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The effectiveness of occupational therapy interventions for students with mental illness transitioning to higher education: a systematic review

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The Effectiveness of Occupational Therapy Interventions for Students with Mental Illness

Transitioning to Higher Education: A Systematic Review

By

Brittany Davis, MOTS & Leah Sherman, MOTS

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A Scholarly Project
Submitted to the Occupational Therapy Department
of the University of North Dakota
In partial fulfillment of the requirements
for the degree of
Master of Occupational Therapy

Grand Forks, ND
December, 2016
This scholarly project, submitted by Brittany N. Davis, MOTS and Leah N. Sherman, MOTS, in partial fulfillment of the requirement for the Degree of Master’s of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

________________________
Faculty Advisor

12/14/16
Date
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Title: The Effectiveness of Occupational Therapy Interventions for Students with Mental Illness Transitioning to Higher Education: A Systematic Review

Department: Occupational Therapy

Degree: Master’s of Occupational Therapy

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ABSTRACT

Objective: To examine the available evidence for interventions within the scope of occupational therapy for students with mental illness during the transition process to postsecondary education.

Method: This systematic review yielded seven articles including two systematic reviews, three one group pretest/posttest design, one naturalistic pre/posttest design, and one scoping review related to the transition process to post secondary education.

Results: Occupation-based interventions emphasized the occupation of education instead of focusing on co-occurring occupations a student may frequently participate in when enrolled in postsecondary education. Programs emphasized environmental approaches including using the students’ past experiences, building self-advocacy skills, accessing supportive education services, and learning how to access environmental supports, such as welfare and food stamps. Performance skills were addressed to prepare students for academic participation and included: motor, process, social interaction skills, skills related to writing, reading, public speaking, social participation, and stress management. Performance patterns included the roles and routines of the student. Findings have limited generalizability due to lower level research designs and limited number of studies.

Conclusions: Higher-level research designs need to be completed to develop best practices in transition services, to further expand occupational therapy’s role in helping students with any mental illness transition to postsecondary education.
CHAPTER I

INTRODUCTION

About 18.1%, or 43.6 million, of adults in the United States will have a mental illness every year (Center for Behavioral Health Statistics and Quality, 2015). More specifically, about 21.4% of young people aged 13-18 will develop a severe mental disorder sometime during their lifetime (Merikangas et al., 2010). Any mental illness can impact a person’s thinking patterns, emotions, and/or overall mood; it can affect a person’s daily functioning and ability to connect with others (National Alliance on Mental Illness, 2016b). These factors can be especially prevalent when these persons are attending school. Shaw (2009) reported that students with mental illnesses, or psychiatric disabilities, are considered the third largest group of all college students with disabilities, and this population is expected to continue to grow. In fact, of those persons diagnosed with a mental illness seeking postsecondary education, about 86% of them will withdraw from their degree-seeking program (Schindler & Kientz, 2013). Having inadequate education can have extensive impacts on a person’s self-esteem and preferred employment options (Brown, 2012).

According to Shaw (2009), there has recently been an extensive movement to make postsecondary education more accessible for students with intellectual disabilities.
There has not, yet, been a strong focus on transitions to postsecondary education for students with mental illness. At the federal level, there has been a variety of legislative acts to help increase success rates for students with disabilities, including Section 504 of the Rehabilitation Act of 1973, ADA Amendments Act of 2008, and the Higher Education Opportunity Act of 2008 (Hong, 2015). For students with disabilities seeking postsecondary education, Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990 specifically protect against discrimination because of their disabilities (Duncan, 2011). The ultimate aim of these legislative acts is to ensure that persons with disabilities receive the necessary accommodations and have equal access to all aspects of the postsecondary education experience including: (a) receiving assistance with enrollment, (b) academics, (c) housing, (d) finances, and (e) employment (Hong, 2015). Despite the efforts from legislation, students with disabilities still run into barriers and challenges and the mental health need of young people during times of transition are not being met, ultimately causing poor academic performance (Hong, 2015; Larson, 2009).

According to IDEA (2004), the eligibility criteria for students transitioning to postsecondary education is defined as those between age 16-21, which has caused many of these students with mental illnesses to lose accessibility to treatment and support during such a critical developmental transitions (Larson, 2009). According to Larson (2009), after a 2005 survey by members of the National Association of State Mental
Health Program, it was recommended that a more appropriate age range for persons with a mental illness transitioning to adulthood, would be between the ages of 16 to 30. Other suggestions by the mental health professionals from the survey included that transition planning should begin before the first personalized education plan so that it is ready to go by the time the student turns 16 (Larson, 2009). Transitions from high school to work, college or a technical program, and/or independent living would be considered a major transition for a student (Shaw, 2009). Each of these transitions comes with changes of their own. These changes include social media, family support systems, and new forms of independence (living alone, financial responsibilities, etc.) (Lane & Fink, 2015). Not only do persons undergo changes with support and networking during times of transition, but changes in their lifestyle will also occur. For example, changes in their daily routines and schedules can affect their sleep and ability to participate in leisure activities or relationships as well (Arnett, 2004). When developmental change and transitional change occur simultaneously, it can become a greater stress and impose on the person's mental health (Arnett, 2004). Transitional interventions included an assessment, prevocational skills, life skills, role adjustments, challenges of adolescents, scheduling, vocational schooling, collaborating with others, and occupational therapy and occupational therapy assistant teaming (Gooch et al., 2015).

According to the American Occupational Therapy Association (2013) occupational therapists are specialists of task analysis, adapting the environment to fit an
individual’s needs, and have knowledge on a variety of assistive technologies, and this background gives occupational therapists a unique ability to create or transform universal and/or individualized learning environments to promote increased participation and performance in postsecondary programs. Occupational therapists can help support students who plan to enroll in or are already enrolled in postsecondary education by teaching self-determination, self-management, social and self-advocacy skills, helping students navigate their programs, and helping students to discover the accommodations and supports available to them, recommending and/or providing assistive technologies to increase participation and performance in postsecondary education, working with the student’s family and student disability services to determine potential needed accommodations for living, academic, and school activities, and lastly, to help students develop healthy and effective daily routines and habits (American Occupational Therapy Association, 2013).

The goal of occupational therapy in mental health is to help clients realize their ability to lead meaningful, satisfying, and productive lives even with a mental health diagnosis (AOTA, 2016). Occupational therapists focus on intervention strategies that are individualized to each client and their unique diagnosis. Researchers have found some success for individuals with mental illness who seek postsecondary options, like education and employment. While the amount of evidence is limited in the area of transition into postsecondary education, it has shown promise where programs focus on goal setting, skill development and cognitive training, like the Bridge Program.
(Arbesman & Logsdon, 2011; Brown, 2012, Gutman et al., 2009; Gibson et al., 2011).

Literature supports the strong role of occupational therapy working with adolescents with mental illness (Henderson, Batten & Richmond, 2015).

**Purpose**

The purpose of this study is to discover the available evidence for interventions within the scope of occupational therapy for students with mental illness during the transition process to postsecondary education.

**Definitions**

The following terms are defined in relation to mental illness, postsecondary education and interventions related to the transition process. Consistent definitions are provided in order to inform readers about all aspects of this research study.

Mental disorder: refers to “a syndrome characterized by clinically significant disturbance in a person’s cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning” (American Psychiatric Association, *Diagnostic and Statistical Manual for Mental Disorders, fifth edition* (DSM-5), 2013, p. 20).

Any Mental Illness: referring to “a mental, behavioral, or emotional disorder, excluding developmental disorders and substance use, diagnosable currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within the 4th edition of
the DSM-IV” (Center for Behavioral Health Statistics and Quality, 2015, p. 28). For the purpose of this study, researchers will be using the DSM-5.

Serious mental illness: referring to “persons with a mental disorder with serious functional impairment which substantially interferes with or limits one or more major life activities” (Center for Behavioral Health Statistics and Quality, 2015, p. 28).

Postsecondary education: is described as a wide range of educational opportunities following high school, that can include vocational training of a shorter duration (food industry, etc.), vocational or technical college, community college, continuing education of a shorter duration, academic courses that contribute to a certification, license, or associate’s degree, and a 4-year university or college institution (Shaw, Madaus, & Dukes, 2010).

Transition: refers to “a passage, evolutinal development or abrupt change that leads to movement from one life state, stage, or place to another” (Orentlicher and Gibson, 2015, p. 22).

Students transitioning to postsecondary education: refers to those between age 16-21, which has caused many of these students with mental illnesses to lose accessibility to treatment and support during such a critical developmental transitions (IDEA, 2004; Larson, 2009).

**Summary**
Chapter I consists of an introduction to this scholarly project, the population discussed, the literature review, explaining the theoretical approach, the purpose of this study, and definition of terms. Chapter II consists of a review of the literature related to students transitioning to postsecondary education with mental health diagnoses and current intervention methods within the scope of occupational therapy. Chapter III includes a description of the research methods utilized in this study and a figure of the process. Chapter IV includes an article suitable for publication. Chapter V includes a summary, discussion, strengths and limitations, as well as recommendations to practitioners, future research, and educators.
CHAPTER II
LITERATURE REVIEW

About 18.1%, or 43.6 million, of adults in the United States will have a mental illness every year (Center for Behavioral Health Statistics and Quality, 2015). More specifically, about 21.4% of young people aged 13-18 will develop a severe mental disorder sometime during their lifetime (Merikangas et al., 2010). A mental health condition impacts an individual’s thinking patterns, emotions, and/or overall mood; it can affect an individual’s daily functioning and ability to connect with others (National Alliance on Mental Illness, 2016b).

As defined by the American Psychiatric Association (2013) in the Diagnostic and Statistical Manual for Mental Disorders, fifth edition (DSM-5), a mental disorder is “a syndrome characterized by clinically significant disturbance in an individual’s cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning” (p. 20). For the purpose of this review, the term, “any mental illness,” will be used. Any mental illness is defined by the Center for Behavioral Health Statistics and Quality (2015) as “a mental, behavioral, or emotional disorder, excluding developmental and substance use, diagnosable currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within the 4th edition of the DSM-IV” (p. 28). At the point of publication, the Center for Behavioral Health Statistics and Quality used the DSM-IV, for the purpose of this study researchers will be using the DSM-5. The definition of an
mental illness consists of diagnoses ranging from mild impairment to serious mental illness. Serious mental illness is defined as “individuals with a mental disorder with serious functional impairment which substantially interferes with or limits one or more major life activities” (Center for Behavioral Health Statistics and Quality, 2015, p. 28). Additionally, for the purposes of this review, students with a mental illness will be defined as students that have one or more mental health diagnoses in the DSM-5.

The National Council of Disability (2015) found about two million, or 11%, of students in their undergraduate studies have some type of disability. According to the National Longitudinal Transition Study-2, 80% of secondary education students with disabilities reported postsecondary education as a primary transitional goal (Newman, Wagner, Cameto, & Knokey, 2009). Shaw (2009) reported that students with mental illnesses, psychiatric disabilities, are considered the third largest group of all college students with disabilities, and this population is expected to continue to grow. The National Alliance on Mental Illness (2012) conducted a survey, which found 64% of students who experienced a mental illness withdrew from their program due to their mental health issues. At the federal level, there has been a variety of legislative acts to help increase success rates for students with disabilities, including Section 504 of the Rehabilitation Act of 1973, ADA Amendments Act of 2008, and the Higher Education Opportunity Act of 2008 (Hong, 2015). For students with disabilities seeking postsecondary education, Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans of Disability Act of 1990 specifically protect these students from being discriminated against for their disabilities (Duncan, 2011). The ultimate aim of these legislative acts is to ensure that students with disabilities receive the necessary
accommodations and have equal access to all aspects of the postsecondary education experience including: (a) receiving assistance with enrollment, (b) academics, (c) housing, (d) finances, and (e) employment (Hong, 2015). Despite the efforts from legislation, students with disabilities still run into barriers and challenges that ultimately cause poor academic performance and even to drop out of school early (Hong, 2015).

Larson (2009) reported that the U.S. Government Accountability Office discovered that students with serious mental illness have dramatically higher rates of incompletion for secondary and postsecondary education in comparison to those with milder forms of mental illness or those without a mental illness. In fact, of those students diagnosed with a mental illness seeking postsecondary education, about 86% of them will withdraw from their degree-seeking program (Schindler & Kientz, 2013). Having inadequate education can have extensive impacts on an individual’s self-esteem and preferred employment options (Brown, 2012). Despite these findings, the mental health needs of many young people during times of transition are not being met (Larson, 2009).

While a variety of health care professionals can provide transitional services; occupational therapy practitioners provide a holistic approach to working with individuals in transitional services, which include but are not limited to: (a) health, (b) education, (c) rehabilitation, and (d) employment services (Orentlicher & Gibson, 2015). Professionals working with these students in secondary education can have a large impact on helping them transition between secondary and postsecondary education (Shaw, 2009). These findings indicate a need for a specific emphasis on effective transitional interventions for students with mental illness going on to postsecondary education. Shaw (2009) reported most of the students with disabilities plan to graduate
high school and then attend postsecondary education. In the National Alliance on Mental Illness (2012) survey, those students who withdrew from their programs, 50% of them did not access college mental health services. It was reported to the National Alliance on Mental Illness in the survey, the Disability Resource Centers were ill equipped to work with students who had mental illnesses and focused more on physical conditions or professors didn’t acknowledge the Disability Resource Centers’ accommodations.

**Transition**

Transitioning from adolescence to adulthood presents a variety of challenges for most young people, but it is especially challenging for youth with mental health difficulties (Larson, 2009). This phase of transition for adolescents is referred to as emerging adulthood, the stage of life between the ages of 18-29 (Lane & Fink, 2015). These developmental changes can be seen through the significant behavioral, emotional, cognitive, and social changes persons with mental illness experience when transitioning into early adulthood (Martinez, Martin, Liem, & Colmar, 2012). For persons with mental health concerns, a transition would include the shift from one service to the next, which can consist of one-on-one formal interviews that take place involving the client and their family/loved ones (Reale & Bonati, 2015). Orentlicher and Gibson (2015), defined transition as, “a passage, evolitional development or abrupt change that leads to movement from one life state, stage, or place to another” (p. 22). For example, a major transition would include the move from high school to work, college or a technical program, and/or independent living, etc. (Shaw, 2009). Each of these transitions comes with changes of their own. These changes include social media, family support systems, and new forms of independence, such as living alone, financial responsibilities, etc.
(Lane & Fink, 2015). Not only do young people undergo changes with support and networking during times of transition, but changes in lifestyle will also occur. For example, changes in daily routines and schedules can affect sleep and ability to participate in leisure activities or relationships as well (Arnett, 2004). When developmental change and transitional change occur simultaneously, it can become a greater stress and impose on the individual's mental health (Arnett, 2004). The stress can become debilitating, leading these young people to participate in risky behaviors like drinking, drug use, and placing themselves in sexually inappropriate situations to cope (Lane & Fink, 2015).

The process of transitioning to adulthood and becoming more self-reliant can be difficult for any young individual (Child Welfare Information Gateway, 2013). It involves young people making complicated decisions that will influence their lives, including decisions regarding education, vocation, finances, and relationships (United States Department of Labor, 2009). Transition to adulthood for young individuals is especially difficult (Stewart et al., 2014); therefore, it is important for young people with disabilities to receive extra support during times of transition. For young individuals with disabilities, there are a variety of services available to provide assistance during times of transition.

**Transitional Services**

Transitional programs aim to treat each individual’s unique diagnosis and develop a intervention plan that builds on strengths and help them identify their areas of growth. Transitional services, as defined by Reale and Bonati (2015), are “lengthy and seamless processes with a beginning, middle, and end marked by joint responsibilities in
multidimensional and multidisciplinary work to ensure ways to enable and support young patients continuing on into adult care” (p. 933). This definition is specific to individuals who are transitioning from child healthcare services to adult healthcare services. The Individuals with Disabilities Education Act (IDEA) defines transition services from an educational standpoint. Transition services are defined as a set of activities for a child with disabilities that are a part of a coordinated plan (IDEA, 2004). These services focus on improving the child’s academic achievement and overall daily functioning to facilitate engagement in postsecondary education, like vocational schooling, and supported employment (IDEA, 2004). An Individualized Education Plan, or IEP, is developed for each student with a disability to help guide them towards their goals, whether it’s getting a job, going to college, or living on their own. Gibson D’Amico, Jaffe, and Arbesman (2011), identified client-centered intervention as an important part of success for individuals with mental health diagnoses. While these services help individuals move into adult roles as well, such as independent community living, research has been limited but showing positive results (Gibson et al., 2011).

According to Larson (2009), there is a lack of coordinated services available for individuals with and without a mental illness transitioning into adulthood. There are numerous public transitional services offered through different agencies and systems available to those with mental health issues, but they are usually not coordinated, resulting in many young people with mental health issues having a challenging time finding and qualifying for the transitional services that will meet their unique needs (Larson, 2009). Cappelli et al. (2014) discussed how there is a significant disconnect between child and adolescent mental health services (CAMHS) and adult mental health.
services (AMHS) due to the developmental requirements like adolescents “aging out,” meaning they are no longer eligible for CAMHS, but do not know how to get assistance from AMHS. Furthermore the disconnection between public systems can cause these individuals, who may have additional educational and career challenges, to get lost between the child and adult services and not get the help they need (Larson, 2009).

There is existing literature reviewing transition to work, transition to independent living, and transition from CAMHS to AMHS. This systematic review will focus on transition to postsecondary education.

**Transition to Postsecondary Education**

Postsecondary education is described as a wide range of educational opportunities following high school that can include vocational training of a shorter duration (food industry, etc.), vocational or technical college, community college, continuing education of a shorter duration, academic courses that contribute to a certification, license, or associate's degree, and a 4-year university or college institution (Shaw, Madaus, & Dukes, 2010). Three-fourths of students with visual or hearing disabilities and half of the majority of students with other disabilities actually participate in postsecondary education, but only one-third of students with mental health disabilities, multiple disabilities, and intellectual disabilities end up participating (Shaw, 2009). In the National Alliance on Mental Illness (2012) survey, those students who withdrew from their programs, 50% of them did not access college mental health services. It was reported to the National Alliance on Mental Illness in the survey, the Disability Resource Centers were ill equipped to work with students who had mental illnesses and more so physical conditions or professors didn’t acknowledge the
Disability Resource Centers’ accommodations. According to Shaw (2009), there has recently been an extensive movement to make postsecondary education more accessible for students with intellectual disabilities. There has not, yet, been a strong focus on transitions to postsecondary education for students with mental illness.

According to IDEA (2004), the eligibility criteria for students transitioning to postsecondary education is defined as those between age 16-21, which has caused many of these students with mental illnesses to lose accessibility to treatment and support during such a critical developmental transition (Larson, 2009). According to Larson (2009), after a 2005 survey by members of the National Association of State Mental Health Program, it was recommended that a more appropriate age range for individuals with a mental illness transitioning to adulthood, would be between the ages of 16 to 30. Other suggestions by the mental health professionals from the survey included that transition planning should begin before the first IEP so it is ready to go by the time the student turns 16 (Larson, 2009). If the student’s family wishes the plan should begin at a younger age, the student’s team can evaluate their plan annually to update their accomplishments (Larson, 2009). The survey also suggested the IEP should include suitable postsecondary goals based off of transitional assessments and services/accommodations needed to assist the student in meeting postsecondary goals (Larson, 2009).

A consideration for transitioning students with mental illnesses to postsecondary education include that once a student gets to his or her place of postsecondary education or training, if they had an IEP before in secondary school, then the IEP will be left behind and that there will be a new, different system of accommodations at their
postsecondary education sight (National Alliance on Mental Illness, 2016a). Another consideration for transition planning is to recognize that in secondary school, these students are referred to as “students with emotional disturbance,” but in postsecondary education, they are referred to as “students with psychiatric disabilities” (Shaw, 2009).

**Best Practice Interventions for Supported Education**

Supported post-secondary education is described by Center for Behavioral Health Statistics and Quality, as an evidence-based, person-centered practice that helps individuals with mental illnesses who want to pursue postsecondary education and/or training (United States Department of Health and Human Services, 2011). Supported postsecondary education services provided to students with mental illness are similar to the Bridge program described by Schindler and Kientz (2013). Students are able to utilize this program that helps them develop goal-directed action plans with a mentor to help them in overcoming barriers they may experience during their time in college (Schindler & Kientz, 2013). The concept of supported education emerged from pre-existing supported employment programs, which emphasized the value in choice and encouraging the student to choose their educational setting and surround them with supports that they need to be successful in that setting (Brown, 2012). Supported education interventions address performance skills and the context, including basic knowledge for a variety of educational areas (math, writing, etc.), social skills, time and stress management, and environmental supports for accessing resources in the community and academic setting (Brown, 2012). According to Brown (2012), the evidence is limited for supported education, but the studies that already exist show
promising outcomes with individuals with serious mental illness who are working to pursue postsecondary education.

Supported education programs focus on goal setting, skill development, and utilizing resources in the environment around students which can result in an increase in enrollment, motivation, and satisfaction in their education (Arbesman & Logsdon, 2011). Additionally, programs that have highly structured interventions that include social and daily living skills have been found to be highly effective (Arbesman & Logsdon, 2011).

**Best Practice for Interventions for Transition to Postsecondary Education**

Arbesman and Logsdon (2011) completed a systematic review for occupational therapy interventions for individuals with serious mental illness focused on employment and education. The researchers focused their research question on what interventions have shown to be effective to help improve and maintain participation in paid and unpaid employment, and education for adults. Inclusion criteria for this systematic review included that each article was, “published in a peer-reviewed journal, limited to English-language articles, included participants with a diagnosis of severe mental illness and ages 18-65, and consisted of interventions within the scope of occupational therapy practice” (Arbesman & Logsdon, 2011, p. 240). Interventions like productive occupations, self-cares and health management and maintenance for example, were shown to have positive results like improving self-worth, identity, and giving clients a sense of responsibility (Arbesman & Logsdon, 2011). Three additional articles were included that looked at the effectiveness of supported education programs for adults with a mental health diagnosis.
Hutchinson, Anthony, Massaro, and Rogers (2007) wrote about how the positive effect supported education facilitates a normal experience of postsecondary education, leading to improvements in recovery via an increase in self-empowerment and satisfaction with services. Participants in this study were part of a supported employment and education computer program called Training For The Future (TFTF), which will be explained in more detail below. Participants were diagnosed with severe mental illnesses and were between the ages of 25 and 43 years old. The overall results, while not specific to supported education, showed major improvements in the participant’s overall employment status, minimized their utilization of rehabilitative services, and improved housing situations (Hutchinson et al., 2007).

Gutman, Kerner, Zombek, Dulek, and Ramsey (2009) reviewed the effectiveness of the Bridge Program. The inclusion criteria for this study consisted of 46 participants, age of 18 or older, with a diagnosed psychiatric disability, that demonstrated an interest in furthering their education level, have a minimum 10th grade writing level, and who are receiving medication management from a licensed psychiatrist or nurse practitioner (Gutman et al., 2009). The participants had to attend all 12 sessions of the program, and success was defined as enrollment into further education or job training (Gutman et al., 2009). Upon completion of the Bridge program, 10 of the 16 participants who completed it had enrolled in an educational program or job training. Participants stated that the program helped to better prepare them to attend further education through teaching skill development and building their self-confidence (Gutman et al., 2009).

Gutman et al. (2007) evaluated the effectiveness of the Bridge program as well, but in its pilot year. There were 18 participants, ages 24-50 years old, who were
diagnosed with a mental illness. Five outcome assessments were considered upon completion of the program, including: pre-/post-tests of the participants' skills, participants' comfortability with their student role before/after, looking at task completion, interpersonal skills and behavior scales, a satisfaction scale was utilized (Gutman et al., 2007) The program was considered successful for the participants who completed the program and completed a general education development program, enrolled in more schoolwork, or gained employment (Gutman et al., 2007). After completing the Bridge program, participants reported feeling more confident in their ability to interact with peers and instructors and were eager to continue their education (Gutman et al., 2007). There was a statistically significant difference in the participants' interpersonal skills, task completion skills, and behavior scales (Gutman et al., 2007). Upon the one-month follow-up, 67% of participants who completed the program were enrolled in either a four-year, two-year, or technical training course (Gutman et al., 2007).

The Bridge Program is a program run by occupational therapists to help students with mental illness be successful in a school setting. This program consists of 12 modules that help students develop skills and learn about available resources on their university/college campuses (Gutman et al., 2009). It was found that students were able to be more successful when they managed a medication routine along with their school routine (Gutman et al., 2009).

**Programs for Supported Education**

The Bridge program is a program to further develop the students' skills to assist them in getting enrolled in postsecondary education courses and institutions and/or
continuing their education (Schindler & Kientz, 2013). This program can be held in self-contained classrooms or provide services on-site for individuals already enrolled in courses (Schindler & Kientz, 2013). The skills taught in the Bridge program allow its participants to become more comfortable in their role as a student, and for some, this could be many years after their initial attempt at postsecondary coursework (Gutman et al., 2009). The Bridge program contains three components to assist each participant enrolled in the program including mentorship, the development of higher education goals, and the classroom modules (Schindler & Kientz, 2013). Second year master’s level occupational therapy students are mentors to the participants enrolled in the Bridge program. This allows the participants to work with the occupational therapy students to help develop client-centered goals and occupation-based interventions to promote their individual successes (Schindler & Kientz, 2013). The goals that are developed by the participants are then discussed and end up guiding their treatment with their mentor (Schindler & Kientz, 2013). These goals are then achieved by the completion of 12 different modules. Each module focuses on a different area of skills for students enrolled in or seeking postsecondary education (Schindler & Kientz, 2013). The 12 modules include: an exploration of training programs, degrees and work options, introduction to internet skills, study skills for school or work, basic math skills for school and job placement tests, time management skills for school or work, use of library resources, effective reading skills for school and job training, public speaking strategies for school or work, basic writing for school or job seeking, professional behaviors and social skills, basic computer skills, and stress management skills for school or work (Gutman et al.,
After participating in this education program, participants state they are more prepared for further educational pursuits (Gutman et al., 2009).

The TFTF program is a supported education and employment program based out of Boston designed to educate individuals with disabilities on different technology that could be used at their school or place of employment (Hutchinson et al., 2007). There are two goals that the TFTF program, the first being to teach individuals computer skills and recovery coping skills and the second focused on supported employment for individuals to secure and sustain jobs (Hutchinson et al., 2007). Different computer programs were taught, like Microsoft Office software, keyboarding, and using the internet (Hutchinson et al., 2007). The program met four days a week, about six hours per day, where instructors taught in the morning sessions, and the students participated in practicum time and were able to work at their own pace in the afternoons (Hutchinson et al., 2007). After completing the program, participants stated that they were overall satisfied with the program and the results they saw in themselves (Hutchinson et al., 2007).

**Interventions for Co-Occurring Occupations with Education**

While we are primarily interested in the occupation of education, we recognize that there are other relevant occupations involved in transitioning to postsecondary education. Gibson et al. (2011) developed a systematic review about occupation-based and activity-based interventions that focused on performance skills and patterns, the environment, activity demands and client factors. These interventions were focused on helping individuals with mental illness recover in two ways. The first form was defined as recovering with improvement in function and symptom management and the second
being able to live a meaningful life with a mental illness (Gibson et al., 2011). Several themes emerged from the evidence including the importance of social participation, instrumental activities of daily living, work and education, the environment, and client-centered interventions (Gibson et al., 2011). It was also found that people who were being medically treated for treatment-resistant schizophrenia and occupational therapy saw better results than just medication alone (Gibson et al., 2011). People who received IADL interventions were seen to have integrated into the community more readily and were able to live and engage in their community successfully (Gibson et al., 2011).

Gibson et al. (2011) found evidence that was statistically significant in areas like work and education, client-centered interventions, and environmental factors.

**Conclusion**

Researchers have discovered overall, occupational therapists are playing a limited role in high school transitional services, and that occupational therapists working in a school setting are not fully utilizing their skills due to an unclear understanding of the role of an occupational therapist in transition planning (Spencer, Emery, & Schneck, 2003; Kardos & White, 2005). Literature supports the strong role of occupational therapy working with adolescents with mental illness; however, other disciplines have a limited understanding of the occupational therapist's role with this population (Henderson, Batten & Richmond, 2015). Kardos and White (2005) found in their research that the most common population that occupational therapists provided transition planning to were students with specific learning disabilities. Occupational therapists most frequently provided informal and/or observation-based assessments with these students, and focused assessment and intervention primarily on various activities
of daily living (Kardos & White, 2005). Summers (2015) completed a study regarding the role of school-based occupational therapists working with students with disabilities and transitions and found that when therapists emphasized working on life skills and transitions in therapy, that the students’ functioning improved, and that transitions enriched their practice.

Furthermore, according to Brown (2012), there is a need for occupational therapy interventions to help individuals with mental illness to be successful in postsecondary education. Due to the lack of recently published comprehensive occupational therapy literature on transitions to postsecondary education there is a need for a systematic review of all current transitional interventions within the occupational therapy scope of practice. A systematic review on this topic will better inform occupational therapy practitioners and other professionals working with this population, and increase the participation of occupational therapists in interventions for transitioning students with mental illness to postsecondary education.

Researchers have found some success for individuals with mental illness who seek postsecondary options, like education and employment. In fact, in a study regarding mental illness and socio-demographical factors affecting occupational functioning, the higher level of education the individuals with mental illnesses had, the better their socio-occupational functioning was (Rymaszewska, Mazurek, & Szczepanska-Gieracha, 2014). While these results show promise there is still a severe disconnect between service programs and helping individuals transition from one setting to the next. Occupational therapists can help in vocalizing what clients want and need to succeed in transition programs. Areas of concern like the environment, social interaction, different
demands of their job or education can be better understood with the assistance of an occupational therapist. Further research is needed to help identify where these systems could be improved and what can be done to improve them. Young people with mental illness should be given every opportunity to live a life that they choose to live and supportive transition programs could be an important part of their life transitions.
CHAPTER III

RESEARCH METHODOLOGY

Chapter III will include a description of the methods used to develop this systematic review. The researchers followed the American Occupational Therapy Association’s (2014) Guidelines for Systematic Review when completing the systematic review and when writing the article. No funding was provided for this research study. Researchers completed a thorough review of electronic literature of interventions within the scope of occupational therapy for transitioning students with any mental illness to postsecondary education. Researchers consulted with the medical school librarian at the University of North Dakota School of Medicine and Health Sciences in selecting the most appropriate databases and key search terms for this review. An academic advisor from the Occupational Therapy Department at the University of North Dakota provided guidance and expertise for researchers throughout the systematic review completion process. CIHNAL and PubMed databases were utilized because of the emphasis on publishing research in a variety of health professions, including occupational therapy. OT Search was utilized because it specifically publishes occupational therapy literature. ERIC was utilized because of its relevancy to researcher’s topic of study, consisting of literature on education and academia. PsychInfo, Social Work Abstracts and SocIndex were used in the review because of the potential of the literature being relevant to the topic and scope of occupational therapy practice. Lastly, the Cochrane database was used because of its focus on specifically publishing systematic reviews.
Theory

Due to the nature of this review, an atheoretical approach was utilized. Rather than a specific theory, *The Occupational Therapy Practice Framework – Domain and Process – 3rd Edition* (OTPF) (AOTA, 2014b), was used to inform search terms for the systematic review. Researchers reviewed the literature and the OTPF to determine the most common occupations, performance skills, and performance patterns to develop the PICO chart. “PICO” stands for Population Intervention Comparison Outcome, and is a framework that helps researchers establish successful search methods (Sayers, 2008).

Before establishing the official key search terms to use in the systematic review, researchers completed a literature review consisting of information on interventions within the scope of occupational therapy related to transition to postsecondary education for students with any mental illness. Researchers recorded the common key search terms used in articles for the literature review to develop a list of key search terms for the systematic review. The common terms that researchers discovered during the literature phase were transition, postsecondary education, mental illness, mental disorders, transition, and youth. Researchers completed additional research to explore how occupational therapists play a role in transitioning with this population to be certain that key search terms would be relevant to the scope of occupational therapy practice and were organized in a PICO format (See Table 1). Next, researchers collaborated with the medical school librarian to finalize key search terms and to make sure the correct key search terms were being used for each database.

Table 1. PICO Chart for Selecting Search Terms

| Research Question: “What is the current available evidence for interventions within |
the scope of occupational therapy for students with any mental illness during the transition process to postsecondary education?"

| P | Students with any mental illness between ages 16-21 transitioning to postsecondary education.  
*Any Mental Illness:* is defined by the Center for Behavioral Health Statistics and Quality (2015) as “a mental, behavioral, or emotional disorder, excluding developmental and substance use, diagnosable currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within the 4th edition of the DSM-IV” (p. 28).  
Excluded: developmental disabilities, learning disabilities, intellectual disabilities, addiction |
|---|---|
| I | Occupations:  
*Education:* (AOTA, 2014b): This occupation is the primary occupation of focus within this systematic review. All articles should be on the topic of transitioning to postsecondary education. Occupational therapy, and occupational therapy theory have a strong role in supported education (Gutman, Kerner, Zombek, Dulek, Ramsey, 2009, p. 246).  
*Community Mobility* (AOTA, 2014b): Occupational therapists have a role addressing community mobility in the transition process (Florida Department of Education Division of Public Schools and Community Services Bureau of Instructional Support and Community Services, 2002).  
*Financial Management* (AOTA, 2014b): Addressing financial concerns is an important aspect of the transition process (Center for Mental Health in Schools at UCLA, n.d.).  
*Social Participation* (AOTA, 2014b): Occupational can address social participation during the transition process (AOTA, 2008).  

Performance Skills:  
*Process Skills* (AOTA, 2014): “Occupational performance skills [e.g., ADL process skills, school process skills] these are the skills utilized as a person (1) selects, interacts with, and uses task tools and materials; (2) carries out individual actions and steps; and (3) modifies performance when problems are encountered” (Boyt Schell et al., 2014a, p. 1239).  
*Process Skills/Cognitive skills* (AOTA, 2014): time management skills,
• Social Interaction Skills (AOTA, 2014): “Occupational performance skills observed during the ongoing stream of a social exchange (Boyt Schell et al., 2014a, p. 1241).”

• Social Interaction Skills/Social skills (AOTA, 2014): conversation skills, regulating emotions, interpersonal relationship skills, listening skills, nonverbal/verbal processing skills

• Advocacy: “Efforts directed toward promoting occupational justice and empowering clients to seek and obtain resources to fully participate in daily life occupations. The outcomes of advocacy and self-advocacy support health, well-being, and occupational participation at the individual or systems level” (AOTA, 2014).

• Self-Advocacy: “Advocacy efforts undertaken by the client, which the practitioner can promote and support” (AOTA, 2014).

• Occupational therapists can teach youth self-advocacy skills to promote a more successful transition (AOTA, 2008).

• Performance Patterns: Performance patterns are “the habits, routines, roles, and rituals used in the process of engaging in occupations or activities; these patterns can support or hinder (AOTA, 2014).”

• Occupational therapists address routines, roles, and habits during the transition process (AOTA, 2008).

• Environmental Supports or Modifications:

  • The unique skill set of occupational therapists enables them to collaborate with other professionals during the transition process, identify environmental supports, and modify the environment to enable success with the transition. (AOTA, 2013)

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Next, researchers established inclusion and exclusion criteria for the systematic review prior to starting the search. Having specific inclusion and exclusion criteria is necessary in order to narrow the search to articles only relevant to the research question
and topic. Inclusion criteria included articles with (a) levels I-V evidence (Sackett et al., 2016), due to the limited amount of research published on this topic, (b) published in English, (c) published in peer-reviewed journals, (d) published between 2005-2016, (e) the searches were completed from September-October of 2016 in order to get current research, (f) participants have a diagnosis of any mental illness, (g) articles contain participants that are between the ages of 16-21, (h) is relevant and/or specific to interventions for the initial transition process from high school to postsecondary education, and (i) interventions are within the scope of occupational therapy practice. Any mental illness is defined by the Center for Behavioral Health Statistics and Quality (2015) as “a mental, behavioral, or emotional disorder, excluding developmental and substance use, diagnosable currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within the 4th edition of the DSM-IV” (p. 28).

Exclusion criteria included (a) articles that were completely qualitative in nature, (b) not published in English, (c) not published in peer-reviewed journals, (d) not published between the time frame 2005 through 2016, (e) articles on populations that do not have participants with any mental illness, (f) are outside of the age range 16-21, (g) articles that are not on interventions relevant and/or specific to transition to postsecondary education, and (h) articles that are not within the scope of occupational therapy practice. Also excluded were articles focused on developmental disabilities, learning disabilities, intellectual disabilities, and addiction. When database searches could be limited to peer-review journals, age ranges, specific populations, and year ranges, researchers did so.

After the inclusion and exclusion criteria were developed, a checklist was developed on excel spreadsheets to determine and keep track of which articles should or
shouldn’t be included in the systematic review. Each search was saved either in electronic format on the database, if possible, or else was printed and kept track of in paper format so the searches would be readily accessible if needed. The researchers each reviewed the abstracts of the articles chosen to be included in the study to determine if it met the criteria set forth for the systematic review. The articles that were identified as not meeting all of the necessary inclusion criteria were then excluded from the study. If at any time the researchers did not agree on the relevancy of the article to the study the researcher’s advisor was asked to review the article and then the research team would participate in discussion about the article and come to a final decision about its applicability to the study. The research articles that met the inclusion criteria were then read by both of the researchers independently and kept on a separate Excel spreadsheet organized by database were the source came from, it’s content, and why it was chosen to be included in the study. The steps, in order, taken to complete the systematic review process are described next.

The steps of the systematic review process can be seen in Figure 1. A total of 46 searches were completed. 4,040 articles were retrieved for abstract review. 3,933 were excluded based on exclusion criteria. 107 articles were kept for full article review. 99 articles were excluded due to exclusion criteria and 15 articles were excluded due to duplication. Eight articles were kept to be included in the systematic review.

There were four searches completed in the PubMed database. The first search was completed using the following mesh terms: “Education, Schools, Students, Anxiety Disorders, Bipolar and Related Disorders, Disruptive, Impulse Control, and Conduct Disorders, Dissociative Disorders, Feeding and Eating Disorders, Mood Disorders,
Neurotic Disorders, Personality Disorders, Schizophrenia Spectrum and Other Psychotic Disorders, Somatoform Disorders, and Trauma and Stressor Related Disorders”. A total of 604 articles were retrieved. Based on the abstracts, 596 articles were excluded due to not meeting the inclusion criteria. Of the articles that were excluded, 363 articles were excluded due to not being relevant to the topic of transitioning individuals with a mental illness to postsecondary education, 69 articles were excluded due to the population being studied, 16 articles were excluded because they were qualitative articles, and 146 articles were excluded due to being out of date range. Eight articles met the criteria to move on to the next evaluation stage, full article review.

The second PubMed search was completed using the terms “supported education, adolescent, and young adult”. A total of 17 articles were retrieved. Based on the abstracts, eight articles were excluded due to not meeting the inclusion criteria. Four articles were excluded due to be qualitative, two articles were excluded due to not being relevant to the topic of transitioning individuals with mental illness to postsecondary education, and two articles were excluded due to the population being studied. Nine articles met the criteria to move on to the next evaluation stage, full article review.

The third PubMed search was completed using the terms “Mental Disorders, rehabilitation, and education”. A total of 497 articles were retrieved. Based on the abstracts, 482 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 452 were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, four articles were excluded due to being qualitative studies, and 26 were excluded because of the population studied.
Fifteen articles met the criteria to be included for the next evaluation stage, the full article review.

The fourth PubMed search was completed using the terms “education, special *, and mental disorders”. A total of 443 articles were retrieved. Based on the abstracts, 439 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 119 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, two articles were excluded due to being qualitative study, and 318 articles were excluded because of the population being studied. Four articles met the criteria to be included for the next evaluation stage, the full article review.

A total of three searches were completed in the OT Search database. The first OT Search search was completed using the terms “education and mental illness”. A total of 29 articles were retrieved. Based on the abstracts, 26 articles were excluded due to not meeting the inclusion criteria. Five articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, 20 articles were excluded because they were out of date range, and one article was excluded because it was not a research study. Three articles met the criteria to be included for the next evaluation stage, the full article review.

The second OT Search search was completed using the terms “postsecondary education”. A total of 21 articles were retrieved. Based on the abstracts, 19 articles were excluded due to not meeting the inclusion criteria. Four articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, 12 articles were excluded because they were out of date range,
one article was excluded because it was a qualitative study, one article was excluded because of the population being studied, and one article was excluded because it was not a research study. Two articles met the criteria to be included for the next evaluation stage, the full article review.

The third OT Search search was completed using the terms “mental illness, mental disorder, mental health, social participation, community mobility, instrumental activities of daily living, health management and maintenance, adolescent, young adult(s), and youth”. A total of 245 articles were retrieved. Based on the abstracts, 242 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 30 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, 138 articles were excluded because they were out of date range, nine articles were excluded because it was a qualitative study, 64 articles were excluded because of the population being studied, and one article was excluded because it was not in English. Three articles met the criteria to be included for the next evaluation stage, the full article review.

Five searches were completed in the Social Work Abstracts database. The first Social Work Abstracts search was completed using the terms “mental illness, mental disorders, and transitions from high school to college”. A total of three articles were retrieved. Based on the abstracts, all three articles were excluded due to not meeting the inclusion criteria. The three articles were all excluded due to the population being studied. Zero articles met the criteria in this search, to be included for the next evaluation stage, the full article review.
The second Social Work Abstracts search was completed using the terms "mental illness, mental disorders, mental health, and transitional care". A total of five articles were retrieved. Based on the abstracts, all five articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, two articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, one article was excluded because it was a qualitative study, and two articles were excluded because of the population being studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The third Social Work Abstracts search was completed using the terms "postsecondary, post secondary, higher education, university, college, transition, mental illness, and mental disorder". A total of seven articles were retrieved. Based on the abstracts, all seven articles were excluded due to not meeting the inclusion criteria. Three articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, and four articles were excluded because of the population being studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The fourth Social Work Abstracts search was completed using the terms "mental illness, mental disorder(s), psychiatric disorder(s), mental health, supported education, and special education". A total of 569 articles were retrieved. Based on the abstracts, 566 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 502 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, four articles were excluded because they were qualitative studies, and 60 articles were excluded because of the
population being studied. Three articles met the criteria to be included for the next evaluation stage, the full article review.

The fifth Social Work Abstracts search was completed using the terms "adolescents, young and adults, youth, transition, social, participation, social engagement, social activities, activities, activities of daily living, adl, community mobility, health management and maintenance, mental illness, mental health, mental disorder, and psychiatric disorder". A total of 69 articles were retrieved. Based on the abstracts, all 69 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 40 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, one article was excluded because it was not a research study, and 28 articles were excluded because of the population being studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

A total of six searches were completed in the CINAHL database. The first CINAHL search was completed using the terms "Adjustment disorders, neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, and activities of daily living+". A total of 80 articles were retrieved. Based on the abstracts, 77 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 32 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, four articles were excluded because they were qualitative studies, and 41 articles were excluded because of the population being studied. Three
articles met the criteria to be included for the next evaluation stage, the full article review.

The second CINAHL search was completed using the terms “Adjustment disorders, neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, and transition*”. A total of 92 articles were retrieved. Based on the abstracts, 83 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 67 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, two articles were excluded because they were qualitative studies, 12 articles were excluded because of the population being studied and two articles were excluded because they were not research studies. Nine articles met the criteria to be included for the next evaluation stage, the full article review.

The third CINAHL search was completed using the terms “Adjustment disorders, neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, social participation, and social behavior+”. A total of 228 articles were retrieved. Based on the abstracts, 224 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 214 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, one article was excluded because it was a qualitative study, one was excluded because it was out of date range, and eight articles were excluded because of the population being studied. Four articles met the criteria to be included for the next evaluation stage, the full article review.
The fourth CINAHL search was completed using the terms “Adjustment disorders, neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, and health services for persons with disabilities,”. A total of 15 articles were retrieved. Based on the abstracts, 14 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 13 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, and one article was excluded because of the population being studied. One article met the criteria to be included for the next evaluation stage, the full article review.

The fifth CINAHL search was completed using the terms “Adjustment disorders, neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, and financial management+”. A total of 12 articles were retrieved. Based on the abstracts, all 12 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 11 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, and one article was excluded because it was a qualitative study. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The sixth CINAHL search was completed using the terms “Adjustment disorders or neurotic disorders+, organic mental disorders+, psychotic+, personality disorders, psychotic disorders, sexual and gender disorders, education+, and community mobility,”. A total of zero articles were retrieved in this search.
A total of eight searches were completed in the PsycInfo database. The first PsycInfo search was completed using the terms "mental disorders+, education+, and transition*." A total of 24 articles were retrieved. Based on the abstracts, 23 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 19 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, one article was excluded because it was a qualitative study, two articles were excluded because of the population being studied and one article was excluded because it was not a research study. One article met the criteria to be included for the next evaluation stage, the full article review.

The second PsycInfo search was completed using the terms "mental disorders+, education+, and young adult". A total of 154 articles were retrieved. Based on the abstracts, 147 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 139 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, two articles were excluded because they were qualitative studies, and six articles were excluded because of the population being studied. Seven articles met the criteria to be included for the next evaluation stage, the full article review.

The third PsycInfo search was completed using the terms "mental disorders+, education+, and adolescent,". A total of 133 articles were retrieved. Based on the abstracts, 132 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 126 articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, and six articles.
were excluded because of the population being studied. One article met the criteria to be included for the next evaluation stage, the full article review.

The fourth PsycInfo search was completed using the terms “mental disorders+, education+, activities of daily living, daily activities, and independent living programs,”. A total of 2 articles were retrieved. Based on the abstracts, both of the articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, both articles were excluded because of the population being studied within the articles. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The fifth PsycInfo search was completed using the terms “mental disorders+, education+, cultural deprivation, participation, social adjustment, social acceptance, social mobility, social skills, therapeutic social clubs, social support, and social networks”. A total of 13 articles were retrieved. Based on the abstracts, all 13 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, two articles were excluded because they were not relevant to the topic of transitioning individuals with mental illness to postsecondary education, and 11 articles were excluded because of the population being studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The sixth-eighth PsycInfo searches were completed using the terms “mental disorders+, education+, occupational mobility, social mobility, physical mobility, mobility aids, mobile devices, mental disorders+, education+, financial literacy, self-management, mental disorders+, education+, help seeking behavior, and health care seeking behavior”. All three of these individual searches on the database had zero search results.
A total of six searches were completed in the ERIC database. The first ERIC search was completed using the terms “mental disorders+, education+, students+, and transition*”. A total of 38 articles were retrieved. Based on the abstracts, 33 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 12 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and 21 were excluded because of the population studied. Five articles met the criteria to be included for the next evaluation stage, the full article review.

The second ERIC search was completed using the terms “mental disorders+, education+, students+, occupational mobility, student mobility, school community relationship, social mobility, mobility, and community”. A total of nine articles were retrieved. Based on the abstracts, nine articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, six were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and three were excluded because of the population studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The third ERIC search was completed using the terms “mental disorders+, education+, students+, money management, and self-management”. A total of 17 articles were retrieved. Based on the abstracts, 16 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 10 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and six were excluded because of the population studied. One article met the criteria to be included for the next evaluation stage, the full article review.
The fourth ERIC search was completed using the terms “mental disorders+, education+, students+, daily living skills, independent living, and individualized transition plans,”. A total of 26 articles were retrieved. Based on the abstracts, 26 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, seven were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and 19 were excluded because of the population studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The fifth ERIC search was completed using the terms “mental disorders+, education+, students+, inclusion, student participation, social environment, social capital, social mobility, and social cognition”. A total of 169 articles were retrieved. Based on the abstracts, 167 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 67 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education, one was excluded because it was a qualitative study, and 99 were excluded because of the population studied. Two articles met the criteria to be included for the next evaluation stage, the full article review.

The sixth ERIC search was completed using the terms “mental disorders+, education+, students+, and patient education+”. A total of 270 articles were retrieved. Based on the abstracts, 253 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 205 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education, 12 were excluded because due to being qualitative studies, five articles were not studies, and 31
were excluded because of the population studied. Seventeen articles met the criteria to be included for the next evaluation stage, the full article review.

A total of sixth searches were completed in the Cochrane database. The first Cochrane search was completed using the terms “mental disorder and transition”. A total of 25 articles were retrieved. Based on the abstracts, 23 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 21 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and two were out of date range. Two articles met the criteria to be included for the next evaluation stage, the full article review.

The second Cochrane search was completed using the terms “mental disorder and student dropout”. A total of four articles were retrieved. Based on the abstracts, four articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, three were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and one was out of date range. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The third Cochrane search was completed using the terms “mental disorder and financial management”. A total of three articles were retrieved. Based on the abstracts, two articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, one were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and one was out of date range. One article met the criteria to be included for the next evaluation stage, the full article review.
The fourth Cochrane search was completed using the terms “mental disorder and social participation”. A total of three articles were retrieved. Based on the abstracts, three articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, three were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The fifth Cochrane search was completed using the terms “mental disorder and student”. A total of three articles were retrieved. Based on the abstracts, three articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, three were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The sixth Cochrane search was completed using the terms “mental disorder and postsecondary education”. A total of one article was retrieved. Based on the abstracts, one article were excluded due to not meeting the inclusion criteria. Based on the abstracts, one was excluded because it was out of date range. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

A total of eight searches were completed in the SocIndex database. The first SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and activities of daily living”. A total of three articles were retrieved. Based on the abstracts, three articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, three were excluded because they were not relevant to the topic of transition individuals with mental
illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The second SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and instrumental activities of daily living”. A total of two articles were retrieved. Based on the abstracts, two articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, two were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The third SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and community mobility”. A total of one article was retrieved. Based on the abstract, the article was excluded due to not meeting the inclusion criteria. Based on the abstract, the article was excluded because it was not relevant to the topic of transition individuals with mental illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The fourth SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and health management”. A total of 76 articles were retrieved. Based on the abstracts, 73 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 67 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education, one was excluded because it
was not in English, and five were excluded because of the population studied. Three articles met the criteria to be included for the next evaluation stage, the full article review.

The fifth SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and health maintenance”. A total of nine articles were retrieved. Based on the abstracts, nine articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, eight were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and one was excluded because of the population studied. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The sixth SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and instrumental activities of daily living”. A total of two articles were retrieved. Based on the abstracts, two articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, two were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The seventh SocIndex search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and social participation”. A total of 30 articles were retrieved. Based on the abstracts, 30 articles were excluded due to not meeting the inclusion criteria. Based on
the abstracts, 28 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education and two were excluded due to being qualitative studies. Zero articles met the criteria to be included for the next evaluation stage, the full article review.

The eighth SocIndex search, and final search was completed using the terms “mental disorder, mental illness, mental health, education, students*, schools*, young adults*, adolescents*, and transition*”. A total of 87 articles were retrieved. Based on the abstracts, 83 articles were excluded due to not meeting the inclusion criteria. Based on the abstracts, 78 were excluded because they were not relevant to the topic of transition individuals with mental illness to postsecondary education, one was not available in English, one was excluded because it was a qualitative study, and three were excluded because of the population studied. Four articles met the criteria to be included for the next evaluation stage, the full article review.

Out of the 4,040 articles, a total of 107 articles were evaluated through full article review. After full article review of the 107 articles, 99 articles were excluded based on inclusion criteria. 51 articles were excluded because they were not relevant to or not specific to the topic of study and/or research question, 6 articles were excluded because of the population within the articles, 3 articles were excluded because of the articles were full qualitative articles, 22 articles were excluded because they were not research studies, one article was excluded because it was unable to be accessed, one article was excluded because it wasn’t in a peer reviewed journal and 15 articles were excluded because they were duplicates. Therefore, eight articles were chosen to be included for the systematic review.
Each of those eight articles were analyzed by all members of the research team and information was reported in two different tables, one table summarizing each article, and another table reporting risk of bias in each article. Researchers summarized the articles and included the following factors: a) author and year, b) study objectives, c) level of evidence, d) study design, e) subjects f) interventions, h) outcome measures, i) results, and j) study limitations. In order to assess risk of bias, researchers utilized principles set forth by Higgins, Altman, and Sterne (2011) as recommended by and cited in AOTA’s Guidelines for Systematic Reviews (AOTA, 2014a).

Ethics Approval

Due to no involvement of human subjects or protected data in this systematic review, ethics approval was not required.
Figure 1: Article Selection Process for the Systematic Review

4,040 articles obtained through database search to move forward for abstract review

107 articles were kept after abstract review for full article review.

3,933 articles excluded based on exclusion criteria:

- Articles published before 2005: 322
- Not in English: 3
- Qualitative: 70
- Population: 858
- Not relevant/not specific to topic and/or research question: 2,669
- Not a research study: 11

100 articles were excluded after full article review based on exclusion criteria and advisor recommendations

- Unable to access article: 1
- Duplicates: 15
- Not in peer-reviewed journal: 1
- Population: 7
- Not relevant/not specific to topic and/or research question: 51
- Qualitative: 3
- Not research studies: 22

7 articles were kept after full article review for inclusion in systematic review
CHAPTER IV

The product developed for this scholarly project was a systematic review of the available evidence of occupational therapy interventions that are used for students with mental illness when transitioning to postsecondary education.
Effectiveness of Occupational Therapy Interventions for Students with Mental Illness Transitioning to Higher Education: A Systematic Review

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Abstract

Objective: To examine the available evidence for interventions within the scope of occupational therapy for students with mental illness during the transition process to postsecondary education.
Method: A systematic review yielded seven articles including two systematic reviews, three one group pretest/posttest design, one naturalistic and one scooping review related to the transition process to post secondary education.

Results: Occupation-based interventions emphasized the occupation of education instead of focusing on co-occurring occupations a student may frequently participate in when enrolled in postsecondary education. Programs emphasized environmental approaches such as using the students’ past experiences, building self-advocacy skills, learning how to access environmental supports, such as welfare and food stamps, and accessing supportive education services. Performance skills were addressed to prepare students for academic participation and included: motor, process, social interaction skills, skills related to writing, reading, public speaking, social participation, and stress management. Performance patterns included the roles and routines of the student. Findings have limited generalizability due to lower level of research designs and limited number of studies.

Conclusions: Higher-level research designs need to be completed to develop best practices in transition services, to further expand occupational therapy’s role in helping students with any mental illness transition to postsecondary education.

**Keywords:** any mental illness, postsecondary education, transition, supported education
Introduction

About 18.1%, or 43.6 million, of adults in the United States will have a mental illness every year (Center for Behavioral Health Statistics and Quality, 2015). More specifically, about 21.4% of young people aged 13-18 will develop a severe mental disorder sometime during their lifetime (Merikangas et al., 2010). A mental illness can impact a person’s thinking patterns, emotions, and/or overall mood; it can affect a person’s daily functioning and ability to connect with others (National Alliance on Mental Illness, 2016b). These factors can be especially prevalent when these persons are attending school. Shaw (2009) reported that students with mental illnesses, or psychiatric disabilities, are considered the third largest group of all college students with disabilities, and this population is expected to continue to grow. In fact, of those persons diagnosed with a mental illness seeking postsecondary education, about 86% will withdraw from their degree-seeking program (Schindler & Kientz, 2013). Having inadequate education can have extensive impacts on a person’s self-esteem and preferred employment options (Brown, 2012). Despite these findings, the mental health needs of many young people during times of transition are not being met (Larson, 2009).

According to Shaw (2009), there has recently been an extensive movement to make postsecondary education more accessible for students with intellectual disabilities. There has not been a strong focus on transitions to postsecondary education for students with mental illness. At the federal level, there have been a variety of legislative acts to help increase success rates for students with disabilities, including Section 504 of the Rehabilitation Act of 1973, ADA Amendments Act of 2008, and the Higher Education Opportunity Act of 2008 (Hong, 2015). For students with disabilities seeking
postsecondary education, Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans of Disability Act of 1990 specifically protect against discrimination because of their disabilities (Duncan, 2011). The ultimate aim of these legislative acts is to ensure that persons with disabilities receive the necessary accommodations and have equal access to all aspects of the postsecondary education experience including: (a) receiving assistance with enrollment, (b) academics, (c) housing, (d) finances, and (e) employment (Hong, 2015). Despite the efforts from legislation, students with disabilities still run into barriers and challenges and the mental health need of young people during times of transition are not being met, ultimately causing poor academic performance (Hong, 2015; Larson, 2009).

According to IDEA (2004), the eligibility criteria for students transitioning to postsecondary education is defined as those between age 16-21, which has caused many students with mental illnesses to lose accessibility to treatment and support during such a critical developmental transitions (Larson, 2009). According to Larson (2009), after a 2005 survey by members of the National Association of State Mental Health Program, it was recommended that a more appropriate age range for persons with a mental illness transitioning to adulthood would be between the ages of 16 to 30. Other suggestions by the mental health professionals from the survey included that transition planning should begin before the first personalized education plan so that it is ready to go by the time the student turns 16 (Larson, 2009). Transitions from high school to work, college or a technical program, and/or independent living would be considered a major transition for a student (Shaw, 2009). Each of these transitions comes with changes of their own. These
changes include social media, family support systems, and new forms of independence such as living alone, financial responsibilities, etc. (Lane & Fink, 2015).

Not only do persons undergo changes with support and networking during times of transition, but changes in their lifestyle will also occur. For example, changes in their daily routines and schedules can affect their sleep and ability to participate in leisure activities or relationships as well (Arnett, 2004). When developmental change and transitional change occur simultaneously, it can become a greater stress and impose on the person's mental health (Arnett, 2004). Current practice for transitional interventions includes assessment, prevocational skills, life skills, role adjustments, challenges of adolescents, scheduling, vocational schooling, collaborating with others, and occupational therapy and occupational therapy assistant teaming (Gooch et al., 2015).

According to the American Occupational Therapy Association (AOTA; 2013) occupational therapists are specialists of task analysis, adapting the environment to fit an individual’s needs. Occupational therapists have knowledge on a variety of assistive technologies and this background gives occupational therapists a unique ability to create or transform universal and/or individualized learning environments to promote increased participation and performance in postsecondary programs (AOTA, 2013). Occupational therapists can help support students who plan to enroll in or are already enrolled in postsecondary education by (a) teaching self-determination, self-management, social and self-advocacy skills, (b) helping students navigate their programs, (c) helping students to discover the accommodations and supports available to them, (d) recommending and/or providing assistive technologies to increase participation and performance in postsecondary education, (e) working with the student’s family and student disability
services to determine potential needed accommodations for living academic, and school activities, and (f) to help students develop healthy and effective daily routines and habits (AOTA, 2013).

The goal of occupational therapy in mental health is to help clients realize their ability to lead meaningful, satisfying, and productive lives even with a mental health diagnosis (AOTA, 2016). Occupational therapists focus on intervention strategies that are individualized to each client and his or her unique diagnosis. Researchers have found some success for individuals with mental illness who seek postsecondary options, like education and employment. While the amount of evidence is limited in the area of transition into postsecondary education, it has shown promise when programs focus on goal setting, skill development and cognitive training (Arbesman & Logsdon, 2011; Brown, 2012; Gutman, Kerner, Zombek, Dulek, & Ramsey, 2009; Gibson D’Amico, Jaffe, & Arbesman, 2011). While a variety of health care professionals can provide transitional services, occupational therapy practitioners provide a holistic approach to working with individuals in transitional services, which include but are not limited to: (a) health, (b) education, (c) rehabilitation, and (d) employment services (Orentlicher & Gibson, 2015; Henderson, Batten & Richmond, 2015). Professionals working with students in secondary education can have a large impact on helping them transition between secondary and postsecondary education (Shaw, 2009).

Occupational therapists are currently playing a limited role in high school transitional services and occupational therapists working in a school setting are not fully utilizing their skills due to an unclear understanding of the role of an occupational therapist in transition planning (Spencer, Emery, & Schneck, 2003; Kardos & White,
Kardos and White (2005) found in their research that the most common population that occupational therapists provided transition planning to were students with specific learning disabilities. Occupational therapists most frequently provided informal and/or observation-based assessments with these students, and focused assessment and intervention primarily on various activities of daily living (Kardos & White, 2005). Summers (2015) completed a study regarding the role of school-based occupational therapists working with students with disabilities and transitions and found that when therapists emphasized working on life skills and transitions in therapy, that the students’ functioning improved, and that transitions enriched their practice.

Furthermore, according to Brown (2012), there is a need for occupational therapy interventions to help individuals with mental illness to be successful in postsecondary education. Due to the lack of recently published comprehensive occupational therapy literature on transitions to postsecondary education there is a need for a systematic review of all current transitional interventions within the occupational therapy scope of practice. Therefore, the purpose of this study was to examine the available evidence for interventions within the scope of occupational therapy for students with mental illness during the transition process to postsecondary education. Specifically, the following research question was formed: What is the current available evidence for interventions within the scope of occupational therapy for students with any mental illness during the transition process to postsecondary education?

**Methodology**

Due to no involvement of human subjects or protected data in this systematic review, ethics approval was not required. The research team included two masters level
occupational therapy students, their academic advisor, and a medical librarian. Researchers recorded the common key search terms used to find the articles for the initial literature review to get a basis for developing key search terms for the systematic review. The Population Intervention Comparison Outcome (PICO) framework was used to establish successful search methods (Sayers, 2008). A literature review was completed to inform the population and intervention components. Additionally, the Occupational Therapy Practice Framework (OTPF-III) (AOTA, 2014b) was utilized to structure the search terms to ensure that interventions reflected the scope of occupational therapy. Once the PICO framework was in place, researchers collaborated with the medical school librarian to select databases and finalize key search terms. The final key search terms for each database were then determined and are shown in Table 2.

The databases and search sites used in this systematic review were PubMed, CINAHL, ERIC, PsycInfo, Cochrane, OT Search, Social Work Abstracts, and SocIndex. These databases were chosen because of the peer-reviewed journal articles included within them, as well as the potential of these databases to help researchers conduct a successful systematic review of the selected research question and topic. Searches were completed from September-October of 2016.

*Insert Table 1 Here*

*Insert Table 2 Here*

Establishing inclusion and exclusion criteria provided guidance during the abstract and article review processes so the researchers could be consistent in selecting articles pertinent to the research question for inclusion in the systematic review. Inclusion criteria included articles with (a) levels I-V evidence (Sackett et al., 2016), due
to the limited amount of research published on this topic, (b) published in English, (c) published in peer-reviewed journals, (d) published between 2005-2016, (e) participants have a diagnosis consistent with the definition of “any mental illness”, (f) articles contain participants that are between the ages of 16-21, (g) relevant and/or specific to interventions for the initial transition process from high school to postsecondary education, and (h) interventions within the scope of occupational therapy practice.

Exclusion criteria included (a) articles completely qualitative in nature, (b) not published in English, (c) not published in peer-reviewed journals, (d) not published between the time frame 2005-2016, (e) studies outside the definition of “any mental illness”, such as developmental disabilities, learning disabilities, intellectual disabilities, and/or addiction, (f) outside of the age range 16-21, (g) articles that are not on interventions relevant and/or specific to transition to postsecondary education, and (h) articles outside the scope of occupational therapy practice.

A total of 4,040 references were found. The researchers reviewed the citations and abstracts against the inclusion and exclusion criteria. A total of 107 articles were included for full article review. Researchers followed a specific process to eliminate or include articles based on the criteria mentioned; this process can be seen in Figure 1. Researchers reviewed articles with an academic advisor to review their quality and level of evidence. Each of the articles included for the systematic review were also reviewed for risk of bias using the methodology of Higgins, Altman, and Sterne (2011) and Shea et al. (2007). The analysis of risk of bias within the studies can be found in Supplemental Table 2 and Supplemental Table 3. Three members of the research team reviewed each article to
complete the individual article analysis to insure accuracy and consistency between the articles.

*Insert Figure 1 Here*

Results

Seven articles published since 2005 met the inclusion criteria and can be seen in Supplemental Table 1. The articles’ level of evidence was chosen based off of the guide in Sackett et al. (1996). Two articles were found at a level I, three articles were found at a evidence level III, one article was a level IV, and the final article was a Level V. Three articles focused on the results of the Bridge Program or a program built off of the Bridge Program (Schindler, 2010; Schindler & Sauerwald, 2013; Schindler, 2014). One article looked at the Individual Placement and Support approach for individuals with education needs (Rinaldi, Perkins, McNeil, Hickman, and Singh, 2010). One systematic review focused on supported education programs and social skills training programs (Arbesman & Logsdon, 2011), the second systematic review focused on transition planning and coordination leading to transition-related outcomes (Cobb & Alwell, 2009), and a scoping review that focused on transition interventions as well (Di Rezze et al., 2015). Findings will be discussed with respect to the scope of occupational therapy practice (AOTA, 2014b): (1) occupation focused, (2) environment, (3) performance skills, and (4) performance patterns.

Occupation Focused

All seven articles included in this review focused on the occupation of education. No studies directly targeted the co-occurring occupational interventions; however, upon detailed review of articles, the co-occurring occupations mentioned included shopping,
health management and maintenance, and social participation. Two level I studies and three level III studies, one level IV study, and one level V study focused on the occupation of education and transitioning to postsecondary education (Schindler, 2010; Schindler & Sauerwald, 2013; Schindler, 2014; Rinaldi et al., 2010; Di Rezze et al., 2015; Cobb & Alwell, 2009; Arbesman & Logsdon, 2011). A level IV study (Rinaldi et al., 2010) looked at the Individual Placement and Support (IPS), a supported employment model and included supported education. A specialized team helped clients maintain or obtain mainstream education while addressing education-related issues, connecting them with the supports they needed, and helping them to make adjustments to enable success in their education. As a result of the integrated IPS approach to include supported education, the rates of participation in mainstream work or education increased from 40% at the start of the intervention to 76% at the completion of the intervention. From the start of intervention to after 18 months of the intervention, participation in solely education and training increased from 25% to 33% (Rinaldi et al., 2010).

Two level III studies specifically focused on the interventions provided through the Bridge Program, an occupational therapy program that targets supported education and supported employment for individuals with mental illness (Schindler & Sauerwald, 2013; Schindler, 2014). Schindler and Sauerwald (2013) reported that the Bridge Program was an occupation-based program that included occupational therapy students helping participants set and achieve client-centered goals related to education through using occupation-based interventions. The occupation-based activities such as engaging in social participation, working on writing and reading, etc., were focused on because of the relation to education-based outcomes (Schindler & Sauerwald, 2013). The Bridge
Program demonstrated some success, even though results were not statistically significant for individuals enrolled in education alone, as the number of students enrolled in education before the Bridge Program was seven and after completing the Bridge Program the number increased to 11 (Schindler & Sauerwald, 2013). The occupation-based interventions in the Bridge Program also related to client-centered education-related goals (Schindler, 2014). The Canadian Occupational Performance Measure (COPM) was used to measure satisfaction and performance outcomes for participants. It was reported 32 (84%) of the 38 participants that were enrolled at a college remained enrolled in their college program. Overall participants’ performance in goal areas improved (Schindler, 2014). Both studies of the Bridge Program support occupation-based programming as potentially effective in helping participants achieve their higher education goals (Schindler & Sauerwald, 2013; Schindler, 2014).

An occupation-based, client-centered program similar to the Bridge Program was studied by Schindler (2010) through a level III pre-test/post-test design. Occupational therapy students were mentors to participants in the program and helped participants establish goals related to being successful in the occupation of education and creating occupation-based interventions related to those goals. Those occupation-based activities were developed based on academic, vocational, life skill, and leisure goals set forth by the participants in the program (Schindler, 2010). A case example mentioned in this research study explained how this program addressed the instrumental activities of daily living (IADL) of grocery shopping related to an individual being able to maintain success in education (Schindler, 2010). Schindler (2010) also used the COPM as a pretest/posttest measure. Overall, statistically significant improvement in performance was reported in
this study suggesting that occupation-based, client-centered program showed effectiveness of these interventions in improving performance and satisfaction in academic, vocational, and life skill areas related to education (Schindler, 2010).

A level one systematic review article by Cobb and Alwell (2009) focused on groups led by students in the planning of their education. Articles included in the review looked at students' overall participation in their IEP planning sessions. This included the students' participation in different transition services as well. The review reported that students reported higher rates of satisfaction when included in these planning sessions. The studies included in this review showed that students who were able to participate in planning their future after school had an effect size of $g = 1.47$, showing high significance in favor of these groups. The review also noted that these studies utilized student-focused groups with positive outcomes as well (Cobb & Alwell, 2009).

Environment

The interventions utilized, while integrating the IPS approach to include supported education, consisted of a specialized team to make sure that the participants had the adjustments and supports needed in their environment to be successful in academics (Rinaldi et al., 2010). The specialized team included an employment specialist and care coordinators. The employment specialists worked with clients directly and indirectly to address vocational issues and needs, help them gain and maintain education courses, educated them on welfare benefits, and addressed environmental support needs, while the care coordinators provided most of the ongoing support throughout the intervention process (Rinaldi, et al., 2010). Researchers in this level IV study found that integrating the IPS approach with supported education could potentially lead to
successful educational outcomes for participants with mental health issues (Rinaldi, et al., 2010).

In a level V scoping review by DiRezze et al. (2015) researchers found that the ecological/experiential intervention approach was used most often. These interventions focused on the environmental factors that can encourage academic goal achievement. Environmental factors such as learning from experience, advocating and being provided support or education, while not commonly addressed in transition literature, are important to consider for this population (DiRezze et al., 2015).

**Performance Skills**

Two level III evidence one group pretest/posttest design studies evaluated the effectiveness of the Bridge Program and how participants’ evaluated their own problem areas and overall satisfaction with their performance and skill development related to various aspects of higher education (Schindler and Sauerwald, 2013; Schindler, 2014). The Bridge Program focused on addressing motor, process, and social interaction skills related to education; specifically, writing, reading, public speaking, social skills, and stress management (Schindler & Sauerwald, 2013; Schindler; 2014). The COPM and Participant Overall Satisfaction Scale were utilized to help identify potential challenging performance skill areas (Schindler & Sauerwald, 2013; Schindler, 2014). In a level III study by Schindler (2010), interventions in this occupation-based program addressed academic, vocational, daily life, and leisure participation skills.

Two systematic reviews focused on skills necessary to promote educational goals. In a level I systematic review by Cobb and Alwell (2009) looked at different skills the students identified as being important when transitioning into postsecondary education.
Skills related to their own perceptions of what skills were needed to promote success in transition services, skills that promote help seeking behaviors, and their ability to socialize with people around them. These skills, altogether, were had a positive correlation with the student led and developed education groups. This led to students to having positive experiences when working towards their educational goals. In a second level I systematic review by Arbesman and Logsdon (2011), researchers found insufficient evidence on social skills that were found helpful when achieving academic goals. There were positive results for social skills programs that were highly structured, guided by a manual and combined social skills with independent living skills. These studies used a program guided by the Social and Independent Living Skills Program developed by the University of California, Los Angeles. Significant results for individuals with schizophrenia included showing improvements in social roles, task skills, and interpersonal skills (Arbesman & Logsdon, 2011).

Performance Patterns

Rinaldi et al. (2010) studied the interventions focused on integrating the IPS, a supported employment model, to include supported education, found success with the focus on the role of individuals with mental illness as a student. All interventions related to maintaining or obtaining mainstream education were focused on supporting individuals in this role as a student in their occupational performance within their education. Through this study, researchers found the potential effectiveness of integrating the IPS approach to include supported education, to support the role as a student (Rinaldi et al. 2010). Both of the level III studies on the effectiveness of the Bridge Program in achieving education-related goals focused interventions on the role of a student, and creating
interventions related to practicing actual aspects of the role of a student (managing time, reading/writing, social engagement) (Schindler & Sauerwald, 2013; Schindler, 2014). A level III study of an occupation-based, client-centered program related to interventions for maintaining or obtaining successful participation in postsecondary education focused on occupations related to the role of a college student, and habits and routines of the participant while performing those occupations (Schindler, 2010).

*Insert Supplemental Table 1 Here
*Insert Supplemental Table 2 Here
*Insert Supplemental Table 3 Here

Limitations

The articles that met the criteria to be included in this systematic review had several limitations. First, researchers were unable to locate a sufficient amount of articles that had high levels of evidence. Only two out of the seven articles had level I evidence. Next, there was an overall limited amount of literature related to this specific topic. Although researchers retrieved 4,040 articles for the abstract review phase, only 107 of those articles meet the criteria for full article review, and only seven articles met the criteria to be included in this review. There was a lack of randomization in the seven articles that were included in the review, therefore increasing possibilities of bias in the evidence. There was a lack of generalizability of the results due to low levels of evidence and lack of variability within the results. Upon completing a review of the included articles, education was addressed but not exclusively, rather along with employment opportunities for this population as well. Lastly, there was insufficient evidence indicated a particular intervention had strong support.
Limitations were also present regarding the systematic review process overall. First, researchers were unable to find sufficient evidence for specific interventions for transitioning individuals with any mental illness to higher education, but there were some interventions that were more commonly studied than others. Next, although student researchers have experience in carrying out quantitative and qualitative research studies, this was the first time they have participated in the creation of a systematic review.

**Implications for Researchers, Practitioners, and Educators**

Occupational therapists work with students who have a diagnosis of “any mental illness” in childhood through adulthood, providing interventions to help them perform their everyday occupations while coping with the symptoms of their diagnosis. These interventions should include preparing clients for the transition from high school to postsecondary education. By focusing on the occupation of education, the environment and performance skills and patterns, these clients can be more successful in managing their mental illness while achieving their academic goals.

More rigorous research needs to be completed to provide reliable and evidence based results that can be put into practice. This is a very limited topic and high levels of evidence can provide more information about successful transition services, such as the Bridge Program, and the role of occupational therapy within those services. Practicing occupational therapists need to become more involved in transition services to expand the role of occupational therapy. If programs are not available, developing programs that are available to this population could be helpful in allowing clients to better achieve their academic goals. It is important to educate on this population and the different services available to them. Transition services are noted as an emerging practice niche by AOTA.
(2011), showing that educators should provide knowledge and explanation into what transition services are and the role occupational therapy can play.
References

http://www.aota.org/~/media/Corporate/Files/AboutOT/Professionals/WhatIsOT/CY/Fact-Sheets/Transitions.pdf


https://www.aota.org//media/Corporate/Files/AboutOT/Professionals/WhatIsOT/CY/Fact-Sheets/Postsecondary-Education.pdf

http://dx.doi.org/10.5014/ajot.2014.682006


http://doi.org/10.3399/bjgp08X277168


### Table 1. PICO Chart for Selecting Search Terms

<table>
<thead>
<tr>
<th><strong>Research Question:</strong> “What is the current available evidence for interventions within the scope of occupational therapy for students with any mental illness during the transition process to postsecondary education?”</th>
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</table>
| **P** | Students with any mental illness between ages 16-21 transitioning to postsecondary education.  
- *Any Mental Illness*: is defined by the Center for Behavioral Health Statistics and Quality (2015) as “a mental, behavioral, or emotional disorder, excluding developmental and substance use, diagnosable currently or within the past year, and of sufficient duration to meet diagnostic criteria specified within the 4th edition of the DSM-IV” (p. 28).  

Excluded: developmental disabilities, learning disabilities, intellectual disabilities, addiction |
| **I** | **Occupations:**  
- **Education** (AOTA, 2014b): This occupation is the primary occupation of focus within this systematic review. All articles should be on the topic of transitioning to postsecondary education. Occupational therapy, and occupational therapy theory have a strong role in supported education (Gutman, Kerner, Zombek, Dulek, Ramsey, 2009, p. 246).  
- **Community Mobility** (AOTA, 2014b): Occupational therapists have a role addressing community mobility in the transition process (Florida Department of Education Division of Public Schools and Community Services Bureau of Instructional Support and Community Services, 2002).  
- **Financial Management** (AOTA, 2014b): Addressing financial concerns is an important aspect of the transition process (Center for Mental Health in Schools at UCLA, n.d.).  
- **Health Management and Maintenance** (AOTA, 2014b): Helping youth to establish self-management skills is a key aspect of a successful transition (Nguyen, Henderson, Stewart, Hlyva, Punthakee, & Gorter, 2016).  
- **Social Participation** (AOTA, 2014b): Occupational can address social participation during the transition process (AOTA, 2008). |
| **Performance Skills:**  
- **Process Skills** (AOTA, 2014): “Occupational performance skills [e.g., ADL process skills, school process skills] these are the skills utilized as a person (1) selects, interacts with, and uses task tools and materials; (2) carries out |
individual actions and steps; and (3) modifies performance when problems are encountered” (Boyt Schell et al., 2014a, p. 1239).

• Process Skills/Cognitive skills (AOTA, 2014): time management skills, organization skills, problem-solving skills

• Social Interaction Skills (AOTA, 2014): “Occupational performance skills observed during the ongoing stream of a social exchange (Boyt Schell et al., 2014a, p. 1241).”

• Social Interaction Skills/Social skills (AOTA, 2014): conversation skills, regulating emotions, interpersonal relationship skills, listening skills, nonverbal/verbal processing skills

• Advocacy: “Efforts directed toward promoting occupational justice and empowering clients to seek and obtain resources to fully participate in daily life occupations. The outcomes of advocacy and self-advocacy support health, well-being, and occupational participation at the individual or systems level” (AOTA, 2014).

• Self-Advocacy: “Advocacy efforts undertaken by the client, which the practitioner can promote and support” (AOTA, 2014).

• Occupational therapists can teach youth self-advocacy skills to promote a more successful transition (AOTA, 2008).

• Performance Patterns: Performance patterns are “the habits, routines, roles, and rituals used in the process of engaging in occupations or activities; these patterns can support or hinder (AOTA, 2014).”

• Occupational therapists address routines, roles, and habits during the transition process (AOTA, 2008).

• Environmental Supports or Modifications:

• The unique skill set of occupational therapists enables them to collaborate with other professionals during the transition process, identify environmental supports, and modify the environment to enable success with the transition. (AOTA, 2013)
<table>
<thead>
<tr>
<th>Category</th>
<th>Key Search Terms</th>
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<tbody>
<tr>
<td>Population</td>
<td>Mental illness, mental health, mental disorders, psychiatric disorders, organic mental disorders, adjustment disorders, sexual and gender disorders, anxiety disorders, bipolar and related disorders, disruptive, impulse control, conduct disorders, dissociative disorders, feeding and eating disorders, mood disorders, neurotic disorders, personality disorders, schizophrenia spectrum, somatoform disorders, trauma and stressor related disorders, adolescent, young adults, young, adults, youth, special*, students</td>
</tr>
<tr>
<td>Intervention</td>
<td>Education, supported education, schools, students, rehabilitation, postsecondary education, transition, transitional care, post secondary, higher education, special education, university, college, community mobility, instrumental activities of</td>
</tr>
<tr>
<td>daily living, health management and maintenance, social participation, transition from high school to college, social engagement, social activities, social participation, social behavior, activities, activities of daily living, adl, daily activities, independent living programs, cultural deprivation, social adjustment, social acceptance, social mobility, social skills, therapeutic social clubs, social support, and social networks, health services for persons with disabilities, financial management, occupational mobility, physical mobility, mobility aids, mobile devices, financial literacy, self-management, help seeking behavior, health care seeking behavior, mobility, student mobility, school community relationship, mobility, community, money management, daily living skills, independent living, individualized transition plans, inclusion, student</td>
<td></td>
</tr>
<tr>
<td>participation, social environment, social capital, social cognition, patient education, student dropout, instrumental activities of daily living, health management, health maintenance</td>
<td></td>
</tr>
</tbody>
</table>
4,040 articles obtained through database search to move forward for abstract review.

107 articles were kept after abstract review for full article review.

7 articles were kept after full article review for inclusion in systematic review.

3,933 articles excluded based on exclusion criteria:
- Articles published before 2005: 322
- Not in English: 3
- Qualitative: 70
- Population: 858
- Not relevant/not specific to topic and/or research question: 2,669
- Not a research study: 11

100 articles were excluded after full article review based on exclusion criteria and advisor recommendations:
- Unable to access article: 1
- Duplicates: 15
- Not in peer-reviewed journal: 1
- Population: 7
- Not relevant/not specific to topic and/or research question: 51
- Qualitative: 3
- Not research studies: 22
Supplemental Table 1: Results of Systematic Review

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Level/Design/Participants</th>
<th>Intervention</th>
<th>Outcome Measures</th>
<th>Results</th>
</tr>
</thead>
</table>
| Arbesman & Logsdon (2011) | Level I Systematic Review | Interventions focused on helping adults with serious mental illness looking to enroll in higher education or seeking employment. These interventions included supported employment, vocational rehabilitation programs, supported education programs, supported education and social skills training, and programming focused on homemaking, parenting, and environmental supports. | - Portions of Wechsler Adult Intelligence Scale II  
- Wechsler Memory Scale–Revised  
- Hopkins Verbal Learning Test  
- Continuous Performance test  
- Wisconsin Card Sorting Test  
- Bell Lysaker Emotion Recognition Task (BLERT)  
- Gorham’s Proverbs Test  
- Hinting task  
- Trail-Making Test B  
- Work Behavior Inventory  
- Work Personality Profile  
- Cognitive Functional Assessment Scale  
- Positive Negative Syndrome Scale  
- Employment rates  
- Days to first job  
- Annualized weeks worked  
- Job tenure in longest job held during the follow-up period  
- Test of Grocery Shopping  | Intervention Employment: There is strong evidence for supported employment programs paired with the Individual Placement and Support (IPS) model.  
Interventions Education: Supported education programs that focus on goal setting, skill development, and cognitive training have higher rates of participation in educational and vocational pursuits.  
Parenting: There is limited evidence on programs looking at parental practices and |
<table>
<thead>
<tr>
<th>Skills</th>
<th>Social Skills: Programs integrating the IPS model with social skills and cognitive training have also been yielding positive results.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Participation level in program and involvement in employment, school-vocational program</td>
<td>• Number of participants in competitive employment</td>
</tr>
<tr>
<td>• Motivation, satisfaction, enjoyment level, learning, empowerment, self-efficacy</td>
<td>• Other employment outcomes (form of employment, mean monthly hours worked, and mean earnings) were reviewed secondarily</td>
</tr>
<tr>
<td>• Number of participants in competitive employment</td>
<td>• The Kitchen Task Assessment—Modified (KTA–M)</td>
</tr>
<tr>
<td>• Other employment outcomes (form of employment, mean monthly hours worked, and mean earnings) were reviewed secondarily</td>
<td>• UCLA Social Attainment Scale at baseline, end, 1, and 2 yr; Social Rhythm Metric</td>
</tr>
<tr>
<td>• Program completion rate</td>
<td>• Program completion rate</td>
</tr>
<tr>
<td>• Educational or job placement rate</td>
<td>• Educational or job placement rate</td>
</tr>
<tr>
<td>• Measures for program modules</td>
<td>• Measures for program modules</td>
</tr>
<tr>
<td>• Participant Comfort with the Student Role Scale</td>
<td>• Participant Comfort with the Student Role Scale</td>
</tr>
<tr>
<td>• Pre-and posttests for each academic module</td>
<td>• Pre-and posttests for each academic module</td>
</tr>
</tbody>
</table>
Supplemental Table 1: Results of Systematic Review

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Participants Comfort</td>
<td></td>
</tr>
<tr>
<td></td>
<td>With the Student Role</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Participant Overall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfaction Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• TSS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ISS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• School Behavior Scales</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The percentage of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>participants who</td>
<td></td>
</tr>
<tr>
<td></td>
<td>successfully completed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and enrolled in further</td>
<td></td>
</tr>
<tr>
<td></td>
<td>academic coursework,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>completed a GED, or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>obtained employment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ongoing Client</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Instrument, Empowerment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scale, Tennessee Self-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concept Scale, Katz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjustment Scale, Client</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfaction Scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Positive and Negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Syndrome Scale (PANSS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Gotham Proverbs Test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Hours worked, wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>earned, and SE services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>used, tracked weekly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Workplace Fundamentals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Knowledge Test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Eyberg Child Behaviour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inventory and Parenting</td>
<td></td>
</tr>
</tbody>
</table>

83
<table>
<thead>
<tr>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Role Functioning Scale</td>
</tr>
<tr>
<td>• Employment rate, job characteristics, job tenure, salary</td>
</tr>
<tr>
<td>• Included percentages of participants achieving employment, number of hours worked, mean ages earned, and mean job tenure</td>
</tr>
<tr>
<td>• Brief Psychiatric Rating Scale</td>
</tr>
<tr>
<td>• Negative Symptom Assessment</td>
</tr>
<tr>
<td>• Global Assessment of Functioning Scale</td>
</tr>
<tr>
<td>• Multnomah Community Ability Scale and Relapse</td>
</tr>
<tr>
<td>Supplemental Table 1: Results of Systematic Review</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Cobb &amp; Alwell (2009)</strong></td>
</tr>
<tr>
<td><strong>Level I</strong></td>
</tr>
<tr>
<td><strong>Systematic Review</strong></td>
</tr>
<tr>
<td>Participants: N = 31 studies interventions that were student-focused on the planning and development of improving transition-related outcomes for youth with disabilities 859 youth (aged 13-22) with a wide variety of disabilities.</td>
</tr>
<tr>
<td>Databases: Eric (Ovid and Cambridge), PsycInfo (Ovid), and Medline (Ovid)</td>
</tr>
<tr>
<td><strong>Intervention was focused on transition planning/coordinating interventions, transition or transition-related outcomes.</strong></td>
</tr>
<tr>
<td>• Student participation in transition planning</td>
</tr>
<tr>
<td>• Perceptions of overall process</td>
</tr>
<tr>
<td>• Knowledge of vocational skills and work awareness skills</td>
</tr>
<tr>
<td>• Retention in program</td>
</tr>
<tr>
<td>• Social competence</td>
</tr>
<tr>
<td>• Vocational decision-making</td>
</tr>
<tr>
<td>• Perceptions of the most successful components of program</td>
</tr>
<tr>
<td>• Post-school employment outcomes</td>
</tr>
<tr>
<td>• Vocational self-awareness</td>
</tr>
<tr>
<td>• Student participating in transition planning</td>
</tr>
<tr>
<td>• Multiple outcomes associated with ITEP</td>
</tr>
<tr>
<td>• Perceptions of the outcomes of transition</td>
</tr>
<tr>
<td>• Career self-efficacy</td>
</tr>
<tr>
<td>• Wages</td>
</tr>
<tr>
<td>• Proficiency in work-related behaviors</td>
</tr>
<tr>
<td>• Perceptions of barriers to involvement</td>
</tr>
<tr>
<td>• Job application skills</td>
</tr>
<tr>
<td>• Perceived factors that made the transition to</td>
</tr>
<tr>
<td><strong>Student-focused Planning Studies:</strong></td>
</tr>
<tr>
<td>Supported evidence by high outcomes for students who get to participate in planning their own future (Average Effect size g = 1.47 in favor).</td>
</tr>
<tr>
<td><strong>Student Development:</strong></td>
</tr>
<tr>
<td>Focused training can impact insight about vocational training (Average effect size g = .67).</td>
</tr>
<tr>
<td>A lack of efficacy was found for special education curricula for students with disabilities.</td>
</tr>
<tr>
<td><strong>Vocational Training:</strong> Helps to support career planning.</td>
</tr>
</tbody>
</table>
Supplemental Table 1: Results of Systematic Review

<table>
<thead>
<tr>
<th>Supplemental Table 1: Results of Systematic Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>lower levels of supervision successful</td>
</tr>
<tr>
<td>• Career decision-making</td>
</tr>
<tr>
<td>• Parent participation in transition planning</td>
</tr>
<tr>
<td>meetings</td>
</tr>
<tr>
<td>• Vision of the future and self-determined status</td>
</tr>
<tr>
<td>• Perceptions of success in career development and</td>
</tr>
<tr>
<td>employment</td>
</tr>
<tr>
<td>• Perceptions of success in transition</td>
</tr>
<tr>
<td>• Perceptions of factors that would promote</td>
</tr>
<tr>
<td>involvement</td>
</tr>
<tr>
<td>• Student involvement in transition planning</td>
</tr>
<tr>
<td>• Perceptions of successful strategies for transition</td>
</tr>
<tr>
<td>• Help-recruiting behaviors</td>
</tr>
<tr>
<td>• Student participation in IEP process</td>
</tr>
<tr>
<td>development, and builds different job skills.</td>
</tr>
</tbody>
</table>
Supplemental Table 1: Results of Systematic Review

<table>
<thead>
<tr>
<th>DiRezze et al. (2015)</th>
<th>Level V</th>
<th>Transition interventions for adolescents and youth with mental health disorders.</th>
<th>Personal Domain: Studies did not exclusively address this domain unless used with multi-faceted interventions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoping review</td>
<td>Level</td>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td><strong>Personal Domain:</strong> Studies did not exclusively address this domain unless used with multi-faceted interventions.</td>
</tr>
<tr>
<td>Participants: N = 9 articles evaluating the transition interventions for adolescents aged 12-25 years old with mental health disorders</td>
<td>V</td>
<td>Cognitive development and independent functioning</td>
<td><strong>Interpersonal Domain:</strong> This was not exclusively addressed unless paired with other interventions.</td>
</tr>
<tr>
<td>Databases: CINAHL, Embase, MEDLINE, PsycINFO</td>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Number of participants finding paid employment</td>
<td><strong>Social Domain:</strong> The sub-domains of the social domain were most commonly addressed including transition to employment, independent living and social relationships.</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders</td>
<td><strong>Social Domain:</strong> The sub-domains of the social domain were most commonly addressed including transition to employment, independent living and social relationships.</td>
<td>Number of hours worked and wage amount</td>
<td>Environment: Noted the ecological/experience.</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td><strong>Environment:</strong> Noted the ecological/experience.</td>
<td>Job satisfaction</td>
<td>Employment during study in any kind of job or ever employed</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Employment during study in any kind of job or ever employed</td>
<td>Employment rates and level of income</td>
<td>Number of jobs, courses, longevity of work, money earned, level of access to welfare benefits</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Number of jobs, courses, longevity of work, money earned, level of access to welfare benefits</td>
<td>Data collected pre and post implementation to measure student and family expectations, self-determination, and career decision-making ability</td>
<td>Psychiatric symptoms</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Psychiatric symptoms</td>
<td>Number of participants finding paid employment</td>
<td>Youth severity and functioning</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Youth severity and functioning</td>
<td>Number of hours worked and wage amount</td>
<td>Perception of loneliness</td>
</tr>
<tr>
<td>Transition interventions for adolescents and youth with mental health disorders.</td>
<td>Perception of loneliness</td>
<td>Job satisfaction</td>
<td>Anger expression</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Participants: N = 166 (Male: 114, Female: 52) individuals in the United Kingdom, with first episode of psychosis, who participated in vocational interventions</td>
<td>The early intervention team implemented the IPS approach for young people with first episode of psychosis. A multidisciplinary team, including an employment specialist who addresses employment and or vocational education, participated in the early intervention.</td>
<td>Vocational Status at pre, and post (6, 12, 18, &amp; 24 months)</td>
<td></td>
</tr>
</tbody>
</table>
| | | Vocational Status: Participation in mainstream work or education increased from 40% at the start of intervention to 76% at completion of the intervention.
### Supplemental Table 1: Results of Systematic Review

| Schindler (2010) | Level III | One group pretest/posttest design | N = 38 (Male: 18, Female: 20) individuals with mental illness, who were 18 years or older, verbalized a plan to attend the program for at least one semester, demonstrated at least a 10th grade reading level, and be | Client-centered, occupation-based occupational therapy program targeting supported education and employment through a peer mentorship model. The intervention ran for four consecutive academic semesters, once a week for 3 hours. | • Canadian Occupational Performance Measure (COPM)  
• Participant Overall Satisfaction Scale | Change in Self-identified Problem Areas: Analysis of the COPM indicated statistically significant difference in pre-test and post-test scores for performance, satisfaction and total scores. | Vocational Pathways: The IPS approach utilizing an enhanced “place and train” approach to obtain higher education or employment demonstrated effectiveness for participants’ vocational pathways during the 2-year duration of the intervention. | with the Employment Specialist and care coordinators for at least 6 months | educational needs provided intervention. Fidelity of the intervention was measured using the IPS Scale and “good implementation” rating was achieved. The duration of the intervention was at least six months and a maximum of two years. Frequency of intervention was not reported. | |
Supplemental Table 1: Results of Systematic Review

| Schindler & Sauerwald (2013) | Level III The Bridge Program | The Bridge Program is an occupational therapy program that targets supported education and supported employment for individuals with mental illness. Components of the program include: a) mentoring by occupational therapy student, b) higher education or employment goals, and c) skill modules. The intervention lasted each academic year (13 weeks in Fall, 12 weeks in... | Overall, there was an increase in individuals enrolled in work and education with participation in the Bridge Program. Findings were not statistically significant for the higher education sample only, but results were statistically significant for the work group and for the combined work-education group. |

R fluent in English

Participants’ Reported Satisfaction:
Participants overall reported that the mentors were sensitive to their needs and that the mentorship was helpful to them.

| ParticiQants’ Reported Satisfaction: Participants overall reported that the mentors were sensitive to their needs and that the mentorship was helpful to them. | Overall, there was an increase in individuals enrolled in work and education with participation in the Bridge Program. Findings were not statistically significant for the higher education sample only, but results were statistically significant for the work group and for the combined work-education group. |

Participants: N = 48 (Male: 17, Female: 31) adults with mental illness who had previously participated in at least one semester of the Bridge Program from 2005-2009
Supplemental Table 1: Results of Systematic Review

<table>
<thead>
<tr>
<th>Schindler (2014)</th>
<th>Level III</th>
<th>The Bridge Program is a client-centered program that utilized principles of community integration, supported employment, and supported education to help participants succeed in education or employment-related goals. Interventions consisted of one-to-one mentorship, participation in relevant activities, and classroom modules.</th>
<th>• COPM</th>
<th>Change in Self-Identified Problem Areas: Participants scores for performance and satisfaction increased from pre-test to post-test; these results were statistically significant.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One Group Pretest/Post Design</td>
<td></td>
<td></td>
<td>Change in Self-Identified Problem Areas: Participants scores for performance and satisfaction increased from pre-test to post-test; these results were statistically significant.</td>
</tr>
<tr>
<td></td>
<td>Participants: N = 113 (Male: 56%, Female: 44%) participants with mental illness, a learning disability, or an Autism Spectrum disorder who were either already enrolled in postsecondary education seeking successful education outcomes, or members of the community hoping to start or go back to higher education and/or employment, who participated in at least one semester of the Bridge Program from 2008-2012</td>
<td></td>
<td></td>
<td>Change in Self-Identified Problem Areas: Participants scores for performance and satisfaction increased from pre-test to post-test; these results were statistically significant.</td>
</tr>
</tbody>
</table>
### Supplemental Table 2. Risk of Bias for Articles (Except Systematic Reviews) Included in Systematic Review

<table>
<thead>
<tr>
<th>Citation</th>
<th>Selection Bias</th>
<th>Blinding of Participants and Personnel (Performance Bias)</th>
<th>Blinding of Outcome Assessment (Detection Bias)</th>
<th>Incomplete Outcome Data (Attrition Bias)</th>
<th>Selective Reporting (Reporting Bias)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random Sequence Generation</td>
<td>Allocation Concealment</td>
<td>Patient-Reported Outcomes</td>
<td>All Cause Mortality</td>
<td>Short Term (2-6 weeks)</td>
</tr>
<tr>
<td>Di Rezze et al. (2015)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Rinaldi, Perkins, McNeil, Hickman, &amp; Singh (2010)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>?</td>
<td>NA</td>
</tr>
<tr>
<td>Schindler (2010)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>NA</td>
</tr>
<tr>
<td>Schindler &amp; Sauerwald (2013)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>NA</td>
</tr>
<tr>
<td>Schindler (2014)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Risk of Bias Table Key:** + = low risk of bias; ? = unclear risk of bias; - = high risk of bias; NA = Not Applicable


**Supplemental Table 3: Risk of Bias for Systematic Reviews Included in the Systematic Review**

<table>
<thead>
<tr>
<th>Citation</th>
<th>&quot;A Priori Design&quot;</th>
<th>Duplicate Study Selection or Data Extraction</th>
<th>Comprehensive Literature Search Performed</th>
<th>Publication Status as Inclusion Criteria</th>
<th>List of Included/Excluded Studies Provided</th>
<th>Characteristics of Included Studies</th>
<th>Quality of Studies Assessed and Documented</th>
<th>Quality Assessment Used</th>
<th>Methods Used to Combine Results</th>
<th>Likelihood of Publication Bias</th>
<th>Conflict of Interest Stated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbesman &amp; Lodsdo (2011)</td>
<td>+</td>
<td>?</td>
<td>+</td>
<td>+</td>
<td>- (Included articles only)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>NA</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Cobb &amp; Alwell (2009)</td>
<td>-</td>
<td>(Included inclusion criteria)</td>
<td>+</td>
<td>+</td>
<td>- (Included articles only)</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>NA</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Risk of Bias Table Key: + = low risk of bias; ? = unclear risk of bias; - = high risk of bias; NA = Not Applicable*


Chapter V

SUMMARY, CONCLUSIONS, & RECOMMENDATIONS

Students with mental illness are the third largest group of college students with disabilities, but 86% of these students will withdraw from their degree-seeking program (Shaw, 2009; Schindler & Kientz, 2013). This indicates that students with mental illness are not getting the support and assistance they need during the transition process from high school to postsecondary education. Additionally, researchers found that although the literature supports the role of occupational therapy in transition planning, occupational therapists are not a large part of this service due to an unclear understanding of their role in transition planning (Gibson et al., 2011; Gutman et al., 2009; Spencer, Emery, & Schneck, 2003; Kardos & White, 2005).

There are no current systematic reviews specifically on the effectiveness of interventions within the scope of occupational therapy for transitioning students with any mental illness to postsecondary education. Therefore, the purpose of this scholarly project was to examine the available evidence for interventions within the scope of occupational therapy for students with mental illness during the transition process to postsecondary education. Therefore, researchers decided to complete a systematic review on this topic. Researchers utilized the *Occupational Therapy Practice Framework* (OTPF-III) (AOTA, 2014b) and assistance from a medical school librarian to determine relevant search terms, select appropriate databases, and complete the search process. Researchers completed searches in eight different databases and found a total of seven articles that met the
inclusion and exclusion criteria to be included in the systematic review. Each article that was included in the systematic review was analyzed by each member of the research team, by level of evidence, design, participants, intervention, outcome measures, and results. These aspects of each included article were presented in a final table. Additionally, each article that was included in the systematic review was analyzed for bias and put into separate tables.

The OTPF-III (AOTA, 2014b) also guided researchers in analyzing the results of the systematic review. The results were categorized into the concepts of occupation, environment, performance skills, and performance patterns. Occupation-based interventions were the most common intervention type among the articles for interventions utilized during the transition process from high school to postsecondary education (Rinaldi, Perkins, McNeil, Hickman, & Singh, 2010; (Schindler & Sauerwald, 2013; Schindler, 2014; Schindler, 2010; Cobb & Alwell, 2009), although there was insufficient evidence to support any one intervention was more effective than another. Occupation-based interventions all focused on the occupation of education, but did not focus on the co-occurring occupations researchers initially considered to be important for a student, such as community mobility, financial management, health management and maintenance, and social participation. Two articles supported the effectiveness of a client-centered, occupation-based program, the Bridge Program (Schindler, 2010; Schindler, 2014).

The environmental interventions that were addressed in the literature focused on using the client’s past experiences, learning how to access environmental supports, such as welfare, food stamps, and accessing supportive education services (DiRezze et al.,
The interventions that focused on performance skills focused on skill building in terms of motor, process, social interaction skills, skills related to writing, reading, public speaking, social participation, building self-advocacy skills, and stress management skills (Schindler & Sauerwald, 2013; Schindler, 2014, Cobb & Alwell, 2009; Arbesman & Logsdon, 2011). The major performance pattern addressed in the literature included the role of the student, where interventions that focused on issues such as time management, reading and writing, and social engagement, routines and habits, especially related to studying, were also addressed (Rinaldi et al., 2010; Schindler & Sauerwald, 2013; Schindler, 2014). It is important to note that many of the interventions within the articles including aspects from more than one category, and therefore, it was recorded as such in the results section of the systematic review.

One of the outcomes of this scholarly project is an article suitable for publication in a peer-reviewed journal within the scope of occupational therapy practice. Researchers will adapt the format of the final product to meet the journal’s specified criteria and submit the article for publication. This article will provide the journal with information pertinent to transition services for students with mental illness and the role occupational therapy could play. Another outcome is for the researchers’ article to be cited by other researchers who are developing their research. This scholarly project will be able to provide fellow researchers with information to supplement their own project.

The strengths of this product include: (a) there are very few, if any, systematic reviews that evaluate the effectiveness of interventions used in transition services from an occupational therapy scope of practice, (b) it brings attention to an emerging practice niche recognized by the American Occupational Therapy Association (AOTA, 2011), and
(c) brings up opportunities for more research to be developed. This gives the systematic review a holistic view of the students that are in need of these types of services. The OTPF-III (AOTA, 2014) provided researchers with a number of areas to focus on when evaluating the effectiveness of stated interventions. AOTA recognizes transition services as an emerging practice niche and this product helps bring more attention to occupational therapy’s role in transition services for individuals with mental illness. This product also shows the need for more rigorous research that could be done on this topic. By developing more research, occupational therapists will begin to develop a more dominant role in transition services.

The limitations of the project included not being able to locate sufficient evidence for interventions relevant to this topic, lack of randomization within the studies, lack of generalizability of the results, lack of sufficient evidence supporting one intervention is more effective than another, and that this was the first time student researchers participated in creating a systematic review. Five of the seven articles were between level III-V evidence, indicating the need for more rigorous research. There was a lack of randomization within each of the studies, as each study only had a single group receiving the intervention. There was a lack of generalizability of the results of the studies due to the non-randomization of participants. The strengths of the product included finding two level I evidence articles, both systematic reviews, that met the inclusion criteria to be included in the systematic review, as well as retrieving two out of the seven articles regarding the effectiveness of the Bridge Program, Schindler and Sauerwald (2013) and Schindler (2014), and another article supporting another intervention similar to the Bridge Program, Schindler (2010).
Due to the lack of published literature on this topic, especially research of high levels of evidence, future researchers may want to consider conducting more rigorous research specifically research with higher levels of evidence, such as level I or II. Practicing occupational therapists may want to consider completing more research on occupational therapy’s role with this population. By getting more involved in transitional programs, occupational therapists could advocate for and expand their role with this population. Because the Bridge program (Schindler and Sauerwald, 2013; Schindler, 2014), and a program similar to the Bridge program (Schindler, 2010) has the most current research articles indicating potential effectiveness of these intervention programs, occupational therapists and individuals with mental illness transitioning to college could potentially benefit by participating in investigation and development of more programs similar to the Bridge Program. Lastly, The fact that occupational therapists have a limited understanding on the role of occupational therapy in transitioning this population from high school to postsecondary education, and that this is an AOTA emerging practice area, occupational therapy educators should consider teaching about transition services to occupational therapy students to increase knowledge of and participation in this practice area of occupational therapy.

Potential roadblocks to implementation of this product would be the article being rejected for publication. If the researchers’ are unable to edit the product in the correct ways and meet the specified criteria, the article will not be published for other occupational therapists to read and learn about. It is the researchers’ hope to be able to critically edit the product to meet these criteria and submit the product to a few different peer reviewed journals if not accepted from the previous submission.
The final product is currently a rough draft that is not ready for submission. Researchers’ will further edit and critically appraise the article to be accepted by potential articles. The researchers’ will consult with a medical school librarian to see which peer reviewed journals would best fit the need that the product is trying to meet.

The researchers hope to work in collaboration with future students who consider developing their own project related to students with mental illness and their need for transition services. Future research could include a needs assessment of a student population to see if transition services are sufficient or need improvements on their campus. Transition programs, similar to the Bridge Program Schindler (2010), may also be evaluated. Fellow researchers can use our systematic review to guide which interventions are meeting occupational therapy scope of practice, and if necessary, how to adapt programming to meet those areas of occupation, performance skills and patterns, and environmental needs. The final product will be edited and adapted to meet specified peer reviewed journal criteria to be submitted for publication. This will promote future use of the researchers’ article when developing their own research.
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