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## Mapping Occupational Therapy Practice with Postsecondary Students: A Scoping Review

Karen M. Keptner

*Cleveland State University - USA, k.keptner@csuohio.edu*

Karen McCarthy

*Dominican University of California - USA, karen.mccarthy@dominican.edu*

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# Mapping Occupational Therapy Practice with Postsecondary Students: A Scoping Review

## Abstract

*Background:* Legislation supports a role for occupational therapy in postsecondary settings, but this area is not a common practice area and the practice area is not well understood. This scoping review maps current literature of occupational therapists working with students in postsecondary settings in order to inform future research and practice.

*Method:* After identifying included articles, a narrative description of the quantitative studies along with a concept map were completed. A qualitative thematic analysis of the articles was also conducted.

*Results:* Twenty-five articles met the inclusion criteria. Quantitative results describe occupational therapy services as both a direct and indirect service provided through offices of disability services, assistive technology, and supported education programs, among others. The primary population with whom occupational therapists engage with are students with mental illness. Three qualitative themes emerged from the scoping review, including the focus on occupation and skills needed for success, using the campus environment, and campus collaboration.

*Conclusion:* The structure of occupational therapy services varies from location to location and occupational therapists work with various populations of students. Future research needs to support the distinct value of occupational therapy in this practice area, including the scope and outcomes of occupational therapy services with different populations of students.

## Comments

The authors report that they have no conflicts of interest to disclose.

## Keywords

adolescent, adolescent development, evidence-based practice, mental health services, occupational therapy, professional practice, review literature as topic, school health services, secondary prevention

## Cover Page Footnote

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## Credentials Display

Karen M. Keptner, PhD, OTR/L  
Karen McCarthy, OTD, OTR/L

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Successful completion of postsecondary education (PSE) can lead to improved lifetime earnings, social connections, and health outcomes into adulthood for those who are able to participate (Ma, Pender, & Welch, 2016; Rangul, Bauman, Lingaas Holmen, & Midthjell, 2012). Success at PSE can be defined by obtaining a postsecondary certificate, degree, or diploma higher than a high school diploma or GED in settings that include four-year universities, community colleges, technical and trade schools, and/or vocational certificate programs. Students with either mental illness and/or physical disabilities can have difficulty completing a degree program (Brand, Valent, & Danielson, 2013). According to the American Institutes for Research (Brand et al., 2013), only 40.7% of students with a disability complete their degrees within 8 years.

Student support personnel provide services in postsecondary environments to facilitate progression from acceptance to graduation and they traditionally include advisors, psychologists and counselors, and physicians and nurses. Support personnel also includes staff in offices of disability services, student health and wellness, assistive technology, and/or student success. These personnel are crucial in helping students graduate, but with more students with disabilities progressing to postsecondary studies and an increase in mental health challenges, the ability of current services to address the needs of students adequately is limited (Oswalt et al., 2018).

Supported education provides services for individuals diagnosed with psychiatric conditions in postsecondary settings. The supported education model gained momentum in the early 1980s to address the gap in services provided to students with mental health disabilities with the goal to provide “support to people with psychiatric disabilities to achieve their postsecondary educational goals” (Mowbray, Megivern, & Holter, 2003, p. 159). Supported education has been effective in helping individuals with goals in education and work; supported education can also lead to improvements in self-esteem and quality of life (Soydan, 2004). Supported education services can be provided in a variety of formats, including self-contained classrooms, onsite drop-in centers, and mobile support services. Settings for supported education include community colleges and universities (Mowbray et al., 2003), hospitals (Hoffmann & Mastrianni, 1993), clubhouses (Dougherty, 1994), and state mental health service providers (Lieberman, Goldberg, & Jed, 1993). Occupational therapists have taken a role in supported education models in PSE settings (Schindler, 2014; Schindler, 2018; Schindler, 2019). For example, Gutman and Schindler (2007) have investigated the role of occupational therapy in a specific supported education program on the east coast of the United States.

Occupational therapists work with adolescents and adults diagnosed with mental illness (Downing, 2006); those newly diagnosed with chronic diseases, such as diabetes (Pyatak et al., 2018); and those with a recent life-changing injury (spinal cord injuries and/or traumatic brain injuries) (Wheeler, Acord-Vira, & Davis, 2016). Since many of these clients are also concurrently in school or considering PSE, occupational therapists in the community may work on educational goals but without the ability to reinforce interventions in the environment where the interventions may be most effective. Occupational therapists can assist students with disabilities to progress through postsecondary studies (Orentlicher et al., 2017). That role is supported by the Individuals with Disabilities Education Act (2004), Title II of the Americans with Disabilities Act (2008), and Section 504 of the Rehabilitation Act of 1973 (U.S. Department of Justice, 2005). A few institutions are known to have occupational therapy programs that provide services to postsecondary students, not under the umbrella of supported education. For example, the University of Southern California provides occupational therapy services for students in their faculty health clinic that is based on principles of Lifestyle Redesign® (Jackson, Carlson, Mandel, Zemke, & Clark, 1998). In

addition, OToncampus® was an occupational therapy service embedded in a student primary health clinic at the University of St. Louis in Missouri (Eichler & Royeen, 2016).

Occupational therapists are trained to assist with both the physical and psychosocial challenges among a postsecondary population (American Occupational Therapy Association [AOTA], 2013). However, the prevalence of occupational therapists working in PSE settings, what their role is in PSE settings, and the outcomes of occupational therapy services are difficult to determine. While more occupational therapists are articulating the value of occupational therapy in PSE settings (Dirette, 2019), the practice area is not listed in official communications from AOTA (for example, as a recognized practice area for membership or registration for conferences) or in the workforce survey (AOTA, 2015).

### **Purpose of Study**

By conducting a scoping review, the researchers wanted to synthesize the current body of literature of occupational therapy's role in servicing the needs of postsecondary students. The objective of this scoping review was to map the literature that describes occupational therapy services provided in PSE, including the structure of occupational therapy services, the populations served, the methods of intervention, and the potential outcomes of such services.

### **Method**

The primary focus of this scoping review was to “map” occupational therapy services in postsecondary settings. Mapping literature is “a useful way . . . to visualize the range of material that might be available” (Arksey & O'Malley, 2005, p. 21) in an area where research is limited. The researchers were guided by the scoping review process outlined by Levac, Colquhoun, and O'Brien (2010), which is informed by Arksey and O'Malley (2005). Since the researchers wanted some fluidity in their selection of articles and representation of the practice area as more data was uncovered, a published protocol was not registered a priori, as it was revised over the course of the review to have the largest benefit to the practice area. In order to demonstrate methodological rigor, the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist was used as a guide (Tricco et al., 2018).

### **Stage 1: Identify the Research Question**

In this scoping review, it was important to keep the questions broad enough to capture the breadth of occupational therapy programs and services for postsecondary students since evidence was deemed limited. Levac et al. (2010) recommend that “researchers combine a broad research question with a clearly articulated scope of inquiry” (p. 3). The broad research question was to determine the scope of occupational therapy in postsecondary settings. More focused questions allowed for mapping of the literature to explore the populations served, methods of intervention, and outcomes. The questions were developed over time in an iterative process between the researchers (Arksey & O'Malley, 2005). As suggested by Levac et al. (2010) the questions were created in relation to the purpose of the study and the researchers discussed and revised the questions on several occasions as more literature was uncovered. Specific changes included clarifying services, such as those provided in a PSE setting as opposed to services that were provided during the transition from secondary to PSE settings. The scoping review addressed the following guiding questions and objectives:

1. What are the designs of the occupational therapy services provided in PSE?  
Objective: To provide a description of the various designs of occupational therapy service in PSE settings.
2. What populations are being served by occupational therapists in PSE settings?

Objective: To describe the populations that are primarily serviced by occupational therapy in PSE settings.

3. What are the methods of intervention used by occupational therapists?

Objective: To describe the various ways in which occupational therapists provide intervention with postsecondary populations.

4. Who is being studied? What are the outcomes reported?

Objective: To identify who is the subject of research and what are the outcomes of research in this area of practice.

## Stage 2: Identify Relevant Studies

Arksey and O'Malley (2005) recommend that researchers aim for "comprehensiveness" and "breadth" in their search, using sources that include "electronic databases, references lists, hand-searching of key journals, existing networks, relevant organizations and conferences" (p. 23). The authors followed these recommendations and included a variety of sources, including peer-reviewed journal articles, non-journal articles, editor-reviewed articles, and material from occupational therapy trade journals. The authors also considered posters and paper presentations at conferences, if enough detail was provided.

Relevant keywords identified peer-reviewed journal articles across various databases relevant to occupational therapy and higher education (see Table 1). Key journals were also hand searched: the *American Journal of Occupational Therapy*, the *Canadian Journal of Occupational Therapy*, and the *British Journal of Occupational Therapy*. Since the purpose of this study, like other scoping studies, was not to judge the rigor of the evidence, additional work was hand selected from non-peer-reviewed sources, for example, those from *AOTA: OT Practice* and the *Special Interest Sections Quarterly Practice Connections*. Looking at such variety of sources led to the inclusion of "a range of different methods and study designs" (Arksey & O'Malley, 2005, p. 30) in this scoping review.

**Table 1**

*Search Strategy: Scoping Review Mapping Occupational Therapy Services in Postsecondary Education Settings*

Database	Keywords
CINAHL; PsychINFO; Education Complete; Iceberg; Medline; OTSeeker; OTDBase; SocINDEX; Web of Science	"College Students" OR "Higher Education Students" OR "Postsecondary Students" OR "Third Level Students" OR "Junior College Students" OR "Trade School Students" OR "Technical College Students" OR "Community College Students" OR "Two Year College Students" OR "First Generation College Students" OR "College Transfer Students" OR "College Freshmen" OR "Transfer Students" OR "On Campus Students" OR "College Athletes" OR "Junior College Students" OR "ROTC Students" OR "Graduate Students" OR "Postgraduate Students" OR "Reentry Students" AND "Occupational Therapy" OR "Allied Health Personnel" OR "Occupations" OR "Occupational Therapy Services" OR "Occupational Therapy Intervention"

The researchers used a “snowball” strategy to find additional articles. A “snowball” strategy relies on word of mouth to expand the reach of the study. The researchers informed colleagues known to provide services in PSE settings about the study and the inclusion criteria. The researchers also posted on Facebook in two groups where occupational therapists are active in PSE settings. With this approach, the researchers received a variety of poster and paper presentations from conferences. The researchers decided to present this work in the discussion of this scoping review but not in the results, since the posters and paper presentations were unable to provide enough detail.

### **Stage 3: Study Selection**

First, the authors independently screened titles and abstracts looking for articles that were related to both PSE and occupational therapy. Inclusion criteria used during the screening of titles and abstracts included: Does this research pertain to postsecondary students? Does the article discuss occupational therapy services? Inclusion criteria included articles in English and those that discussed occupational therapy services on a postsecondary campus with students who were enrolled in a postsecondary program. Articles of all types (systematic reviews, intervention studies, descriptive studies, qualitative studies, etc.) were considered in the final review. Systematic reviews were included if the included articles and outcomes met criteria for this scoping review, even if they included individual articles in the review that were outside the scope of this study. Articles were excluded if they could not be found in English or if efforts to obtain the article were unsuccessful. No date limit was set for the scoping review criteria. However, a time limit was imposed when looking for articles from interlibrary loan or requesting an article from authors. The last database search was conducted in June 2018.

As recommended by Levac et al. (2010), the two authors met at multiple stages of the abstract review process to “discuss challenges and uncertainties related to study selection and to go back and refine the search strategy if needed” (p. 4). The researchers made the final selection of articles from reading the full-text of articles considered ( $n = 92$ ). The final articles included in the review were only selected by consensus between the researchers. As the researchers encountered the literature, they revised the research questions and further defined terms that were important in consideration for the selection of articles. For example, the researchers defined “occupational therapy in PSE settings” as only those services that were housed in a PSE setting (college, university, trade school, etc.) and the services led to a degree, diploma, or certificate. This was an important distinction, since some of the literature discussed: (a) occupational therapy services for students currently enrolled in PSE, but services were provided in the community or at a hospital, and (b) programs that provided occupational therapy services for students with disabilities on campuses not related to the completion of a degree, diploma, or certificate.

If there was still a discrepancy in the selection of an article for final inclusion, guidance was obtained from two external reviewers. According to Levac et al. (2010) a third reviewer can be brought in to resolve disagreements on study inclusion. The external reviewers chosen are considered experts in this area of practice and also made critical comments about the entire bibliography of articles before the list was finalized. The researchers considered the opinions of the experts when discussing the articles for which there was originally a disagreement (Levac, Colquhoun, & O’Brien, 2010). There were four articles discussed at length and as input from the external reviewers was considered, two of these articles were ultimately included in the scoping review. A flow diagram of articles using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) outlines included and excluded at each phase are presented in Figure 1.

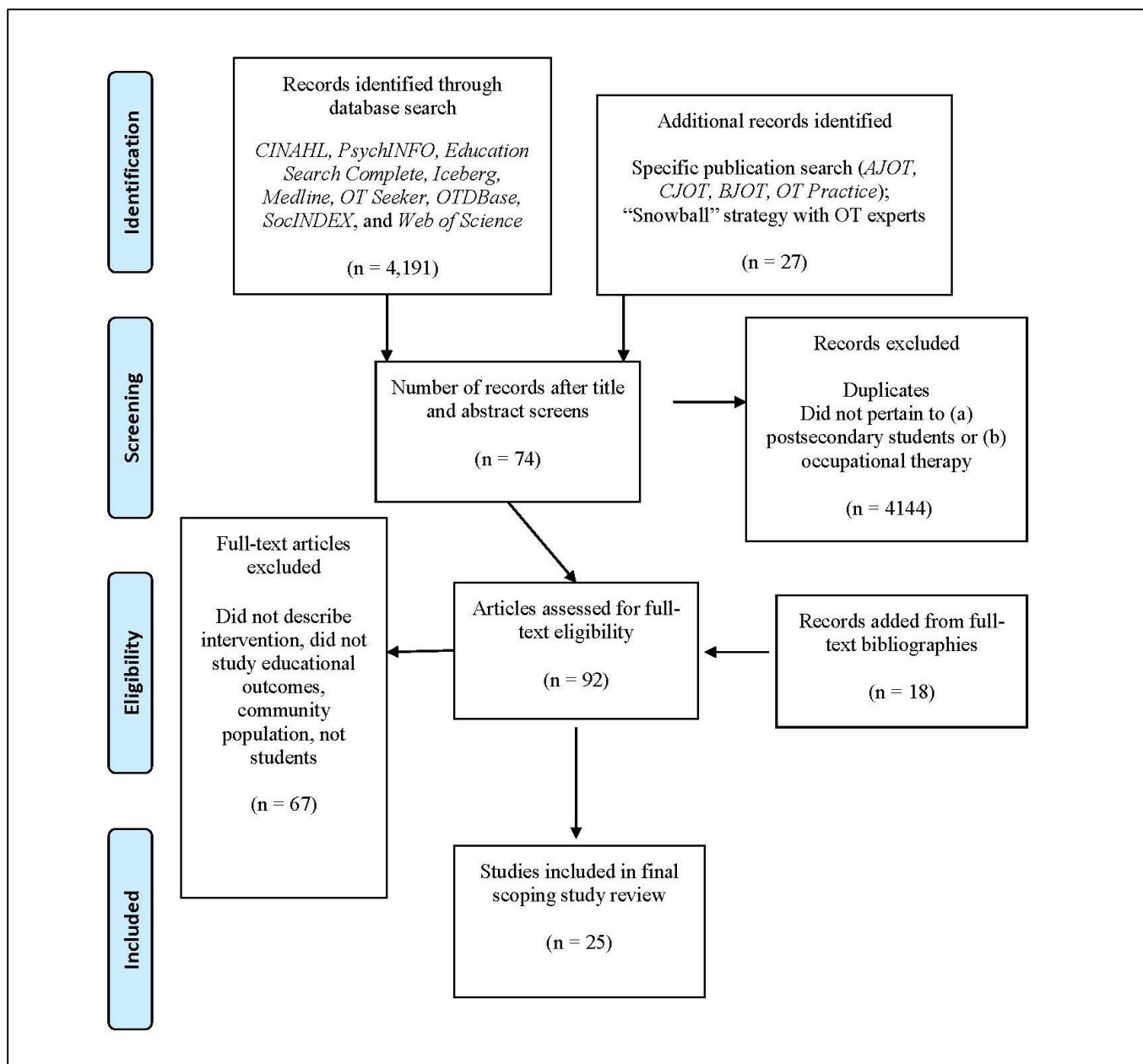


Figure 1. PRISMA diagram of article selection into scoping review mapping occupational therapy in postsecondary education. From “Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement,” by D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and The PRISMA Group, 2009, *PLoS Med*, 6(6), e1000097.

#### Stage 4: Charting the Data

Data from the final articles included in the review were extracted until all relevant data was summarized in a data-charting form created by the authors. In adherence to Levac et al. (2010), the two authors independently extracted data from each study and discussed the information in order to achieve accuracy and consensus. The data-charting form included the following information: author, year of publication, study design, location, services provided, outcomes, limitations, recommendations of author, and overall statements of author’s message about occupational therapy services for postsecondary students. Corresponding authors of articles were emailed for clarification when necessary.

## Stage 5: Collating, Summarizing, and Reporting the Results

Recommendations by Levac et al. (2010) were used to guide the presentation of the results. According to Levac et al. (2010), this stage involves “analysis (otherwise referred to as collating and summarizing) and should involve a descriptive numerical summary and a thematic analysis” (p. 6). Descriptive analysis was aligned with the research questions and presented in both narrative and tabular formats. Thematic analysis was conducted using the steps outlined by Braun and Clarke (2006). In Phase 1, the authors familiarized themselves with the data, reading and rereading the articles selected for analysis, and then completing a data-charting form for each article as detailed above. In Phase 2, each author independently generated initial codes. Coding was guided by the meaning of the findings as they related to the overall study purpose and the guiding questions, which included settings where occupational therapy services take place, the type of services provided, collaborations, and outcomes reported. Coding also considered the recommendations of the author and overall statements of the author’s message about occupational therapy services for postsecondary students that were outlined in the data-charting form. In Phase 3, the authors searched for themes across codes. In Phases 4 and 5, the authors reviewed themes and then defined and named themes, creating a coding tree to organize the findings.

The final results map the scope and nature of the literature that includes occupational therapy services provided in PSE settings, the intervention approaches used by occupational therapists in PSE settings, the outcomes of occupational therapy services in these settings, and the subjects of research related to occupational therapy services in PSE settings.

## Results

### Descriptive Summary

Twenty-five studies from the peer-reviewed literature were included in this scoping review. Because of heterogeneity among the articles, specific quantitative data (means, etc.) are not reported but narrative description follows. Among the 25 articles, occupational therapy services were represented across PSE settings, primarily in university settings, but technical and community college settings were also represented. There has been a steady increase in articles published on the topic since 2010. Services in the US occurred across the country while evidence of occupational therapy services was found in Australia (South West Sydney) and Ireland (Dublin). Occupational therapy services were provided to many different student populations, both with and without disabilities. The primary population who received occupational therapy services had mental illness (see Table 2).

**Table 2**

*Student Populations Served by Occupational Therapy in Postsecondary Education Settings*

Student population	Authors (year)	Program name/type	Type of study Sample size (if applicable)	Location
Students with mental illness	Arbesman & Logsdon (2011)	---	Systematic review	---
	Best, Still, & Cameron (2008)	Supported education	Descriptive study; 61 students	Sydney, Australia
	Burson (2003)	Supported education	Personal narrative	USA, Midwest
	Gutman, Kerner, Zombek, Dulek, & Ramsey (2009)	Supported education – “Bridge” program	RCT; 38 students – 21 in experimental group, 17 in control group	USA, East Coast



## Occupational therapy in postsecondary settings

	Gutman & Schindler (2007)	Supported education – “Bridge” program	Descriptive study	USA, East Coast
	Gutman, Schindler, Furphy, Klein, Lisak, & Durham (2007)	Supported education – “Bridge” program	One group pre/post test; 18 students	USA, East Coast
	Jacobs, Selby, & Madsen (1996)	Supported academic success program	Descriptive study; 16 student referrals to program	USA, Midwest
	Schindler (2014)	Supported education – “Skills for Success”	Mixed methods study- pre/post test design; approximately 80 occupational therapy students, 113 undergraduate students; 1 faculty member	USA, East Coast
	Schindler (2018)	Supported education – “Skills for Success”	One group posttest design; 48 participants; 29 participated in a qualitative analysis	USA, East Coast
	Schindler & Sauerwald (2013)	Supported education	Mixed methods study – pre/post test design; 48 participants	USA, East Coast
	Spencer, Sherman, Nielson, & Thormodson (2017)	---	Systematic review	---
Students with intellectual and developmental disabilities	Berg, Jirikowic, Haerling, & MacDonald (2017)	Supported education – “Triumph”	Exploratory case study; 10 students with IDD, 5 parents, 4 college administrators, 8 college instructors, 4 occupational therapists, transition specialist	USA, West Coast
Students with autism/Asperger’s	McCausland, Bazyk, & Kerns (2012)	---	Participatory action research project; 5 students with autism	USA, Midwest
	Quinn, Gleeson, & Nolan (2014)	Supported education - Unilink	Retrospective chart review; 12 students	Dublin, Ireland
	Schindler & Cajiga (2015)	Supported education	Descriptive study; 11 students with Asperger’s disorder	USA, East Coast
Students with “hidden” disabilities	Malcolm & Roll (2017)	Assistive technology resource center	Retrospective chart review; 105 student charts	USA, West Coast
	Burnett & Yerxa (1980)	---	Needs assessment; 190 students with disabilities	USA, West Coast
Students with any identified disability	Burnett-Beaulieu (1984)	Disability services at community college	Descriptive study	USA, West Coast
	Lewis & Nolan	Unilink	Pilot study; survey completed by 102 students; 8 students were contacted after consultation	Dublin, Ireland
General student population	Eichler, Hoebet, & Royeen (2015)	OToncampus© - collaboration with counseling services	Case study	USA, Midwest
	Eichler & Royeen (2016)	OToncampus© - collaboration with primary care center	Commentary	USA, Midwest
	Keptner, Harris, Mellyn, Neff, Rassie, & Thompson (2016)	Occupation-based group intervention	One group pre/post test design; 18 students	USA, Midwest
	Keptner (2017)	Occupation-based group intervention	Long-term follow-up; 7 students	USA, Midwest
	Nolan & MacCobb (2006)	Supported education – Unilink	Needs assessment; 52 students referred to service and 17 students who used the service over two academic years	Dublin, Ireland
	Smallfield, Benda, & Siefkes (2011)	First-year experience course	Narrative descriptive study	USA, Midwest

**Study design.** Two of the final 25 articles were systematic reviews focused on persons identified with serious mental illness (Arbesman & Logsdon, 2011; Spencer, Sherman, Nielsen, & Thormodson, 2018). Arbesman and Logsdon (2011) evaluated the effectiveness of occupational therapy interventions for persons with serious mental illness, looking at employment and education. Spencer, Sherman, Nielsen, and Thormodson (2018) examined occupational therapy interventions for students with serious mental illness transitioning to PSE. Of the final 25 articles, two of them were qualitative designs (Berg, Jirikowic, Haerling, & MacDonald, 2017; McCausland, Bazyk, & Kerns, 2012). Ten articles of the final 25 were primarily descriptive in nature (Best, Still, & Cameron, 2008; Burnett-Beaulieu, 1984; Burnett & Yerxa, 1980; Burson, 2003; Eichler, Hoebet, & Royeen, 2015; Eichler & Royeen, 2016; Gutman & Schindler, 2007; Jacobs, Selby, & Madsen, 1996; Nolan & MacCobb, 2006; Smallfield, Benda, & Siefkes, 2011), while 11 articles were intervention studies (Gutman, Kerner, Zombek, Dulek, & Ramsey, 2009; Gutman et al., 2007; Keptner et al., 2016; Keptner, 2017; Lewis & Nolan, 2013; Malcolm & Roll, 2019; Quinn, Gleeson, & Nolan, 2014; Schindler, 2014; Schindler, 2018; Schindler, Cajiga, Aaronson, & Salas, 2015; Schindler & Sauerwald, 2013).

**Occupational therapy services provided.** Occupational therapy services were provided (see Table 3) in collaboration with occupational therapy programs, with occupational therapy students as service providers, and independently by occupational therapists and occupational therapy faculty. While supported education was the primary overarching model found in the literature, other service designs were found. Both direct and indirect services through Offices of Disability Services (Lewis & Nolan, 2013), assistive technology services (Malcolm & Roll, 2019), and in a student health clinic (Eichler et al., 2015; Eichler & Royeen, 2016) were described. Alternative forms and frequencies of services were also described, including a short-term group intervention (Keptner, 2017; Keptner et al., 2016), a first-year experience course (Smallfield et al., 2011), and “as needed” occupational therapy services in a multidisciplinary drop-in center (Jacobs et al., 1996).

**Table 3**

*Design of Occupational Therapy Services on Postsecondary Campuses*

<b>Role of occupational therapy</b>	<b>Article</b>
Consultant	Lewis & Nolan (2013)
One-on-one and/or group interventions as an independent service on campus	Burnett-Beaulieu (1984) Eichler, Hoebet, & Royeen (2015) Jacobs, Selby, & Madsen (1996) Keptner et al. (2016); Keptner (2017) McCausland, Bazyk, & Kerns (2012)
Teaching an undergraduate course to help with transition to higher education	Smallfield, Benda, & Siefkes (2011)
Providing services in supported education	Berg, Jirikowic, Haerling, & MacDonald (2017) Best, Still, & Cameron (2008) Burson (2003) Gutman, Kerner, Zombek, Dulek, & Ramsey (2009) Gutman & Schindler (2007) Gutman, Schindler, Furphy, Klein, Lisak, & Durham (2007) Lewis & Nolan (2013) Nolan & MacCobb (2006) Quinn, Gleeson, & Nolan (2014)

	Schindler (2014) Schindler (2018) Schindler & Cajiga (2015) Schindler & Sauerwald (2013)
Member of student primary health center team	Eichler & Royeen (2016)
Employed in an assistive technology center on campus	Malcolm & Roll (2017)
Employed in an Office of Disability Services	Lewis & Nolan (2013) Nolan & MacCobb (2006) Quinn, Gleeson, & Nolan (2014)

**Outcomes.** Outcomes and relevance to occupational therapy services in postsecondary environments varied among the studies. For example, a few articles ( $n = 3$ ) describe the needs of university students as it related to the development of occupational therapy services (Burnett & Yerxa, 1980) or the student experience as it related to receiving occupational therapy services (Berg et al., 2017; McCausland et al., 2012). One article discussed an occupational therapist's perspective developing a program for students in a PSE setting (Burson, 2003) and one article presented outcomes for student users and for occupational therapy students and faculty involved in such a program (Schindler, 2014). A clear description of specific programs that could inform other practice was provided in many articles (Burnett-Beaulieu, 1984; Eichler & Royeen, 2016; Keptner et al., 2016; Nolan & MacCobb, 2006; Schindler, 2018; Smallfield et al., 2011).

Student outcomes were positive after participation in occupational therapy programming. Positive outcomes included higher enrollment in an academic program after participation (Gutman et al., 2009; Schindler et al., 2015; Schindler & Sauerwald, 2013), improved academic skills, increased competency in student role, enhanced social skills and professional behaviors, and more confidence (Gutman et al., 2007). Jacobs, Selby, and Madsen (1996) reported improved individual goal attainment among students with common goals, including coping with stress, extending social outlets, improving study skills, self-awareness, and self-esteem, decreasing negative self-talk, exploring leisure activities, and decreasing anxiety. Improvements were also noted with occupational performance and satisfaction with performance (Keptner, 2017; Keptner et al., 2016; Malcolm & Roll, 2019; Schindler, 2014; Schindler et al., 2015), use of sensory-friendly testing environments (Lewis & Nolan, 2013), and program completion rates (Best et al., 2008). Keptner et al. (2016) did not find positive improvements in quality of life among the students after participating in a 5-week occupational therapy group.

A concept map (see Figure 2) provides a visual representation of how the programs, populations, and outcomes were presented in the literature. Occupational therapists working in supported education programs and with students with mental illness were the largest represented service structures for occupational therapy intervention. Student ability to write and achieve goals, academic related outcomes, and occupational performance and performance satisfaction were most prevalent outcomes in the literature along with descriptions of occupational therapy programs written by occupational therapists.



Figure 2. Visual representation of occupational therapy service type, population served, and outcomes measured.

**Article limitations.** Although the purpose of the scoping review was a mapping exercise and not a judgment of rigor of included articles, there were a variety of limitations noted. Most of the articles were descriptive in nature without a strong focus on outcomes data from intervention (Best et al., 2008; Burnett-Beaulieu, 1984; Burnett & Yerxa, 1980; Burson, 2003; Eichler et al., 2015; Eichler & Royeen, 2016; Gutman & Schindler, 2007; Nolan & MacCobb, 2006; Smallfield et al., 2011). Other articles were limited by a small sample (Berg et al., 2017; Gutman et al., 2009; Gutman & Schindler, 2007; Gutman et al., 2007; Jacobs et al., 1996; Keptner et al., 2016; Keptner, 2017; Lewis & Nolan, 2013; McCausland et al., 2012; Quinn et al., 2013; Schindler et al., 2015). Of those that measured outcomes following an intervention, eight lacked a control group (Best et al., 2008; Gutman et al., 2007; Keptner et al., 2016; Keptner, 2017; Schindler et al., 2015; Schindler, 2014; Schindler, 2018; Schindler & Sauerwald, 2013). For two studies, there was a lack of established reliability and validity for several outcome measures (Gutman et al., 2009; Gutman et al., 2007).

### Thematic Analysis

After extracting descriptive information from each article, coding was guided by the overall study purpose, the main research guiding questions, and the overall author's message and recommendations. Thematic analysis revealed the following themes across the studies: focus on occupation and skills needed for success, use of the campus environment, and campus collaboration (see Figure 3).

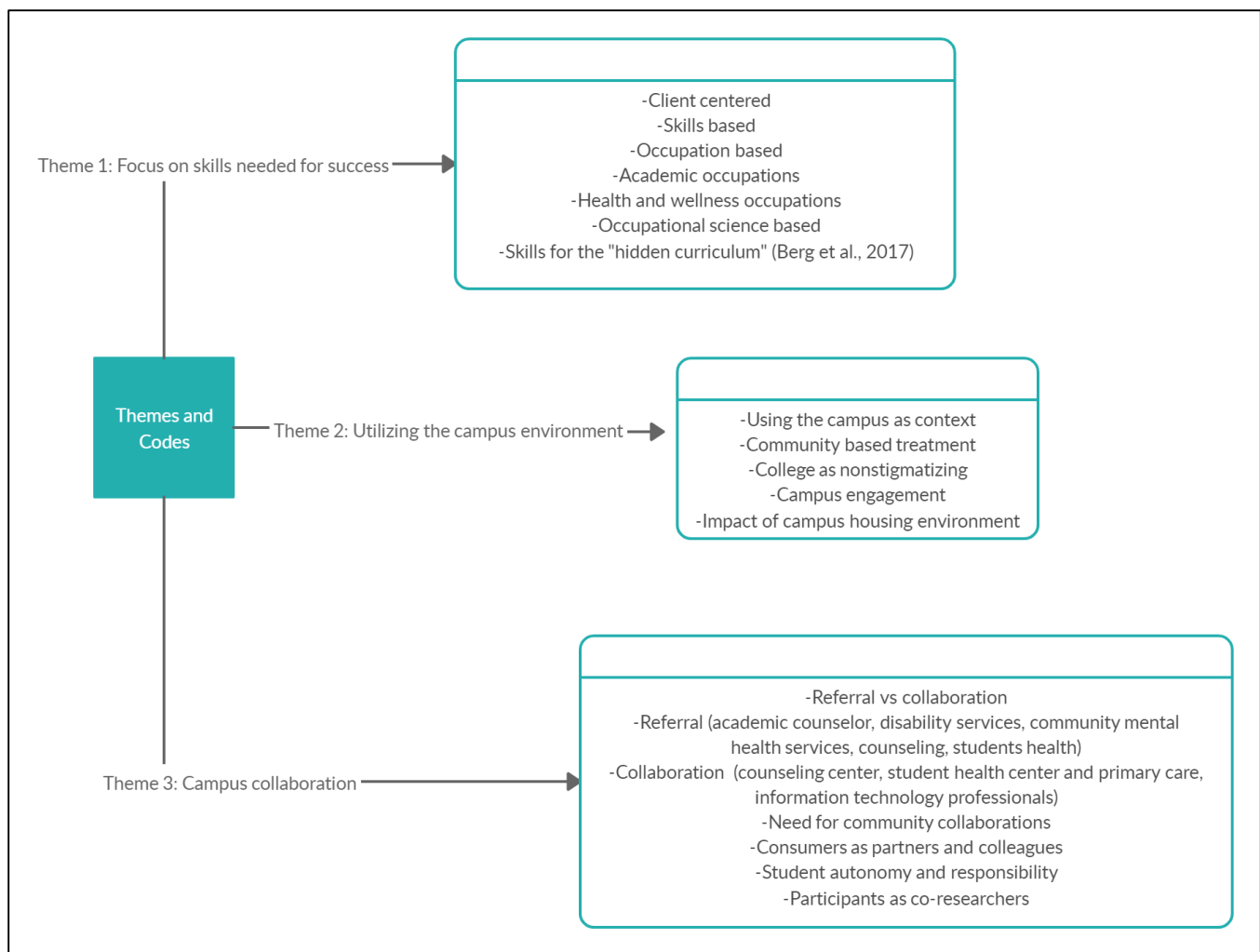


Figure 3. Schematic detail of themes and codes generated during qualitative, thematic analysis.

**Focus on occupation and skills needed for success.** Occupational therapy services helped students successfully manage both occupations and underlying skills that supported their student roles. Many of the studies placed value on occupation as an intervention. However, it is unclear if the programs were “occupation-based” (where students are actively engaged in occupation as a means of intervention) or if the programs were more “occupation focused” (where occupation underlying skills to support engagement in occupation are the focus e.g., stress management skills, communication skills) (Fisher, 2014). Regardless of the focus, occupations addressed included: social participation, work, education, IADLS (budgeting), sleep and rest, and leisure. Some programs focused on the acquisition of skills to promote occupational engagement, including: advocacy and assertiveness (communication), computer and Internet skills, public speaking, goal setting and attainment, identification of one’s learning style, study and test taking strategies, focus and concentration, occupational balance, social skills, professional behaviors, time management, personal development, interpersonal skills, sensory modulation, executive functioning, and self-determination. Some of these skills are overtly academic. Other skills seemed to be part of a “hidden curriculum,” such as meeting prerequisites for PSE, using support systems and community transportation, each involving implicit content and skills that support academic performance (Berg et al., 2017). Some programs expanded outside academic occupations to incorporate health and wellness occupations (Nolan & MacCobb, 2006) and the relationship between occupation and well-being (Smallfield et al., 2011).

**Using the campus environment.** The campus environment was seen as a catalyst for occupational engagement and most of the studies mentioned the value of services being housed on campus. The campus environment served as a community and provided a canvas for service provision where students live and perform occupations (Burson, 2003). Eichler and Royeen (2016) mentioned “taking the experience out on the road” (p. 289) where occupational challenges occur, using the campus environment in intervention. Providing services in a college environment, as opposed to off campus, was also viewed as less stigmatizing (Gutman et al., 2009) and allowed occupational therapists to address environmental changes and look at challenges with an ecological systems approach. Occupational therapy was able to assess the need for more campus engagement (McCausland et al., 2012), acknowledge the impact of campus housing (Schindler, 2014), and provide consultation on testing (Lewis & Nolan, 2013) and assistive technology (Malcom & Roll, 2019).

**Campus collaboration.** The programs identified collaborations between occupational therapy services, other professionals on campus (academic counselors, disability services, student counseling, student health, and information technology professionals), community mental health services, and the students themselves. The extent and nature of occupational therapy collaboration varied. Conducting a needs assessment was deemed essential both to frame programming and to ensure identification of the needs of both campuses and students. Students were valued as partners and colleagues (Burson, 2003). To truly collaborate, occupational therapists had to adopt a more fluid role, abandoning the role as expert (Burson, 2003) and allowing for student autonomy and responsibility (Burnett-Beaulieu, 1984). Participants also took a more active role and collaborated as co-researchers (McCausland et al., 2012), where they experienced shared ownership and planned activities together with their occupational therapists.

### Discussion

The purpose of this scoping review was to map occupational therapy services provided in PSE, including the structure of occupational therapy services, the populations served, the methods of intervention, and potential outcomes of such services. The review was able to identify occupational therapy services provided to students in PSE, including service location and design, target population, outcomes, focus of occupational therapy services, campus environment, and collaborations. Specific programs included those that used supported education as their primary model, as seen in Schindler’s work (Schindler, 2014; Schindler, 2018; Schindler, 2019; Schindler et al., 2015; Schindler & Sauerwald, 2013). Other programs used the campus environment to guide service provision, such as OTonCampus® (Eichler & Royeen, 2016). Some programs seemed to be dependent on the resources and/or opportunities on campus, as evidenced by Keptner et al.’s (2016) small group intervention and Smallfield, Benda, and Siefkes’ (2011) first-year experience course. While occupational therapy services at USC in California are known to provide services to university students, the USC program was not included in the final article list; however, there is good representation of the program in conference proceedings (Daley, 2014; Daley, 2016; Daley & Winder, 2015; McCarthy, 2009; McCarthy et al., 2016).

The literature revealed that the main goal of occupational therapy with postsecondary students is to help them achieve optimal occupational performance and that occupational therapy programs in PSE should be concerned with the unique contribution of the personal skills, environment, and occupations of postsecondary students. Some programs focused on personal factors, such as a student’s underlying skill development, while others used occupation as an agent of change and others addressed the use of adaptations and environment consultations to support optimal performance. The occupational therapy programs that were discovered in this scoping review harnessed the power of self-exploration and

reflection with students as these students are forming new identities. Smallfield et al. (2011) created a course grounded in occupational science, in which students engaged in occupational self-analysis, essentially exploring their occupational identities. Knis-Matthews, Bokara, DeMeo, Lepore, and Mavus (2007) highlighted that engaging in academic occupations was a path toward achieving “greater life purpose” (p. 110). Through this review, it appeared that interventions for postsecondary students were not just about learning skills for taking the next exam, but about who they are as occupational beings and who they want to become. This focus on transformation, self-actualization, and the future mirrors Wilcock’s (1999) concept of “becoming.” Occupational therapists, as highlighted by this review, seemed to be helping students to transform their lives “through enabling them to do and to be and through the process of becoming” (Wilcock, 1999, p. 1). Through engagement in occupation and skill development, occupational therapists are engaged with the student in the creation of their future self that will continue outside the PSE environment.

Another key value inherent in the design of occupational therapy services in PSE settings was collaboration. Collaboration occurred across college and community mental health services, between a variety of campus services, and also in the therapist-student relationship as the occupational therapists designed interventions that were client-centered. Client-centered practice is defined by Law, Baptiste, and Mills (1995) as valuing autonomy and choice and a partnership between client and therapist. Burnett-Beaulieu (1984) mentioned the importance of student autonomy and responsibility in the PSE environment and in occupational therapy interventions. McCausland, Bazyk, and Kerns (2012) included participants as co-researchers. Some of the programs mentioned a collaboration between the student and occupational therapist (or mentor) and this echoes some of the principles of the recovery model, including “self-direction,” “autonomy,” and “peer support,” through which students are valued members of a team and seen as experts in their own recovery (Brown & Stoffel, 2010, p. 4). The original scoping review question included a question about collaborations; while initially the researchers assumed this to be with other professional disciplines, student collaboration was a surprising yet meaningful finding.

This scoping review revealed a variety of intervention points and structures that compliment supported education, and some that extend its reach beyond mental health to include a wellness focus. Using a health promotion framework can expand supported education models. Instead of only serving students who have received a diagnosis, occupational therapy can work at all stages of health status in a type of “supported education for all” approach. It is clear that occupational therapy can be seen as a part of a disability or mental health approach on campus, as well as extending services into prevention and wellness.

### **Implications for Practice**

Occupational therapy has the potential to make a valuable contribution to PSE settings. Occupational therapy services are effective as semester-long courses, as a package of specific learning modules, as part of a peer mentoring program, or in consultation with other campus services. The heterogeneity of service provision found in this scoping review indicates that occupational therapy services can be provided in a variety of ways and with different student populations. Essentially, occupational therapy services can be molded to meet a campus’ needs. Future practice should explore the way that occupational therapy can fill unique voids on campus with students with varying disabilities, vulnerable groups, and/or by providing services in wellness and health promotion capacities.

The scoping review findings highlight the need for collaboration across campus, where occupational therapy service structure will depend on the development of interdisciplinary partnerships in

the PSE setting. It would be imperative for occupational therapy providers to collaborate across campus to find their niche. Occupational therapy should also consider students as key partners in service design and delivery; this would ensure that occupational therapy services not only meet the needs of the PSE setting but also that occupational therapy services meet the needs of students. Decisions in regard to service location should examine the benefits of on-campus services: including decreased stigma and location in the occupational environment of students. Finally, program design needs to include outcome assessment that measures both skill attainment and occupation-focused outcomes in order to determine the benefits of occupational therapy services.

### **Implications for Research**

This scoping review paves the way for further research in this practice area. More research is needed to clarify occupational therapy's distinct value in providing services with postsecondary students and should quantify the benefit of occupational therapy services to a wide range of students. Students with mental illness have received the most attention, but more research on the benefit of occupational therapy with students with autism, intellectual and developmental disabilities, and a range of physical impairments would be beneficial. In addition, programs aimed at health promotion and prevention in mental health facilitated by occupational therapists need to be highlighted. Occupational therapists who currently provide services on campus can help articulate the distinct role of students in PSE settings and how different campus environments may facilitate occupational therapy services, including administrative and payment issues that have yet to be discussed in the literature. In order to acknowledge the advantage of occupational therapy services in the wider PSE setting, outcomes should also focus more on graduation and retention, such as the recent example provided by Schindler (2019). All models of occupational therapy service provision need to be explored in terms of outcomes prioritized by administrators and policy makers in postsecondary environments and how occupational therapy compares to other services on a postsecondary campus.

### **Limitations**

This scoping review only reviewed studies that included students actively enrolled in PSE, excluding those who were not actively enrolled. This could have biased the results toward students who are functioning most effectively in these environments. This scoping review also excluded students who were receiving treatment through a community-based health service, such as a hospital or outpatient setting. In addition, some supported education programs were excluded if the research was focused on work outcomes and not on education participation. The scoping review could also be biased since the review was limited to articles in English. Finally, the researchers did not judge the quality of the papers included in this review and not all papers included were intervention studies; therefore, results and thematic findings are based on both descriptive and intervention studies.

### **Conclusion**

Occupational therapists are working in PSE settings with a range of student populations, including students who have already been identified with physical, health, and/or psychosocial concerns and those who are not identified as such. The services are not uniform in their approach and rely on collaborations with the postsecondary setting and the students themselves. On each campus, occupational therapists used the occupations of students and role of student as their focus. However, it is clear that more work is needed to contribute to an evidence-base that investigates the value of occupational therapy services in PSE settings. With more focused evidence, best practice guidelines can be developed and this scoping review lays the foundation for future work in this area.



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