community-life functioning [13]. Services typically provided under TIP include person centered planning, strengths and needs assessment, self-determination skill training, individualized support and resources.

## Previous Reviews on Employment and Education Interventions

Some reviews (e.g. [2, 50]) have examined the effectiveness of employment and education interventions/programs for people with mental health conditions, but none has focused specifically on evaluating interventions for transition-age youth. Bond et al. [6] examined 28 studies to determine the effectiveness of early intervention programs on employment and educational outcomes of people with first-episode psychosis. The authors identified 11 supported employment interventions, five unspecified vocational intervention studies, and 20 intervention programs without vocational assistance studies. A meta-analysis of the four controlled trial studies identified in their search suggest the effectiveness of supported employment in improving employment outcomes. Also, the results from Bond et al. [6] study suggest that integrating evidence-based supported employment services into early clinical intervention programs significantly increases employment rates of individuals with first episode psychosis. While the findings from Bond et al. [6] are notable, their participants' ages ranged from 14 to 45; and their review was limited to early intervention studies.

## Purpose of the Study

Given the education and employment challenges, and poor outcomes that transition-age youth with MHC experience, there is an urgent need to understand the types of interventions available for them. These include an understanding of how and where they are implemented, the components, and efficacy of such interventions. Therefore, the purpose of this systematic review was to identify and describe employment and education interventions for transition-age youth with MHC; to evaluate the components of these interventions, and their effectiveness in improving education and employment outcomes for these youth. In addition, this review attempts to identify variables (e.g. work experience, social skills) that are related to improved education and employment outcomes.

Specifically, the following research questions were explored:

**Table 1** Description of study characteristics and intervention components

Authors	Participants	Setting	Design	Intervention name and components	Outcomes	Findings
Allott et al. [1]	Age: 15–25 N = 5 Schizoaffective disorder and bipolar disorder	Early Psychosis Prevention and Intervention Centre (EPPIC) Melbourne, Australia	One group pre-posttest	Cognitive adaptive training Case management, medical review, planning, transportation, work skill, social skills, financial management, and cooking skills	Employment Enrollment	Four of the five participants were either working or studying (or doing both), while one participant remained unemployed
Browne and Waghorn [7]	Age: 15–25 N = 43 Schizophrenia, anxiety disorder, personality disorder, substance abuse, bipolar, and autism (3)	Workwise Employment Ltd Christchurch, New Zealand	Pre-posttest (two-groups comparison)	Supported Employment (IPS) Education support, vocational assessment, job search, work development, on-the job support, advocate for employers' support	Competitive employment Work hours per week Weekly earnings	69.4% commenced competitive employment Mean hours worked per week: IPS group = 33.9 h, comparison group = 24 Mean weekly earnings: IPS group = \$563; comparison group = \$200
Bullis et al. [10]	Age: 16–25 N = 85 Emotional disturbance	Achieving Rehabilitation, Individualized Education and Services (ARIES) Oregon, USA	One group pre-posttest	Transition program Functional skill assessments, person-center planning, individualized educational placement and support, competitive job placement, and inter-agency collaboration	Employment, enrollment, and high school graduation	55% of the participants were engaged in school or employment at follow up
Dresser et al. [18]	Age: 14–25 N = 29 Severe MHC (PTSD, depression, substance abuse)	Community mental health program, Michigan, USA	One group pre-posttest	Transition to Independence Process (TIP)	Employment, attending high school or GED program, graduation from high school, and college attendance	School attendance increased from 25 to 69% 21% graduated high school or GED Employment increased 0–21% College attendance from 0 to 7%
Ellison et al. [19]	Age: 17–20 N = 35 Mood disorders, psychosis, substance abuse	Threshold Young Adult Program (YAP) in Illinois, USA	One group pre-posttest	Supported employment (IPS)/ education Peer mentoring, career exploration, mental health services, IPS services, advocacy for educational accommodation, and collaboration with colleges and agencies	Employment: Job tenure, wage range, weekly work hours Enrollment in alternative high school or General Equivalency Diploma (GED), community college, Completion of education	Employment track 13 started education or job Mean job tenure: 11 weeks Mean weekly hours: 20 Wage range: \$8.25–8.50 Job termination: 10 Education track 18 started a job or enroll in education 9 dropped out

**Table 1** continued

Authors	Participants	Setting	Design	Intervention name and components	Outcomes	Findings
Ferguson [21]	Age: 18–24 N = 36 Generalized anxiety, PTSD, depression, mania/hypomania, personality disorder, alcohol/substance use disorders	Homeless Youth Agency in Los Angeles, USA	Quasi-experimental	Supported employment (IPS) and social enterprise intervention	Ever work rate Paid employment Monthly work rate Weekly work rate Weekly income	85% of the IPS group and 37.5% of the control group worked at some point during the study 66.7% of the IPS group and 25% of the control group reported working at follow up The IPS group worked on average 5.20 months (SD = 3.33) compared to 2.19 months (SD = 2.97) among the control group Ever worked rate was significant ( $p = 0.003$ ) Working at follow-up was significant ( $p = 0.06$ ) The IPS group worked on average 5.20 months (SD = 3.33) compared to 2.19 months (SD = 2.97) among the control group Weekly work hours ( $d = 0.012$ )
Ferguson et al. [20]	Age: 15–25 N = 36 Generalized anxiety, PTSD, major depression, mania, personality disorder and alcohol addiction	Homeless Youth Agency in Los Angeles, USA	Quasi-experimental	Supported employment (IPS)	Ever-worked rate Working at follow up rate Monthly work rate Weekly hours worked Weekly income	At 14 months follow-up, eight participants were engaged in the second phase of the vocational rehabilitation program, nine were engaged in other training programs, six are vocationally active, with three in paid employment 65% of intervention group and 24% of control group youth were participating in higher education at follow up; a significant difference between groups ( $\chi^2 = 9.57$ ; $p < 0.001$ ) Among participants attending high school, 60.6% in intervention were seniors as compared to 46.2% of control youth
Gaal et al. [23]	Age: 14–25 N = 28 Schizophrenia	The Trainee Project Adolescent Clinic of the Academic Medical Centre, Amsterdam	One group pre-posttest	Supported employment (elements of IPS)/family-oriented program	Employment Enrollment in education or vocational training programs Volunteer work	Weekly work hours ( $d = 0.012$ )
Geenen et al. [24]	Age: 16–18 N = 67 Mental health conditions	Better Future Project, USA	Experimental	Transition program Peer coaching and mentoring, self-determination skills, high education informational sessions, career exploration	High school completion Post-secondary school enrollment	Weekly work hours ( $d = 0.012$ )

Table 1 continued

Authors	Participants	Setting	Design	Intervention name and components	Outcomes	Findings
Hagner et al. [25]	Age: 16–22 N = 18 Anxiety, PTSD, depression, antisocial personality disorder, substance use	Rehabilitation Empowerment Natural Support Education and Work (RENEW) New Hampshire, USA	One group pre-posttest	Transition program Supported employment, social skills, flexible high school curriculum, mentoring, individualize and flexible resources, interagency collaboration, and personal future planning	Employment Hourly wage Hours worked per week	11 people secured job out of the 18 15 people got competitive employment Average weekly work hours were 27.7 Average income per hour was \$6:19 12 people completed high school or GED. 9 enrolled in post-secondary education 3 people enrolled in alternative high school program
Hoffmann and Mastrianni [26]	Age: 18–24 N = 131 Anxiety Depression, schizophrenia, bipolar, eating disorder	Four-Wind Saratoga and Four wind Westchester private in-patient psychiatric hospital. USA	Quasi experimental	Supported education Intensive group and individual psychotherapy, college services, individualized education plan and implementation, collaboration with college and on-going clinical support	College return rates Education attainment Aspiration to further education Strengths of students' identity	88% returned to school in experimental compared to 58% returned to school in control group Experimental group reported less difficulty of transition from hospital to school 55% experimental group students reported strong aspiration for college, 37% in control group Experimental group students reported stronger student identity
Karpur et al. [27]	Age: 18–22 Severe mental illness N = 43	Steps-to-Success Program. Robert Morgan Vocational and Technical School in Miami-Dade County. USA	Pre-posttest-longitudinal (two groups comparison study)	Transition to independence progress (TIP) Person centered planning, vocational education course, paid and unpaid practicum, mental health services, career exploration, and clinical services	Employment Post-secondary school education enrollment Productive engagement	44% were employed 36% enrolled in postsecondary education, 66% productively engaged compared to 39%, 17%, 34% of those in the comparison group respectively

**Table 1** continued

Authors	Participants	Setting	Design	Intervention name and components	Outcomes	Findings
Killackey et al. [30]	Age: 15–25 N = 41 First episode psychosis	Early Psychosis Prevention and Intervention Centre (EPPIC) in Melbourne, Australia	Experimental	Supported employment (IPS) Case management, IPS services, medical review, and referral to external vocational agencies	Employment: Number of jobs held Weekly work hours Number of weeks spent on job Weekly income Education: Number of courses completed Enrollment at follow up	Difference in employment rate or education enrollment was significant ( $\chi^2 = 13.24, p < 0.001$ ) Average hours of work per week was significantly higher for intervention group than control group (38 h vs. 22.5 h, $p = 0.006$ ) Average longevity of employment was significantly higher for intervention group than control group ( $p = 0.021$ ) Difference in average weekly income was significant ( $p = 0.012$ ) Difference in hourly wage was significant ( $p = 0.013$ ) Seventeen participants completed the program. Of the 17, One person got high school certificate, 10 got school certificate Seventeen participants were engaged in pathways to employment (i.e. vocational courses, work skills, work experience, employment) Four participants had jobs at follow-up Two were enrolled in technical education One held a volunteer position Five participants did not complete the program
McShane et al. [35]	Age: 14–20 N = 24 Social anxiety	The Sulman Program, located at Rivendell High School and Adolescent and Family Psychiatric Unit Sydney, Australia	One group pre-posttest	Educational support program Transportation, employment training, family education exposure to different social environments, pharmacotherapy, social skills training, personal and supportive therapy	High school graduation, employment Course completion Enrollment in educational program	
Parlato et al. [44]	Age: 18–25 N = 21 Psychosis	Mental health care center in Central Coast Health for New South Wales, UK	One group pre-posttest	Vocational rehabilitation Career counseling, career exploration activities, self-awareness training, mental self-care information, and goal-setting training	Employment Enrollment in education or vocational training Program completion Volunteer work	

Table 1 continued

Authors	Participants	Setting	Design	Intervention name and components	Outcomes	Findings
Porteous and Waghorn [47]	Age: 14–25 Psychosis Anxiety Depression Personality disorders N = 225 (study 1: 100, study 2: 125)	Capital and Coast District Health Board (CCDHB), New Zealand	One group pre-posttest	Supported employment (IPS) Mental health services, ongoing vocational assessment, all IPS services, community-based services	Competitive employment Enrollment in formal education	<i>Study 1</i> : 49% of participants attained vocational outcome Employment: 37 engaged in part time or full-time work Education: 13 enrolled in part-time or full-time school <i>Study 2</i> : 59% of participants attained vocational outcome Employment: 58 engaged in part time or full-time work Education: 16 enrolled in part-time or full-time school
Porteous and Waghorn [48]	Age: 14–25 N = 135 Major depression, bipolar disorder, schizoid-affective disorder, schizophrenia PTSD, personality disorder	Capital and Coast District Health Board (CCDHB) in New Zealand	One group pre-posttest	Supported employment (IPS) and education	Competitive employment Enrollment in formal education	Competitively employed: Full time: 27 people Part-time: 36 people Education enrollment: Full time: 14 people Part time: 14 people
Sample [53]	Age: 14–25 N = 53	Productive Youth Community (PYC) The Student Opportunity for Success. USA	One group pre-posttest	Transition program Career exploration, work ethics training, job search strategies, employment support, social skills training, communication skills training, recreation therapy and psychotherapy	Working > 37 h per week at follow-up Working 23–37 h per week at follow-up Working less than 23 per week at follow-up Not employed	58% of the participants were working > 37 h per week at 24 months follow-up 14% of the participants were working 23–37 h per week at 24 months follow-up 14% of participants were working less than 23 per week at 24 months follow-up 14% of participants were not employed at 24 months follow-up

IPS individual, placement and support



1. What employment and education intervention models have been investigated for transition-age youths with mental health conditions?
2. What are the characteristics of these intervention studies? Such characteristics include: participant characteristics; intervention or program settings; fidelity of implementation of intervention or program; research designs; targeted outcomes and intervention implementer characteristics.
3. How effective were the interventions in improving education and employment outcomes for transition-age youth with mental health conditions?
4. If variables associated with employment and education outcomes were investigated in the studies, what were they?

## Method

### Literature Search Procedures

Figure 1 displays a PRISMA diagram [37] describing the search process. The literature search for this review consisted of the following three steps. First, a comprehensive electronic search was completed on seven major databases: Cinahl, PsychINFO, Education Resource Information Center (ERIC), Medline, Education Source, SocINDEX, and Academic Search Complete. Various terms relating to mental health conditions, such as depression, anxiety, bipolar, schizophrenia, personality disorder, mood disorder, and emotional disturbance were used. These terms were combined with key words that describe employment, education (e.g. competitive employment, post-secondary education, education attainment), and transition age (youth, young adults, adolescence) to identify potential studies for this review. This search yielded 10,981 journal articles published between 1990 and 2017. After all the duplicates (3026) were electronically removed, the titles and abstracts of the remaining 7955 articles were screened to eliminate irrelevant articles.

Next, we examined the reference list of some of the articles found in the electronic search to locate additional articles; five articles were located through this process. Finally, we searched of the following journals: *Career Development and Transition for*

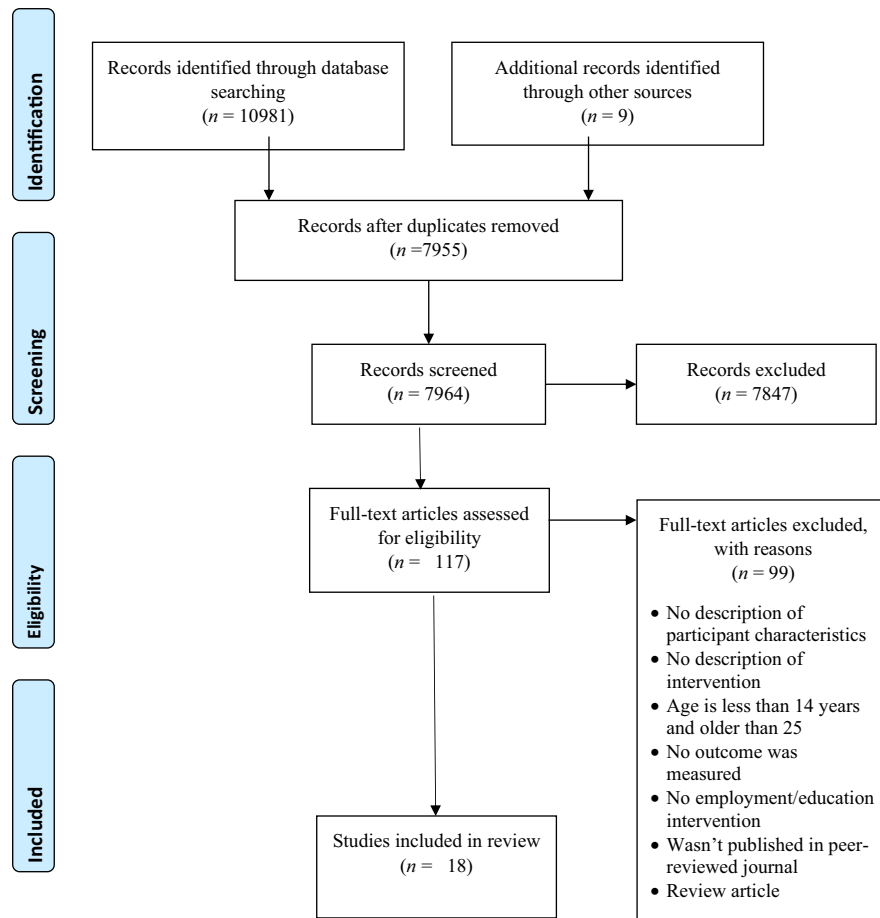
*Exceptional Individuals*, *Journal of Emotional and Behavioral Disorders*, *Psychiatric Rehabilitation Journal*, *Journal of Vocational Rehabilitation*, *Journal of Psychosocial Rehabilitation and Mental Health*, *Rehabilitation Counseling Bulletin*, *Early Intervention in Psychiatry*, *New Zealand Journal of Occupational Therapy*, and *British Journal of Occupational Therapy*. These journals were selected because they focus on vocational rehabilitation, psychiatric rehabilitation studies targeting people with mental health condition as well as issues relating to transition-age youth with disabilities. This search yielded four articles. Overall, the literature search process yielded a total of 117 articles, which were examined to determine if they met the inclusion criteria for this review.

### Inclusion Criteria

Of the 117 articles, 18 met the following inclusion criteria:

- (a) Studies implemented employment or educational interventions designed for transition-age youth with MHC (i.e. anxiety disorder, bipolar disorder, mood disorders, schizophrenia, substance abuse, and personality disorder).
- (b) Participants were transition-age youth (14–25 years old) with mental health conditions.
- (c) Studies utilize experimental, quasi-experimental designs, single-subject designs, or pre and posttest group design.
- (d) Studies included outcome variables that are related to education or employment.
- (e) Studies were published from 1990 through 2017.
- (f) Studies were peer reviewed and published in English.
- (g) Studies provided description of participant characteristics, and intervention details.

Articles were excluded due to the following reasons: (a) did not provide a description of program/intervention and participant characteristics, (b) intervention or program addressed vocational and educational training without measuring employment and education outcomes, (c) the term emotional disturbance was not specifically defined as a mental health condition or if other types of disabilities were



**Fig. 1** Literature search procedure. From Moher et al. [37]

included in the study, (d) study included participants younger than 14 years or older than 25 years, and (e) employment and education outcomes were measured without the implementation of employment or education intervention.

### Coding Procedures

A coding form was developed to record information that was relevant to the purpose of the present study. Two researchers were trained to use the coding form and to check for reliability of their coding. After the training, the researchers coded two studies independently and compared notes. Interrater reliability was established at 96%. Afterwards, the researchers coded each of the 18 studies and met occasionally to compare their codebooks and resolve discrepancies in coding when necessary. Coded information for each study

includes participant characteristics, implementer, components of the intervention, research design, measures and outcomes, intervention implementation fidelity assessment, results and variables associated with better outcomes. Furthermore, each study's intervention/programs were organized into five categories—supported employment, supported education, transition to independence, career development program, and vocational rehabilitation programs—based on the models the researchers adopted.

### Results

Eighteen peer reviewed studies published between 1990 and 2017 were included in the final analysis. Table 1 presents the summary of study characteristics, intervention components and findings.

## Characteristics of the Studies

### *Participant Characteristics*

A total of 1055 youth with MHC, comprising 680 males, and 375 females participated across the 18 studies. Two studies [23, 44] did not report gender classification. Five studies recruited participants who were proficient in speaking English and eight studies (e.g. [1, 30, 44, 47, 48]) were limited to youth with first-episode mental illness.

### *Setting of Studies*

Ten studies were conducted in the United States, four were conducted in Australia, four in New Zealand, and one in the Netherlands. Four studies occurred in settings where transition services were provided; two were conducted in school settings, nine were conducted in mental health settings and three studies took place in homeless/foster care agencies.

### *Research Design*

Of the eighteen studies, only two used experimental design. Three studies employed quasi-experimental design, while the remaining studies entailed pre-post one group design. The sample size of the studies varied from five to 135, the length of studies ranged from 6 months to 5 years, and follow-up data collection also varied from immediately after the intervention to 3 years.

### *Measures*

The majority of the studies ( $n = 17$ ) conducted interviews and administered questionnaires to collect baseline and follow-up data. In general, the baseline data reported by most of the studies included: clinical and demographic information, current education attainment, and employment history (hours worked, types of job, income). A few studies used standardized measures to collect additional data; the Wechsler Adult Intelligent Scale (WAIS), and Wide Range Achievement Test (WRAT) were used to assess academic achievement by two studies. Two studies utilized the Social and Occupational Functional Assessment Scale (SOFAS); and three studies used the Quality of Life Scale.

## *Targeted Outcomes*

Although employment and education were the primary outcomes measured in all studies, there were differences in operational definitions and measurement of these outcomes across the 18 studies. Employment outcomes was defined in terms of weekly hours worked, engagement in any type of part time or full-time employment, weekly or monthly income, and duration of longest employment. For education outcomes, post-secondary education enrollment, enrollment in any type of educational training, return to high school, high school completion, return to college, educational aspiration/identity and engagement in productive activities were measured.

### *Implementers*

Various professionals implemented the interventions in the 18 studies. Some studies included employment specialists or consultants ( $n = 10$ ), occupational therapists ( $n = 4$ ), research assistants ( $n = 2$ ), clinicians ( $n = 3$ ), case managers ( $n = 3$ ), teachers and transition specialists ( $n = 2$ ), peer mentors ( $n = 4$ ), parents ( $n = 1$ ), and staff at the homeless youth agencies where the study took place ( $n = 2$ ). Two studies did not report implementer information.

### *Fidelity of Intervention*

Eight studies described the procedures for ensuring and assessing the quality of intervention implementation. Of the eight studies, four [7, 30, 47, 48] utilized the Supported Employment Fidelity Scale [4] to assess fidelity of implementation. Two studies [19, 24] used researcher-developed fidelity measures and one study, Dresser et al. [18] used the transition to independence fidelity form developed by the National Network on Youth Transition for Behavioral Health (NNYTB).

## Intervention Components and Efficacy

Several strategies for improving employment and education outcomes were utilized across the studies reviewed. To organize the results, all the interventions reviewed were classified into four categories (i.e. supported employment interventions; education interventions; transition programs, and vocational rehabilitation programs) based on the models used and

outcomes targeted. Below is a description of intervention components and efficacy.

### *Supported Employment Interventions*

The Individualized Placement and Support (IPS) developed by Becker and Drake [3] was the most prominent supported employment program implemented in the studies reviewed. The IPS approach is guided by eight core principles: (1) obtaining competitive employment is the goal of the intervention, (2) intervention eligibility is based on client's choice, (3) intervention is integrated into mental health treatment, (4) services and jobs are based on client's preferences, (5) personalized benefits counseling is provided, (6) employment specialists collaborate with employers to develop jobs for clients, (7) ongoing support based on client needs, and (8) rapid job search approach to help clients find jobs [16].

Although nine studies adapted the IPS approach, there were methodological and implementation differences across the studies. For example, one study [30] utilized experimental design while the remaining studies employed pre-post one group design. Three studies combined the IPS approach with other intervention strategies. For example, Ferguson [21] implemented IPS with the Social Enterprise Intervention (SEI). The SEI targeted four skills trainings, namely: vocational skills, small business skills, utilization of clinical services, and social enterprise formation/distribution. The study lasted for 9 months with 20 youths were in the IPS/SEI group and 16 in control group. Results suggest that the IPS/SEI group had better outcomes in ever-worked rate, working at follow-up, and monthly work rate than the control group. However, there was no significant difference between the weekly working hours and weekly income between the two groups.

Ellison et al. [19] integrated supported education, career development, and peer mentoring with IPS principles for 35 youth with severe MHC. Intervention components included career exploration activities, education services (e.g. accommodation advocacy, liaison with colleges, financial aid application), peer mentoring, and vocational support meetings. Results showed over 68% of the participants enrolled in an education program or commenced employment during the program. Also, an increase in the number of hours worked by participants over the course of the

intervention was reported. Gaal et al. [23] integrated elements of IPS with family-aided vocational rehabilitation program for 28 youths with schizophrenia who were unemployed for a long period before joining the program. Participants' parents provided vocational training and job-search services. Intervention components included clinical services, on-the-job support, time-unlimited support, and appointments coordination. Fourteen months follow-up data revealed eight of the participants had begun a second traineeship, nine were enrolled in vocational training, and six were vocationally active, with three in paid employment.

### *Education Interventions*

Three studies [24, 26, 35] implemented education interventions. Geenen et al. [24] assessed the impact of the Better Future Model—a program designed to improve postsecondary preparation and participation of young people with MHC. During the 10-month intervention, the experimental group ( $n = 36$ ) participated in three interrelated programs: (1) a four-day summer institute on a university campus; (2) bimonthly peer coaching; and (3) mentoring workshops on college application process, scholarship application, mental health/self-care, transition services, and other related resources. Results showed that the intervention group had significantly better on measures of post-secondary participation, transition preparation, self-determination and mental health empowerment than the control group.

In McShane et al. [35], 24 youth with social anxiety disorder participated in an adolescent mental health and educational program. Services included: educational support and direction, social group work, exposure to different social environments, public transport, employment training, interpersonal, and supportive psychotherapy, family education, and pharmacotherapy. Seventeen participants completed high school or annual coursework and the number of participants who traveled to school independently increased from 10 to 15 by the end of the program. Hoffmann and Mastrianni [26] implemented a supported education program in an inpatient setting. Patients in the intervention group received psychiatric treatment and supported education services such as individualized academic support, services to help strengthen academic identity, and planning for transitioning from hospitalization to college. At follow-

up, 88% of patients in the experimental group had returned to college compared to 58% in control group, and 55% had plans to obtain a graduate degree compared to 37% in the control group. Patients in the experimental group also reported stronger academic identity and easier transition to college than those in the control group.

### *Transition Programs*

Five studies [10, 18, 25, 27, 53] implemented transition programs. Of the five studies, two [18, 27] adapted the Transition to Independence Process (TIP) model. Karpur et al. [27] implemented educational, psychosocial, and vocational training program for youth with emotional disturbance in a secondary school. Longitudinal analyses of 3 years follow-up data from the program in comparison to youth who received regular services suggested that graduates from the TIP program had better postsecondary education and employment outcomes. In Dresser et al. [18], 29 youth with severe MHC participated in TIP program. Services included: person centered planning, self-advocacy skill training, career development, anger management, interpersonal skill training, stress management, and community life functioning skills. Results showed that school attendance improved from 25 to 69%, and 21% of the participants graduated from high school or had a GED. Employment also improved from 0 to 21% and college attendance from 0 to 7%.

Hagner et al. [25] implemented project RENEW (Rehabilitation Empowerment, Natural Supports, Education, and Work), components of the program include the provision of flexible secondary and postsecondary programs, support for employment, interagency collaboration, mentoring, social skills development, and individualized resources (financial support, housing, transition services). Two-year follow-up data showed that 67% of the youth completed high school, 83% were employed, and 50% enrolled in postsecondary education. In a similar study, Sample [53] implemented a transition and vocational program for students with severe emotional disturbance in three high schools. Career skills training (work ethic, job seeking strategies, career exploration), supported employment, social skills, entrepreneurial instruction, and support services were provided. Results from six, 12, and 18-month follow-up data indicated that 58% of the students maintained competitive employment,

17% were in postsecondary education and 12% were living independently.

### *Vocational Rehabilitation Programs*

Two studies [1, 44] implemented vocational rehabilitation programs. In Allott et al. [1], five youth with first-episode psychosis participants received cognitive adaptive training which addressed education, employment, and daily living skills such as planning, organization, transportation, social skills, financial management, and personal care. At the end of the program, four of the participants were either working or enrolled in school. Parlato et al. [44] implemented the Youth Occupation Unlimited for 21 youth with first episode psychosis where were out of school or unemployed prior to the study. Services included: career counseling, career exploration activities, assertiveness training, mental self-care information, and goal-setting training. At the end of the 9-month program, 14 out of the 21 participants had enrolled in an education program, vocational training, employment, or volunteering position.

### *Variables Associated with Better Outcomes*

Two studies conducted additional analyses to provide information about personal characteristics that were associated with outcomes. In Killackey et al. [30], being married and having a high score on Social and Occupational Functioning Assessment and Scale (SOFAS) correlated with high numbers of hours worked and educational enrollment at six-month follow up. In Sample [53], engagement in paid employment while in secondary school correlated with higher rates of employment after school.

## **Discussion**

The purpose of this review was to evaluate education and employment interventions for transition-age youth with mental health conditions. By synthesizing data from 18 studies published between 1990 and 2017, this review makes a critical contribution to research and practice as it provides information about strategies for rehabilitation of young people with MHC and highlighted gaps in research. The findings for the first research question suggests that supported

employment, supported education, transition to independence, and general vocational rehabilitation models are important models for improving outcomes of youths with MHC. Fifty percent the studies reviewed adopted the IPS approach of supported employment. This finding is in accordance with Bond et al. [6], as IPS is one of the leading evidence-based intervention for increasing employment rates of adults with MHC [21]. While IPS was the most prominent program used in the studies reviewed, it was impossible to establish the efficacy across the eight studies because only two studies utilized an experimental design. This gives rise to the need for more rigorous research to examine the efficacy of IPS for transition-age youth with MHC.

Regarding study characteristics, we found that the majority of studies reviewed featured participants with varying MHC. Specifically, 83.3% of the studies included participants with a range of mental health diagnoses. Only three studies implemented interventions to specific types of MHC (i.e. social anxiety, psychosis, schizophrenia). Also, 44.4% of the studies included participants with first episode MHC. The other studies included participants with different durations of illness and varying level of MHC severity. Considering that the manifestation, and needs of MHC varies based on severity, type, and duration of illness, the degree to which these variability impacts outcomes within education and employment intervention studies could be a potential line of investigation. More so, to better improve the outcomes of transition age youth with MHC, and to attain a greater understanding of variables associated with their outcomes, future studies may consider designing and implement interventions for specific mental health diagnoses.

Furthermore, the studies reviewed were conducted in different settings including schools, psychiatric hospitals, youth mental centers, homeless agencies, and rehabilitation centers. Majority of the studies were conducted in mental health or rehabilitation centers, only 33.3% of interventions were conducted in school or transition program settings. This finding was a surprising considering the high number of transition age youth with MHC that are served in special education program. On one hand, this finding might suggest that the education and employment challenges experienced by students with MHC during transition into adulthood are not receiving adequate attention in school-based research. It is also possible that young people with MHC are more comfortable with

receiving education or employment services at the same location where they receive mental healthcare.

Additionally, the definitions and measurement of education and employment outcomes varied widely across studies. The various definitions for employment outcomes included: hourly income; the number of hours worked per week; hours worked per month; part-time or full-time employment; weeks in each job; job at the time of follow-up; competitive employment; and enrolment in vocational training. Outcomes for educational attainment or achievement are: return to school (full-time or part time); graduation rate; the number of courses that a participant had completed or was currently enrolled in at the time of follow-up; academic achievement; academic aspiration; high school completion; and enrollment in postsecondary education. The variance in definitions and measurement of outcomes makes it difficult to compare results across studies, especially those that used similar intervention models.

An evaluation of the components of the interventions implemented across the 18 studies revealed that services varied widely and was to a large extent dependent on the type of intervention model employed. For example, although about half of the studies implemented supported employment, there were variations in implementation and services provided. Even with studies that adopted IPS, there were still differences in content and implementation. For example, some the studies combine IPS with other interventions programs, such as social enterprise intervention and family-aided rehabilitation program. Continued research is needed to develop an empirically based education and intervention model that relates to both theory and output of practiced interventions. Another notable finding about intervention components were the integration of mental health services with employment and educational services in most of the studies. Such services included: mental health counseling, psychiatric evaluation, and case management. This finding is particularly important for the design of future interventions because research suggests that transition-age youth with MHC underutilize mental health services. Also, poor management of mental health symptoms has been linked to adverse education and employment outcomes. As a result, integrating mental health services into employment and education interventions may encourage youth with MHC to be committed to improving their mental

health as they work towards enhancing their education or employment outcomes.

Other intervention components found across studies included: career counseling, career development, cognitive adaptation training, career exploration, work practicum, interagency collaboration, peer mentoring, job placement, functional skills assessment, individualized or person-centered counseling, social skill, and independent living skills training. While it is reassuring because the majority of intervention components were consistent with the effective and promising transition practices recommended by the National Technical Assistance Center on Transition [40], only a few studies included components that specifically address skill deficits (e.g. self-determination skills, social skills) that have been identified as barriers to favorable employment or education outcomes of transition-age youth with MHC. For example, four studies implemented social skills training, one study had a self-determination component, and only two studies addressed independent living skills. These skills have been shown to be effective in improving education and employment outcome of transition-age youth with disabilities in general and may prove to be effective for youth with MHC. Future interventions should consider adding components that specifically address such skills deficits.

The evaluation of the efficacy of the interventions/programs was difficult to ascertain and were found to be mostly inconclusive due to the type of research methodology employed by most of the studies. A considerable amount of the studies had methodological limitations; 72.2% of the studies reviewed employed non-experimental design. Even though most of the studies reported small to significant improvements in the outcomes measured, only two studies used an experimental design. Similarly, Bond et al.'s [6] postulated similar barriers in their review, and this finding highlights the need for more rigorous research to determine the effectiveness of existing and new intervention models for improving the outcomes young people with MHC.

The variables found to be associated with better education and employment outcomes include: prior engagement in paid employment, marriage, participating in intervention, and a high score on Social and Occupational Functioning Assessment Scale (SOFAS). This finding supports what has been established by other researchers (e.g. [5, 55]) in their review

of literature on the predictors of employment outcomes of people with mental illness. Perhaps triangulation of services with personal characteristics is essential for improving employment and education intervention outcomes for transition-age youth with mental health conditions. Therefore, services should be individualized and holistic to cater to the multifaceted needs of youth with mental illness [45].

### Implications for Research

Considering the methodological limitations found in the studies reviewed, there is a need for more rigorous research on evidence-based practices to improve employment and education outcomes for transition-age youths with MHC [6, 30]. Specifically, more randomized control designs are needed to further establish the efficacy of the intervention models and components identified by this review for transition-age youths with MHC. Third, some of the studies did not provide detailed information about the participants, interventions, and services they investigated. For example, some studies reported that the control group participants received regular services but little or no information was provided about the types of services members of the control group received, as well as how they were implemented in comparison to the intervention groups. Thus, providing adequate information about participants and intervention has important benefits especially for study replication and generalization.

The evaluation of the components of the interventions also has implications for designing and implementing programs for youth with MHC. Specifically, there is a need for further investigation of the key aspects of supported employment, supported education, and vocational rehabilitation interventions that may be particularly beneficial in meeting the developmental needs of transition age youth with MHC. Future studies can also explore the social validity of such programs for participants and their family. Finally, none of the studies reviewed reported socioeconomic or cultural factors that may affect the effectiveness of the intervention for clients from diverse backgrounds. Because transition-age youth with disabilities from ethnic minority and poor backgrounds face additional challenges such as transportation problems, language barriers, and culturally insensitive services, there is a need for future research

to account for cultural and socioeconomic differences, and to integrate services that cater to the peculiar needs of youth from these backgrounds.

### Limitations of Study

This systematic review has some limitations. First, a limited number of studies published between 1990 and 2017 were reviewed, and the possibility exists that some studies were omitted during the literature search process. Second, the quality of studies and publication bias was not assessed in the current review. Third, most of the studies reviewed included participants with varying mental health conditions, which limits the possibility of generalization. Finally, there is a limit to the strength of the conclusions that can be drawn about the efficacy of interventions because this review provided a synthesis of studies, and a description of efficacy of employment and education interventions rather than a quantitative analysis of results.

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