Implications for Occupational Therapy Student Stress, Well-Being, and Coping: A Scoping Review

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Abstract

Scholarly literature and non-scholarly news sources have highlighted stressors in higher education. The rigor of occupational therapy education can compound student stress. Although the profession recognizes these stressors, insufficient literature exists regarding strategies to cope with and manage these sources of stress. This scoping review explored the literature examining stress and the implications for occupational therapy student well-being and coping, and also identified strategies for faculty to support student well-being. Using PRISMA Scoping Review guidelines, a systematic, multi-phase process was used to identify relevant literature. Databases searched included PubMed, CINAHL, PsycInfo, MEDLINE Complete, Web of Science, ERIC, and Education Database. Key search terms included components of well-being and coping. We discuss our scoping review approach to the literature search, data extraction, charting, and analysis. A sample of 15 articles met the inclusion criteria, with 1 article retracted during the analysis phase. The final sample of articles provided information about various components of stress, well-being, and coping. Analysis of these articles revealed the following themes: (1) well-being, (2) personal traits and skills, (3) stress, and (4) supportive pedagogy. Occupational therapy education is rigorous and demanding to ensure students are prepared to provide evidence-based care to their future clients. Although this demanding education may add to student stress, the profession must maintain high standards for patient safety. Results suggest there is an opportunity to support student wellness and learning within content delivery methods. By adjusting pedagogical approaches, instructors can support student wellness and impact learning.

Keywords

Occupational therapy education, stress, well-being, coping, pedagogical approaches

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ABSTRACT

Scholarly literature and non-scholarly news sources have highlighted stressors in higher education. The rigor of occupational therapy education can compound student stress. Although the profession recognizes these stressors, insufficient literature exists regarding strategies to cope with and manage these sources of stress. This scoping review explored the literature examining stress and the implications for occupational therapy student well-being and coping, and also identified strategies for faculty to support student well-being. Using PRISMA Scoping Review guidelines, a systematic, multi-phase process was used to identify relevant literature. Databases searched included PubMed, CINAHL, PsycInfo, MEDLINE Complete, Web of Science, ERIC, and Education Database. Key search terms included components of well-being and coping. We discuss our scoping review approach to the literature search, data extraction, charting, and analysis. A sample of 15 articles met the inclusion criteria, with 1 article retracted during the analysis phase. The final sample of articles provided information about various components of stress, well-being, and coping. Analysis of these articles revealed the following themes: (1) well-being, (2) personal traits and skills, (3) stress, and (4) supportive pedagogy. Occupational therapy education is rigorous and demanding to ensure students are prepared to provide evidence-based care to their future clients. Although this demanding education may add to student stress, the profession must maintain high standards for patient safety. Results suggest there is an opportunity to support student wellness and learning within content delivery methods. By adjusting pedagogical approaches, instructors can support student wellness and impact learning.

Introduction

The allied health professions provide health delivery services including dental, dietetics, emergency, diagnostic, and rehabilitation (Association of Schools Advancing Health Professions [ASAHP], 2018). Students in allied health professions have academic demands involving didactic learning and clinical experiences. These demands are typically perceived by students as stressors (Everly et al., 1994; Francis & Naftel, 1983; Haughey et al., 2017; Pfeifer et al., 2008; Soja et al., 2016). Stressors are defined as responses to any demand (National Institute of Mental Health, 2019). Academic education can produce stress and is affected by stress (Pascoe et al., 2020). When academic demands are perceived as stressors, a cyclical relationship is formed, whereby the perception of the stressors magnifies the challenge of the demands (Lazarus & Folkman, 1984). This perception can then impact health and wellness, in turn, affecting academic outcomes (Pascoe et al., 2020). Allied health student stress is well documented (e.g., AlFaris et al., 2016; Francis & Naftel, 1983; Labrague et al., 2017). However, current research focuses on the allied health professions broadly, but there may be specific stressors that are unique to occupational therapy students.

Over the past several decades, the levels of stress and anxiety reported in occupational therapy students has continued to increase (Everly et al., 1994; Haughey et al., 2017; Pfeifer et al., 2008; Soja et al., 2016). Admission and progression criteria in occupational therapy programs continue to be rigorous and competitive, and incorporate academic and interpersonal skills. Occupational therapy students have reported high levels of school-related stress due to high academic expectations, rigorous class schedules, and integration of classroom and clinical learning (Everly et al., 1994). Soja et al. (2016) found that the highest perceived stressors among occupational therapy students were related to their academic demands and included assignments due the same day, deadlines, projects and papers, difficulty in the upcoming week, and many tests. Non-academic stressors such as family issues, the high cost of tuition, and student loan debt continue to plague university students, including those in occupational therapy programs (Govender et al., 2015; Grab et al., 2020).

Researchers have found that first-year occupational therapy students reported stress during the transition from an undergraduate to a professional graduate program (Kumar & Jejurkar, 2005), describing this transition as the highest stress ever experienced in their lifetime (Pfeifer et al., 2008). Students' perceived stressors included increased academic demands, which required time management and affected work, school, and family balance. Another study reflected similar stressors including personal grade expectations, course load, exams, assignment deadlines, lack of free time, developing effective study strategies, program grade requirements, and understanding assignment expectations (Poleshuck et al., 2020). Govender et al. (2015) suggested the continually changing nature of the university environment could potentially create high levels of stress in students, affecting their health and academic performance. Additionally, Haughey et al. (2017) found that occupational therapy students perceived balancing school and other outside activities, such as employment, added to their academic stress. Students also reported other personal stressors such as issues with body weight and sleep habits (McCombie et al., 2016).

In addition to sources of stress mentioned previously, there is also stress created by both internal and external pressures to succeed in occupational therapy programs. Although student cultural backgrounds differ, stressors are similar. Specifically, Akselrud's (2018) study of Jewish Orthodox female occupational therapy students identified the stressors of coursework demands, a lack of effective coping strategies, and family roles and expectations. International students expressed stressors such as experiencing cultural, parental, and financial pressure to achieve good grades, in new and competitive academic environments (Brown et al., 2019).

Although many of these stressors may affect graduate students in various fields, these studies established that occupational therapy students, collectively and consistently, have stressors and perceived stressors that are unique to them (Govender et al., 2015; Pfeifer et al., 2008). The question is how students cope with these stressors to complete their academic programs and become competent practitioners. The profession has begun to recognize the unique stressors of occupational therapy students more fully (Akselrud, 2018; Everly et al., 1994; Govender et al., 2015; Kumar & Jejurkar, 2005; McCombie et al., 2016; Pfeifer et al., 2008). To date, there have been few studies that discuss specific stress management strategies, and there continues to be a paucity of literature demonstrating how strategies are implemented to enhance academic success.

Well-Being and Coping
According to the Centers for Disease Control and Prevention (CDC, 2018), well-being is defined simply as life satisfaction. Other well-being definitions incorporate the presence of positive emotions and moods, the absence of negative emotions, and fulfillment and positive functioning (Andrews & Withey, 1976; Diener, 2000; Frey & Stutzer, 2002; Ryff & Keyes, 1995; Veenhoven, 2008). Feelings of well-being are fundamental to the overall health of an individual, enabling them to successfully overcome difficulties and achieve their goals (CDC, 2018). One aspect of well-being is having positive and appropriate coping mechanisms to manage stress.

Coping is defined as a process of constantly changing one's cognitive and behavioral efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person (Govender et al., 2015; Lazarus & Folkman, 1984). Coping strategies are specific efforts, both behavioral and psychological, that individuals employ to master, reduce, minimize, or tolerate stressful events (Govender et al., 2015; Sreeramareddy et al., 2007). One study of occupational therapy students identified the use of coping strategies such as talking problems over with friends, seeking company, studying harder, and seeking comic relief (Everly et al., 1994). Another study identified napping, talking to friends, listening to music, playing with pets, and watching movies as coping strategies (Haughey et al., 2017). Soja et al. (2016) also found that perceived coping strategies of occupational therapy students included relaxing, sleeping, talking to a friend, listening to music, and taking hot showers. A lack of strategies to promote their own well-being can result in exhaustion and cynicism while enrolled in an academic program and is related to professional burnout in the third year of practice (Morales-Rodriguez et al., 2019; Robins et al., 2018).

One area ripe for exploration is how occupational therapy students manage these aforementioned stressors and implement coping strategies to maintain well-being through their educational program and into professional practice. This scoping review aimed to explore the literature examining stress and the implications for occupational therapy student well-being and coping to identify strategies for faculty to tailor their teaching and instructional methods. Thus, there were two goals guiding this study: (1) to identify the well-being and coping responses to stress enacted by occupational therapy students, and (2) to discuss the implications for teaching and instructional strategies for occupational therapy educators that incorporate elements of well-being and coping.

Methods

The primary research team (comprised of the three co-authors) followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) scoping review guidelines (Tricco et al., 2018) to search and analyze the literature systematically. Scoping reviews are an appropriate method for examining the evidence related to a particular topic or question and identifying gaps in the literature to support future research (Tricco et al., 2018). We deemed studies eligible for inclusion if they: (a) had a sample of occupational therapy students (assistant, bachelor's, master's, or doctoral); (b) were recently published (i.e., within the last 10 years); (c) were peer-reviewed; (d) focused on well-being or coping strategies; and (e) were written in English. Studies were excluded if they: (a) were not recently published (i.e., older than the last 10 years); (b) were not peer-reviewed (including conference abstracts and papers); (c) the sample included non-occupational therapy students (e.g., college students not majoring in occupational therapy); and (d) were not written in English. We searched the extant literature to identify studies that met our study objective.

Procedure

We relied on a systematic, multi-phase process to identify relevant literature.[1] As a first step, the primary research team and two graduate student research assistants conducted the searches, adhering to the inclusion and exclusion criteria. The databases included in the search were PubMed, CINAHL, PsycInfo, MEDLINE Complete, Web of Science, ERIC, and Education Database. Key search terms included components of well-being and coping including anxiety, stress, coping, resilience, health management and maintenance, nutrition, sleep, exercise, participation, leisure, time management, academic performance, quality of life, role competence, well-being, occupational balance, occupational alienation, social isolation, mindfulness, and meditation. We conducted separate searches for each of the aforementioned keywords with "occupational therapy student." For example, we searched for *occupational therapy student* AND *stress*, *occupational therapy student* AND *anxiety*, etc. Additional limits (aside from the keywords) included time (i.e., published within the last 10 years) and language (i.e., written in English). As a second step, we reviewed the searches and conducted additional searches as needed to supplement the original searches. Next, the primary research team initially reviewed the article titles and abstracts for relevance to our research question and inclusion criteria and excluded any irrelevant articles.
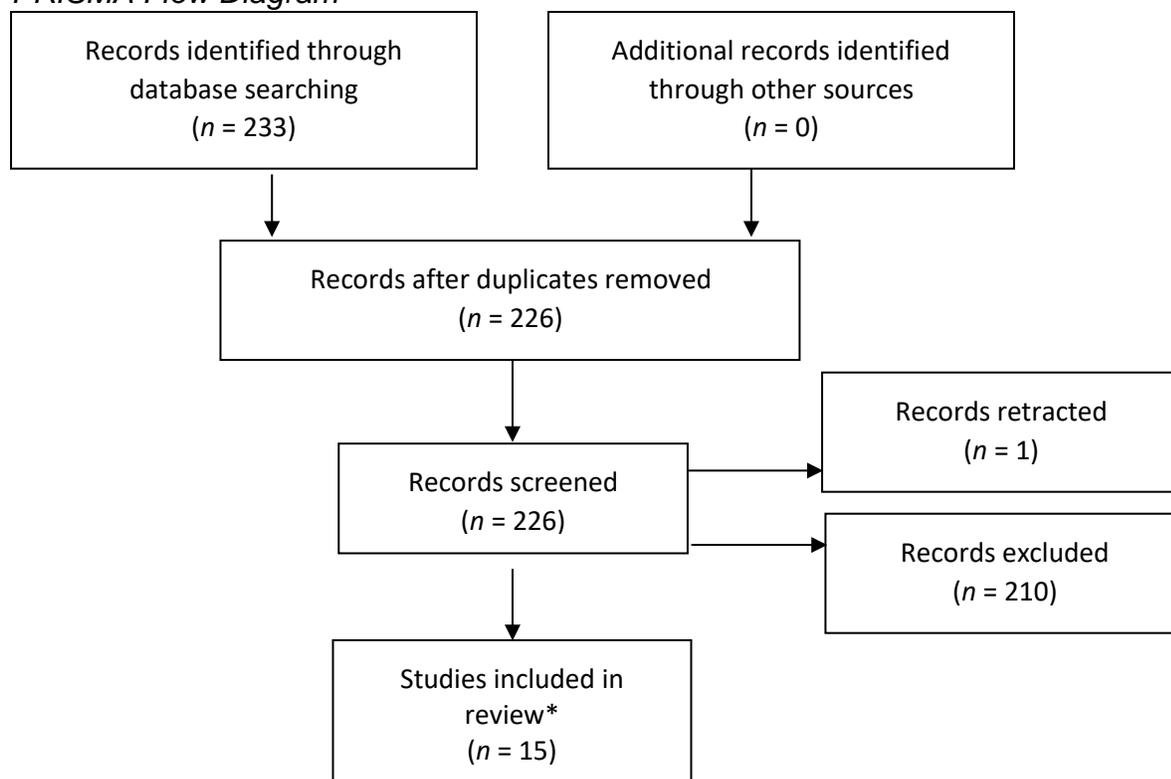
[1] There is no formal review protocol for this scoping review.

Finally, the primary research team retrieved the full-text articles for review. We created a data extraction tool to assist in tracking the number of results, as well as the list of relevant articles. The data extraction tool included a spreadsheet with columns for the search syntax, database, and number of results. Another spreadsheet included a list for relevant literature including: (a) American Psychological Association (APA) reference, (b) study purpose, (c) study design, (d) components of well-being addressed in the study, and (e) brief summary of the results.

Our search yielded 233 records identified through database searching (see Figure 1). After removing duplicates ($n = 7$), the primary research team collectively screened 226 records. We excluded 210 records that were not relevant to our research question or did not fit our inclusion criteria. One article was retracted following the search process, yielding a total sample of 15 studies included for analysis. We used the data extraction tool to complete the charting process. The initial charting was drafted by one member of the research team, then double-checked and finalized by a different member of the research team. Finally, we engaged in the analysis process to identify themes across the studies. As a team, we independently read and reviewed the final sample of 15 studies. We independently identified themes that encompassed the main points across the studies, then met as a group to discuss the list of themes. We discussed any overlap to collapse to the final list of four themes outlined in the following section.

Figure 1

PRISMA Flow Diagram

*Note: One article was retracted during the analysis process, resulting in a total of 15 articles.

Results
The final sample of 15 articles provided information about components of stress, well-being, and coping, as well as suggestions for enhancing well-being and coping for occupational therapy students (see Appendix for Table 1). Analysis of these articles revealed the following themes: (1) well-being, (2) personal traits, (3) stress, and (4) supportive pedagogy.

Well-Being
The first theme included an article that presented the student perspective of well-being. Warnecke et al.'s (2014) study of graduate students in occupational therapy, physical therapy, and psychology programs identified factors associated with students' perceptions of overall well-being. This study conceptualized student well-being as comprised of subjective happiness, life orientation, absence of depression, and life satisfaction (Warnecke et al., 2014). Not surprisingly, the presence of anxiety and depression had a negative relationship with all positive aspects of well-being. Subjective happiness, life orientation, life satisfaction, and lack of depression contributed to overall well-being. Responses from physical and occupational therapy students were similar.

Personal Traits and Skills
Personal traits included student demographics (e.g., age and gender), personality characteristics (e.g., emotional intelligence), and individual beliefs that affected their well-being (e.g., self-esteem and self-efficacy). Contributing to student well-being is the presence of self-esteem and self-efficacy. Both concepts are indicators of sound mental health and were associated with higher general satisfaction with the educational program (Bonsaksen, 2015). However, there were differences in responses based on gender. Being male and satisfaction with the program were associated with higher self-esteem and self-efficacy. Additionally, students who reported increased study time reported higher self-esteem.

Bonsaksen et al. (2017) also examined occupational therapy students' reported levels of self-esteem, self-efficacy, and their study approach. First, male students reported higher levels of self-esteem and self-efficacy than female students did. Approaches to studying consisted of surface, deep, and strategic levels. A surface approach to learning was shortsighted memorization of facts to pass an assessment, resulting in short-term learning, whereas a deep approach included engagement with the content and connecting content with personal meaning. The strategic approach to learning used aspects of both surface and deep approaches, with the intent of achieving the best performance on educational assessments. Consequently, deep and strategic approaches may support better academic outcomes. A surface approach to studying was associated with female students, younger students, no higher education before the current program, and lower self-esteem and self-efficacy. Conversely, a deep approach to studying was associated with older students who had previous higher education experience, spent more time independently studying, and reported higher levels of self-esteem. Finally, female students reporting higher self-efficacy were associated with the strategic approach of studying.

The skill of emotional intelligence has also been associated with well-being and academic performance. According to the *Genos Emotional Intelligence Inventory* (Gignac, 2008), emotional intelligence includes the following components: emotional self-awareness, emotional self-expression, emotional awareness of others, emotional reasoning, emotional self-management, emotional management of others, and emotional self-control. Healey (2017) asked occupational therapy students to participate in four creative writing workshops at least six months following their clinical experience. Analysis of their writings indicated that managing their emotions contributed to their learning during clinical experiences. Brown et al.'s (2016) results reported that emotional intelligence predicted portions of student fieldwork performance, whereas personality traits did not. Results also suggested that specific emotional intelligence components positively affected communication, documentation, and professional behavior skills during students' clinical experiences.

Furthermore, emotional intelligence was a developmental process during clinical experiences (Gribble et al., 2017). Students reported experiencing a lack of confidence and feelings of being overwhelmed during the initial weeks of clinical placement. Key influences of student emotional intelligence were the fieldwork educator-student relationship, appropriate feedback on emotional intelligence, and opportunities for student reflection. A positive learning environment that allowed students to observe, practice, and receive feedback promoted emotional intelligence development. Conversely, a poor supervisory style or learning environment was associated with a decrease in emotional intelligence as students returned to a stage of self-doubt.

Stress
This theme included not only articles about the types of stress experienced by students, but also about students' responses to stress. Although many agree that college students and particularly occupational therapy students perceive great stress primarily in the area of academics (de Witt et al., 2019; Govender et al., 2015; McCombie et al., 2016), the students' responses to stress determined their state of well-being. de Witt et al.'s 2019 study of 117 occupational therapy students reported high levels of stress, but also moderate levels of resilience. Specifically, students with moderate levels of resilience and family support were able to effectively manage their stress. Furthermore, a positive correlation between resilience and fieldwork success indicated increased student development, building on their strategies for managing stress, and instilling a professional identity (Brown et al., 2019).

Students respond in different ways to the disruptions that stress causes in daily life patterns. Govender et al. (2015) found that occupational therapy students used emotion-focused and problem-focused coping skills to deal with stress. Emotion-focused coping centered on a positive or negative emotional response. Positive emotion-focused coping included seeking support and having an optimistic outlook. Problem-focused coping skills were strategic in setting goals, making a plan, and carrying out that plan. Overall, this study found that the majority of occupational therapy students used positive coping skills in managing stress.

Another student behavior affected by stress is sleep habits. Occupational therapy students reported less quantity and quality of sleep than currently recommended (Ohl et al., 2019). Lack of sleep continued during the fieldwork experience. A small portion of the sample reported using sleep aids three or more times per week, resulting in higher mood disturbances, greater caffeine consumption, and poor sleep quality.

Supportive Pedagogy
The final category of articles included examples about how academic programs and instructors have responded to student stress and anxiety by implementing activities throughout their curricula to facilitate well-being. One such activity is the inclusion of mindfulness activities within the classroom. In a scoping review of mindfulness in occupational therapy education, mindfulness was associated with a positive effect on stress, self-care, and well-being (Dean et al., 2017). Mindfulness has great potential benefits to occupational therapy students but studies on its effect on academic outcomes are limited.

The occupational therapy profession recognizes the value of mindfulness in practice (Stew, 2011). Mindfulness training may help students manage their self-care and may contribute to health and well-being. One study reported that occupational therapy students preferred guided meditations and informal practice (Reid, 2013). Students also reported awareness about how mindful engagement with any activity could be therapeutic (Stew, 2011). Only one study addressed yoga practice as a specific mindfulness technique, and its relationship to test anxiety. Gonzalez (2010) conducted an experimental study that compared occupational therapy assistant students and allied health students' responses to test anxiety, with and without regular yoga practice. According to study results, participation in regular yoga did not decrease test anxiety.

The primary source of stress for occupational therapy students was academic and included both personal and environmental factors. Although the standards of the occupational therapy educational programs must prepare quality practitioners, students who report higher self-esteem, self-efficacy, and positive coping skills are more capable of rising to that challenge (Bonsaksen, 2015; Bonsaksen et al., 2017; Govender et al., 2015). Research is minimal in pedagogical strategies and their effectiveness in student well-being. To positively affect student wellness, occupational therapy educators can support students in employing coping strategies, through supportive pedagogical techniques. Suggestions for supporting student well-being are presented in the following section.

Discussion
Results provided insight into the consequences of occupational therapy student stress, and how it can result in academic and potentially professional burnout (Morales-Rodriguez et al., 2019; Robins et al., 2018). A strategic universal approach is needed, as the consequences of a future occupational therapy workforce at risk for burnout are dire (Robins, et al., 2018). As educators, we have opportunities to affect students' lives positively, facilitating their development of stress management tools that can be implemented throughout their careers. Future research should address the following

question: What can academic programs do to support the less resilient students to meet our profession's high standards of competence, efficiently and effectively?

The results of this scoping review indicated that stress was prevalent among occupational therapy students, with minimal attempts to remediate that concern. A study of health professions students (including occupational therapy students) found that burnout was greater in their final year of study and 52% of the students had high levels of exhaustion (Robins et al., 2018). Results also suggested that exhaustion and cynicism during the final year of study predicted corresponding burnout in the third year in the workplace. Thus, working with students to improve their coping strategies during their education will improve their long-term stress management capabilities in a demanding profession.

Implications for Occupational Therapy Education
Students struggling with academic demands and life stressors may require additional resources than students with fewer demands and stressors. Although occupational therapy programs have high retention and matriculation rates (American Occupational Therapy Association [AOTA], 2018), there is an opportunity to provide greater support for the high proportion of students experiencing stress that can affect their academic and professional success.

The Accreditation Council for Occupational Therapy Education (ACOTE, 2020) has implemented educational standards to ensure that all programs provide quality occupational therapy education. The accreditation standards do not prescribe teaching methods but focus on student learning objectives, so there is an opportunity for programs to deliver academic content according to teaching styles and preferences. This opportunity to support student well-being is typically at the discretion of instructors and programs through teaching strategies and is not highlighted in the established accreditation standards.

Occupational therapy admission criteria focus on students with academic successes in the form of grade point average (GPA) and prerequisite courses (Bowyer et al., 2018). The rigor of occupational therapy program admission criteria can influence the academic outcomes, and ultimately, fieldwork performance (Thew & Harkness, 2018). Admission criteria of undergraduate cumulative GPA positively correlated with Level IIA fieldwork success, while the Graduate Record Examination (GRE) written test score was positively associated with fieldwork performance on the second Level II fieldwork experience (Bathje & Ozelie, 2014). Lower scores on writing samples and letters of recommendation were associated with lower occupational therapy program GPA and failure of the first Level II fieldwork experience (Novalis & Cyranowski, 2017). Thew and Harkness (2018) reported a positive correlation between the final academic percentage and fieldwork outcomes, and having an earned previous degree correlated with the final academic outcome. This suggests that rigorous admission criteria is positively associated with some academic outcomes, but these stringent admission criteria do not necessarily guarantee academic success.

Concerns regarding a crowded curriculum (Farnworth et al., 2010) have prompted the recommendation for the entry-level doctorate requirement. With the addition of the entry-level doctorate option, the course of study is longer to include the additional accreditation standards of a doctoral program. Additionally, a longer course of study can produce greater financial burden and stress for students. Consideration of this additional stress on students requires educational programs to be creative, strategic, and efficient in the delivery of instruction, minimizing the financial costs, and maximizing classroom time and experiences.

Although there appears to be a push for universities to incorporate innovative pedagogies, such as community-engaged learning, problem-based learning, and others, there is an increase in demands for cognitive capacity, use of time, including downtime and organization, affecting the life balance of both instructors and students. Krishnagiri et al. (2019) identified signature pedagogies within occupational therapy education, such as relational learning, affective learning, and active learning. When evaluating the workload of providing any of these signature pedagogies, one can surmise the additional instructor time required is significant. Not only does the preparation of innovative teaching activities affect instructor time, but there can also be an increase in student time demands. The time demands of academic work contribute to moderate levels of stress affecting opportunities for students to relax and rest (Brown et al., 2019). Often, students sacrifice well-being to be academically successful (e.g., Ohl et al., 2019). This approach could result in occupational imbalance and deprivation limiting the longevity of a professional. Students should not have to choose between academic success and well-being. A holistic pedagogical approach is consistent with the values of the profession. As a profession, occupational therapy considers the whole person, understanding the complex interactions of the individual, occupation, and environment (AOTA, 2020). With this holistic view of students, occupational therapy educators are uniquely positioned to support student well-being and learning by adhering to our professional *Code of Ethics*.

Although the *Code of Ethics* focuses on clinical practice, the principles apply to the occupational therapy academic environment. Specifically, Principle I: Beneficence calls upon educators to demonstrate a concern for the well-being of others (AOTA, 2015). Furthermore, educators are called to avoid compromising the well-being of others through critical analysis of administrative policies and procedures (Principle 2: Nonmaleficence; AOTA, 2015). Programs need to analyze current content delivery, student characteristics, and curriculum load to determine the best delivery of content to support student well-being.

Support of student well-being has become an ethical issue as programs balance student wellness with financial costs of tuition and standards of the profession. As stated previously, the accreditation standards ensure the appropriate education of future practitioners to protect the recipient of occupational therapy services directly. Opportunities to support student well-being are vast and are situated within the delivery of content and institutional support.

Strategies to support students include not only teaching the philosophy and values of the profession, but occupational therapy educators' therapeutic use of self in displaying concern and empathy to motivate students can also support their success. Additionally, campuses have instituted counseling services, with some campuses focusing on providing occupational therapy services through their health offices (e.g., University of Southern California's *Lifestyle Redesign*® program). Most educators come from a clinical background, with limited training in educational strategies. Educators need additional training to vary the delivery of content, according to their students' needs.

Some educational programs are implementing mindfulness strategies with limited success (Dean et al., 2017; Reid, 2013; Stew, 2011). Considering that reports of health professional student burnout during their final year of school predicted professional burnout by the third year of practice, addressing student well-being is imperative (Robins et al., 2018). Both individual and organizational focused approaches to remedying professional burnout have been found effective (Awa et al., 2010). Yet, this area has not been studied well to produce evidence of its effectiveness in preventing student burnout.

Limitations
There are a few important study limitations to note. Our search results focused on only entry-level occupational therapy programs (i.e., not occupational therapy assistant), nor did we discriminate between articles among occupational therapy assistant to occupational therapy bridge, occupational therapy, entry-level occupational therapy doctorate, and post-professional programs. It is plausible that higher-level occupational therapy programs could produce different stressors of varying degrees. Additionally, based on program level, students may report more varied demographics, such as age, marital status, family support, family composition, previous higher education, and life experiences, which could account for different stressors.

There are additional limitations related to the scoping review methodology. Scoping reviews are useful for answering broad questions and reviewing the literature in a structured and systematic fashion (Tricco et al., 2018). However, it is difficult to apply formal meta-analytic methods to scoping reviews, which can be employed in systematic reviews. Scoping reviews cannot, for example, standardize and synthesize clinical trial results.

Recommendations for Future Research
Further research is recommended to identify effective coping strategies used by occupational therapy students. Future studies should link specific coping strategies to the stressors identified to ensure that appropriate measures are in place to assist students. Studies reporting academic success alongside perceived levels of stress can assist those students who may require support to maintain their wellness or promote their academic learning. Analysis of academic program cultures is also warranted to identify program demands and strategies of support, and their impact on student wellness and academic outcomes. Quantitative studies that identify specific stressors,

the prevalence of the stressors, the period during which the stressors occur, and actions taken to alleviate the stressors may be beneficial in helping future students alleviate or have a plan in place for managing specific stressors before they occur.

Conclusion

This scoping review aimed to explore the literature examining stress and the implications for occupational therapy student well-being and coping. Using the results of this scoping review, strategies could be developed by faculty to tailor their teaching and instructional methods. Occupational therapy education is rigorous and demanding to ensure that students are prepared to provide evidence-based care to their future clients. Although this demanding education may result in students' stress, the profession must maintain high standards to provide client-centered care and to ensure client safety during the occupational therapy process. This scoping review identified stressors that are unique to occupational therapy students and revealed that although there are coping strategies in place to help students deal with these stressors, students continue to have high levels of stress while enrolled in occupational therapy programs. These stress levels have the potential to negatively affect student health and well-being, and lead to mental health issues and future professional burnout, without strategies in place for prevention. Results suggested that there is an opportunity to support student wellness through the delivery of the content. With an adjustment to supportive pedagogical approaches, instructors can continue to support students' wellness and impact learning. Consideration of factors compounding student stress is inherent in our profession's philosophy of considering the whole person.

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Appendix

Table 1

Comparison of Studies

Authors	Study Purpose	Study Design	Component of Well-Being	Results
Bonsaksen (2015)	Bonsaksen (2015) explored how sociodemographic background, relationships, education, and work associated with general self-efficacy and self-esteem in undergraduate OT students.	Cross-sectional survey	Self-efficacy Self-esteem	Positive self-efficacy and self-esteem were associated with higher general satisfaction with the program, amount of time on self-study, and male students.
Bonsaksen et al. (2017)	Bonsaksen et al. (2017) examined the associations between self-esteem and general self-efficacy with various approaches to studying (surface, deep, and strategic).	Cross-sectional survey	Self-efficacy Self-esteem	Self-efficacy was positively associated with deep and strategic approaches to studying, and negatively associated with the surface approach. Self-esteem was not significantly associated with study approaches.
Brown et al. (2016)	Brown et al. (2016) investigated the degree to which emotional intelligence and personality traits predicted indicators of fieldwork performance.	Cross-sectional survey	Emotional intelligence Personality traits Fieldwork performance	Emotional management of others, emotional awareness of others, emotional expression, and emotional reasoning significantly predicted documentation skills.

				Emotional management of others significantly predicted professional behavior. Personality traits did not significantly predict fieldwork performance outcomes.
Brown et al. (2019)	Brown et al. (2019) examined the relationship between measures of resilience and practice education performance in OT students.	Cross-sectional survey	Resilience Stress management	Resilience subscales including stress management, finding one's calling, and living authentically significantly predicted a number of fieldwork performance outcomes including professional behaviors, self-management skills, co-worker communication, and communication skills.
Dean et al. (2017)	Dean et al. (2017) conducted a scoping review to examine how physical therapy (PT) and OT students employed mindfulness practices, and the effect of these practices.	Scoping review	Mindfulness	Evidence pointed to a positive effect on stress, self-care, and sense of well-being. Mindfulness helped OT students manage their personal and professional demands, whereas the evidence suggested that PT students benefited from enhanced clinical performance.
de Witt et al. (2019)	de Witt et al. (2019) sought to better	Cross-sectional survey	Resilience Stressors	The sample reported moderate resilience, high

	understand the level of resilience and stressors of undergraduate OT students. The long-term goal of the study was to develop a strategy to develop resilience and cope with their perceived high stress levels.			stress levels, and the primary source of stress was academic. Risk-taking behaviors were significantly associated with risk-taking behaviors.
Gonzalez et al. (2010)	Gonzalez et al. (2010) measured the impact of a yoga intervention on college student test anxiety and computer anxiety.	Longitudinal, mixed-methods design (surveys and interviews)	Anxiety	Quantitative data suggested no differences in anxiety between the intervention and control groups. Qualitative data indicated that test preparation, timed tests, and concerns about running out of time affected test-taking anxiety.
Govender et al. (2015)	Govender et al. (2015) identified the sources of stress and the associated coping mechanisms that were employed by undergraduate OT students.	Cross-sectional survey	Stressors Coping	Academic stressors were most relevant for older students, whereas personal stressors were most salient for younger students. Students implemented both problem-focused and emotion-focused strategies for managing their stress.
Gribble et al. (2017)	Gribble et al. (2017) investigated the impact of	Longitudinal, mixed-methods design	Emotional intelligence	Changes in emotional intelligence skills were attributed to student

	clinical placements on emotional intelligence.	(questionnaires and interviews)		interactions with their supervisors, student interactions with patients in emotional distress, and reflection and feedback on emotional intelligence skills.
Healey (2017)	Healey (2017) explored emotional management and emotional labor, and how they related to students' fieldwork placement.	Post-structuralist epistemology	Emotional intelligence	Themes relevant to emotional management emerged from the data including professional performance, fear, and discomfort with using patients as learning objects.
McCombie, et al. (2016)	McCombie et al. (2016) measured the rate of alcohol use among OT students, and the likelihood of engaging in negative behaviors as a result of alcohol use. They also examined life stressors and coping strategies.	Cross-sectional survey	Stressors Coping strategies	Almost all students had used alcohol within the previous year. One-third of respondents reported that they regretted engaging in certain behaviors. Participants identified academic, personal, and financial stressors. Students reported coping mechanisms such as relying on support from family and friends.
Ohl et al. (2019)	Ohl et al. (2019) examined sleep behaviors and their correlates in OT and PT students.	Cross-sectional survey	Sleep Mood Energy and fatigue	The majority of the sample reported poor or moderate sleep quality scores. Participants reporting poorer sleep quality

				reported more tension, depression, confusion, fatigue, and overall mood disturbance. Participants reporting poorer sleep quality also experienced more fatigue and reduced energy than participants reporting moderate or optimal sleep.
Reid (2013)	Reid (2013) evaluated an online curriculum aimed at introducing mindfulness for master's entry-level OT students.	Pre-test, posttest survey	Mindfulness	Mindfulness scores significantly increased from pre-test to posttest.
Stew (2011)	Stew (2011) interviewed students throughout a series of mindfulness programs, which were developed to assist students in managing stress.	Hermeneutic phenomenology	Mindfulness	Themes pointed to the importance of mindfulness in the students' academic and personal lives, and barriers to practicing mindfulness. Students used the mindfulness skills that they developed in the program during patient interactions, in fieldwork, and when experiencing difficulty with coursework. Time and academic challenges were reported as mindfulness barriers.

| Warnecke et al. (2014) | Warnecke et al. (2014) surveyed OT, PT, and psychology graduate students' well-being, conceptualized by five indicators of anxiety including self-efficacy, locus of control, subjective happiness, life satisfaction, and optimism. | Cross-sectional survey | Self-efficacy Locus of control Happiness Life satisfaction Life orientation | Life orientation, self-efficacy, depression, and life satisfaction significantly predicted subjective happiness. Subjective happiness, life orientation, self-efficacy, locus of control, and depression significantly predicted life satisfaction. |