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Mental Health in College Students: Efficacy of a Telehealth-Delivered Occupational Therapy Program

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MENTAL HEALTH IN COLLEGE STUDENTS: EFFICACY OF A TELEHEALTH-DELIVERED OCCUPATIONAL THERAPY PROGRAM

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ABSTRACT

The number of college students in the United States struggling with mental health issues has increased tremendously over the past decade. Specifically, undergraduate students report stress and anxiety as significant inhibitors to academic performance. Colleges are investing resources to combat this problem, but increased counseling services are insufficient. Novel approaches beyond traditional college counseling services are recommended. Occupational therapy, not traditionally offered on most college campuses, may be one solution. A few occupational therapy programs exist on college campuses, but there is limited evidence of their efficacy, and most lack solid theoretical underpinnings. More evidence is needed on the effectiveness of theory-based occupational therapy mental health approaches for college students. This dissertation evaluated the efficacy of a telehealth-delivered occupational therapy mental health program developed using the Occupational Adaptation (OA) theoretical model. Specifically, the study assessed the effect of a 4-week occupational therapy program on relative mastery, a construct in the OA model, and perceived stress in college students. A pre-program survey was deployed to gather information regarding college students' group program delivery modality preferences. In addition, the survey queried participants' overall perceptions of occupational therapy interventions for mental health in general. Results from the survey informed the development and delivery of the 4-week program. The main study included an experimental pretest-posttest design to measure relative mastery and the sub-scores of efficiency, effectiveness, and satisfaction. Additionally, a repeated-measures crossover design was used to evaluate the change in participants' perceived stress at Weeks 1, 6, and 11 of the study. In the pre-program survey, the most frequently cited perceived benefits were reduced stress and improved mental health, healthy habits, awareness of mental health/reducing stigma, and sharing with others. The most frequently identified challenges were time constraints, scheduling, and reluctance to share. The intervention showed promise at helping college students improve relative mastery and all the subscores, with a statistically significant increase from pretest to posttest. Perceived stress trended downward, but the decrease was not statistically significant. This dissertation work aimed to build evidence that examines occupational therapy mental health programs for college students.

Dissertation Advisor 

Dr. Ranelle Nissen

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Chapter 1: Introduction

This dissertation aimed to evaluate a newly developed, theory-driven mental health occupational therapy (OT) program for college students. There are few mental health focused OT interventions on college campuses, and most do not identify a solid theoretical base. With mental health issues in college students increasing at an alarming rate, the evidence is clear that approaches beyond transitional college counseling services are needed. Current evidence supports theory-based OT approaches' efficacy in promoting mental health. Still, there is a lack of evidence examining the efficacy of OT programs in college students. This research assessed the effectiveness of an OT program delivered via telehealth. The program's design drew upon current empirical evidence and feedback obtained through a survey of college student participants. Additionally, the Occupational Adaptation (OA) theoretical model guided the development and delivery of this telehealth-based OT intervention.

Statement of the Problem

The number of college students in the United States with mental health issues has been rising at an alarming rate over the past decade (Abelson et al., 2023; Chessman et al., 2023; Chessman et al., 2020; Gallup, 2023a, 2023b; Lipson, Raifman, et al., 2019). These mental health issues impede students' academic performance. Twenty-two percent of students report that emotional or mental difficulties have hurt their academic performance six or more days in the past four weeks (Healthy Minds Network, 2023). Over 40% of students cite that stress negatively impacts their academic performance or delays their progress toward their degree (American College Health Association, 2023b). As a result, most U.S. colleges allocated more resources to counseling centers, but the centers are still unable to meet the demand (Abelson et al., 2023;

Chessman et al., 2023; Gallup, 2023a; LeViness et al., 2019). Professions outside of traditional college counseling can help meet this need using strong theory and evidence-based interventions (Chessman et al., 2020; Huang et al., 2018). One such profession with a history in mental health practice is OT; however, few OT-based mental health programs exist on college campuses. OT interventions supporting education are common in K-12 systems but not in post-secondary education (Keptner & McCarthy, 2020).

Furthermore, there is little research on the efficacy of OT interventions in post-secondary education. In addition to a dearth of programming and research in general, most studies do not define a theoretical framework for the interventions (Keptner & McCarthy, 2020; Spencer et al., 2018). In tackling the concern of college student mental health, there is an evident demand for interventions surpassing conventional counseling. This includes initiatives like the one developed and evaluated within the scope of this dissertation.

Relevance

This dissertation evaluated the efficacy of a newly developed 4-week OT mental health program delivered via telehealth for undergraduate college students. The program utilized meaningful and psychologically rewarding occupations and was grounded in the Occupational Adaptation (OA) theory. In using the OA frame of reference, the goal was for the college student to achieve a high level of relative mastery, which is self-assessment of the student's response relative to achievement of efficiency, effectiveness, and satisfaction in the performance of an important task (Grajo & Boisselle, 2024; Grajo et al., 2018; Schkade & Schultz, 1992; Schultz & Schkade, 1992). For college students, relative mastery may be a self-assessment of their performance in their academic and social roles. College students report the most common impediments to their academic performance are procrastination (46.6%), stress (40.2%), anxiety

(34.0%), depression (24.3%), and sleep difficulties (23.4%) (American College Health Association, 2023b). In addition to individual sessions that addressed occupational performance issues, the group intervention targeted stress management, procrastination, time management, rest and sleep, and study habits. A quantitative survey design informed the development and delivery of the program, and a pretest-posttest and repeated-measures crossover design evaluated the program's efficacy. Specifically, the study evaluated the program's effect on college students' relative mastery and repeated measures of perceived stress. A pilot study of the intervention preceded the main study to examine the feasibility and acceptability of the intervention and the assessments.

OT in Mental Health and Wellness

The profession of OT was founded on the humanistic ideal of promoting health and wellness through occupation (Cole & Tufano, 2008; Reitz, 1992; Scaffa et al., 2010). Occupations are "everyday activities that people do as individuals, in families, and with communities to occupy time and bring meaning and purpose to life. Occupations are the things people need to, want to, and are expected to do" (American Occupational Therapy Association, 2020b, p. 7). Occupational therapy practitioners (OTPs) address performance deficits that result from mental health issues (AOTA, 2020). Using occupation as a therapeutic medium, OTPs help clients develop adaptive responses to overcome challenges (Schkade & Schultz, 1992; Schultz & Schkade, 1992). In mental health interventions, OTPs use approaches that focus on employment, education, psychoeducation, creative occupations/activities, time management, skills/habit development, group/family approaches, and animal-assisted therapy (Kirsh et al., 2019).

Meaningful and Psychologically Rewarding Occupations

Occupations can be classified as meaningful or psychologically rewarding (Ikiugu et al., 2019). Meaningful occupations can be challenging and not necessarily "fun" but rewarding, especially upon successful completion (Ikiugu et al., 2019). Academics is an example of a meaningful occupation. Psychologically rewarding occupations are considered "fun" (Ikiugu et al., 2019). Playing video games and socializing with friends are examples of psychologically rewarding occupations. A balanced pattern of meaningful and psychologically rewarding occupations enhances health and well-being, and the premise of OT is to use these occupations in treatment (Ikiugu et al., 2019).

OTPs can use the Meaningful and Psychologically Rewarding Occupations Rating Scale (MPRORS) to identify the client's meaningful and psychologically rewarding occupations (Ikiugu et al., 2021; Ikiugu et al., 2019) (see Appendix A). In addition, the Guidelines for OT Interventions Based on Meaningful and Psychologically Rewarding Occupations can guide clinicians in using these occupations in treatment (Ikiugu et al., 2019). The guidelines include four phases: evaluation, intervention planning and implementation, outcomes assessment, and discharge (Ikiugu et al., 2019).

These guidelines were incorporated into this dissertation study's 4-week OT intervention. The first step in the intervention process was the creation of an occupational profile for each participant (American Occupational Therapy Association, 2020a) (see Appendix B). Next, the OT researcher used the MPRORS to help the participants identify their meaningful and psychologically rewarding occupations. Participants created goals to improve the performance of occupations they wanted to focus on for the intervention. After the 4-week OT intervention, outcomes were assessed to determine if the participants met their goals.

Telehealth Occupational Therapy

The program was delivered via telehealth, combining synchronous and asynchronous activities. AOTA defines telehealth as "the application of evaluative, consultative, preventative and therapeutic services delivered through information and communication technology" (Cason et al., 2018, p.1). Telemental health, which is telehealth mental health services, is one of the oldest forms of telehealth, is effective, and increases access to care (Hilty et al., 2013). Telehealth can be used in every OT practice area, including mental health promotion interventions, to facilitate occupational performance, health and wellness, role competence, well-being, and quality of life (Cason et al., 2018). A systematic review found moderate evidence of telehealth OT in educational outcomes and no significant difference between groups when comparing face-to-face and telehealth group interventions (Feldhacker et al., 2023).

Telehealth can be a convenient and cost-effective way for clients to receive OT services (Cason et al., 2018). College students' busy schedules may lend to a preference for telehealth services, and this convenient delivery modality aligns with occupational therapy's professional aim of client-centeredness (Cason et al., 2018). In addition, telehealth allows services to reach a broader audience (Banbury et al., 2018; Cason, 2015; Cason et al., 2018; Frontera et al., 2017; Linder et al., 2015). In this dissertation study, telehealth expanded the study's reach to a broader audience by allowing eligible participation from students across the midwestern state.

Telehealth OT Program

The OT program spanned four weeks and was conducted virtually via Zoom (Zoom Video Communications, 2023). The program was designed to serve undergraduate students from the general population, with no restrictions based on the presence or absence of a mental health diagnosis and no referral needed. The program comprised weekly group and individual sessions

with the OT researcher. During the initial week, the OT researcher collected detailed information from participants to construct their occupational profiles. These profiles encapsulated the participants' occupational history, daily routines, interests, values, needs, and relevant contexts (American Occupational Therapy Association, 2020a). Individual sessions in the first week involved collaborative goal setting, where participants chose a specific occupation to focus on for subsequent sessions. They also completed assessments, including the Relative Mastery Measurement Scale and the MPRORS. Meanwhile, group discussions explored various person and environment factors, delving into the physical, emotional, and social aspects of participants' lives and their support systems and organizational strategies within their environments.

In the second week, individual sessions addressed occupational performance issues and participant responses, incorporating self-reflection activities and stress management techniques. The OT researcher sent each participant a follow-up email with activities for the upcoming week, serving as a reminder and a source of motivation. Discussions during group sessions focused on role expectations, encompassing self-imposed and external expectations, as well as challenges with time management, including procrastination.

In the third week, individual sessions addressed adaptive response generation, prompting participants to reflect on potential changes to manage stress and enhance occupational performance. Feasible changes were followed by the assignment of tailored activities, with reminders and encouragement emailed to participants. Group discussions explored energy levels, distinguishing between primary and secondary energy levels and considering the energy required for implementing change.

The program's final week concentrated on self-feedback during individual sessions, evaluating participants' progress, and contemplating future adjustments. The OT researcher

continued to support participants via email, providing reminders and encouragement. The concluding group session revolved around evaluating responses, reflecting on past changes, identifying success factors, and formulating new goals for the future.

Research Questions

This dissertation aimed to answer the following five research questions regarding the OT program described in the previous section:

Q1: What are college students' preferences for the delivery modality of group OT mental health intervention?

Q2: What are college students' preferences for scheduling sessions in a telehealth-delivered OT mental health intervention?

Q3: What are college students' overall perceptions of telehealth-delivered OT mental health intervention?

Q4: How did the relative mastery of undergraduate college students change after the telehealth-delivered OT intervention?

Q5: What is the effect of a group OT intervention on perceived stress in undergraduate college students?

Definitions of Key Terms

Clearly defining key terms is crucial for ensuring the validity of the study, as it promotes a shared understanding of the core constructs being investigated and how they are operationalized. The definitions of key terms in Table 1 informed the context for this dissertation study.

Table 1

Key Terms

Occupations: In occupational therapy, occupations refer to the everyday activities that people do as individuals, in families, and with communities to occupy time and bring meaning and purpose to life. Occupations include things people need to, want to, and are expected to do" (World Federation of Occupational Therapy, 2012)
Adaptation*:* Effective and efficient response by the client to occupational and contextual demands *(American Occupational Therapy Association, 2020b)*
Mental Health: An integral component of health (not simply the absence of mental illness); a state of well-being in which one can cope with the typical life stressors and make a meaningful contribution to those who surround them as part of their daily life activities and contexts (World Health Organization, 2022)
Procrastination: The voluntary and unnecessary delay in the start or completion of important and intended tasks despite recognizing there will be harmful consequences for oneself and others for doing so (Sirois, 2023)
Time Management: The manner in which a person, group, or population organizes, schedules, and prioritizes certain activities (American Occupational Therapy Association, 2020b)
Stress Management: The use of specific techniques, strategies, or programs—such as relaxation training, anticipation of stress reactions, and breathing techniques—for dealing with stress-inducing situations and the state of being stressed (American Psychological Association, 2018)
Rest and Sleep: Activities related to obtaining restorative rest and sleep to support healthy, active engagement in other occupations; includes rest, sleep preparation, and sleep participation (American Occupational Therapy Association, 2020b)
Study Habits: The behaviors and practices that individuals adopt to effectively learn and retain information, which can impact their academic performance (Svartdal et al., 2022)
Relative Mastery: Self-assessment of the client's response relative to achievement of efficiency, effectiveness, and satisfaction in the performance of an important task (Schkade & Schultz, 1992; Schultz & Schkade, 1992)
Perceived Stress: A person's thoughts about how much stress they are experiencing at a given time (Cohen et al., 1983)

Variables

As operationalized in this study, college students' relative mastery was measured using the Relative Mastery Measurement Scale (RMMS)(George et al., 2004). Participants were randomly assigned to two groups using a crossover treatment design. Group A underwent an assessment of relative mastery in the first week of their intervention (Week 2) and immediately

post-intervention (Week 6). Group B's assessment occurred in the first week of their intervention (Week 7) and immediately post-intervention (Week 11). The RMMS evaluates efficiency, effectiveness, and satisfaction subscales (see Appendix C).

Participants' perceived stress constituted the second variable examined in the dissertation study. Perceived stress refers to an individual's subjective appraisal of their stress levels at a specific moment (Cohen et al., 1983), with recent literature emphasizing its relevance in preventive mental health efforts due to its association with anxiety, depression, and related disorders among students (Augner, 2015; Yusufov et al., 2019). The 10-item Perceived Stress Scale (PSS-10) was utilized for measurement (see Appendix D). In Group A, perceived stress was evaluated during orientation in Week 1, immediately post-intervention (Week 6), and again following the 4-week inactive period (Week 11). Conversely, in Group B, the assessment occurred at orientation in Week 1, following the 4-week inactive period (Week 6), and again after the intervention (Week 11).

Theory

Ikiugu et al. (2017) found that theory-based OT may improve occupational performance and well-being in people with mental health conditions. To that end, the program in this dissertation study was created using the OA frame of reference. While this OT intervention aimed to offer an innovative, theory-based mental health service, it constitutes just one facet of a broader initiative. The overarching endeavor should align with the principles of the Healthy Campus Framework, advocating for a comprehensive and multifaceted approach (American College Health Association, 2023a). A model that harmonizes with this multidimensional approach is the social-ecological model.

Occupational Adaptation

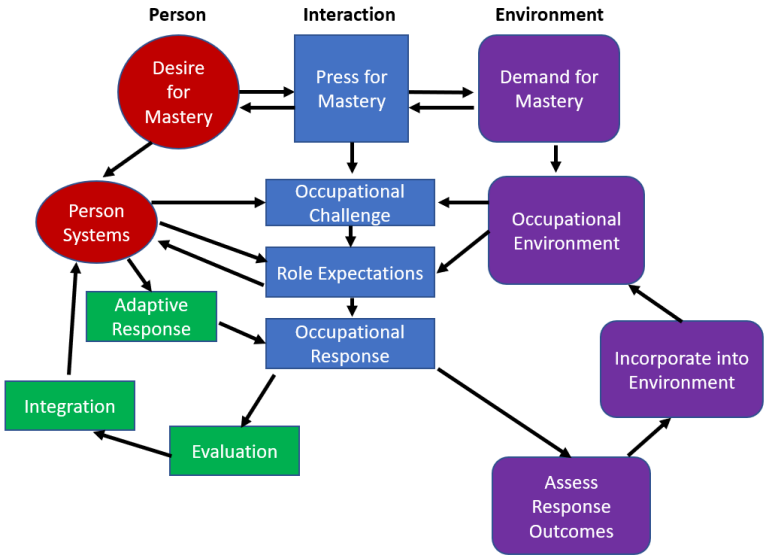
The OA model is a framework that describes a human phenomenon of adaptation and is a holistic model that can be used to plan, guide, and implement interventions (Schkade & Schultz, 1992; Schultz & Schkade, 1992). The OA model has four main constructs: occupation, adaptive capacity, relative mastery, and the occupational adaptation process. *Occupation* has three properties: active participation, meaning to the person, and a tangible or intangible product. *Adaptive capacity*, or energy, is the client's ability to recognize the need for change to achieve relative mastery. Humans have a finite amount of adaptive energy, so conserving energy to avoid exhaustion is essential. When a person's typical responses do not meet the challenge, the person changes or adapts by modifying behaviors to achieve the desired outcome. *Relative mastery* is the person's view of their response, considering efficiency (use of time and energy), effectiveness (production of the desired result), and satisfaction with the result, according to self and others. *Occupational adaptation* is a complex internal and normative process that involves the person, the environment, and the interaction between the two. The OA model asserts that there are three aspects to individuals, which include sensorimotor, cognitive, and psychosocial, and that each person desires mastery. One's environment creates a demand for mastery, or a set of criteria for success. When a person engages in an occupation, they are challenged to meet the demands, a phenomenon called occupational challenge (Schkade & Schultz, 1992; Schultz & Schkade, 1992).

The view of adaptation and mastery in the OA model makes it appropriate for health promotion interventions (Scaffa et al., 2010). Schkade and Schultz (1992) developed a series of client-centered questions that align with health promotion. Examples of these questions are "What are the patient's occupational environments and roles?", "What role is of primary concern

to the patient and family?" and "What is facilitating or limiting relative mastery in the primary occupational environment and role?" (Schultz & Schkade, 1992, p. 925). Moreover, in the OA model, OTPs assess sensorimotor, cognitive, and psychosocial functioning, role expectations, and the client's capacity to perform activities that meet their role expectations. In the OA model, the concept of adaptation gestalt refers to evaluating the extent and quality of cognitive, sensorimotor, and psychosocial abilities necessary to proficiently engage in a specific occupation (Grajo & Boisselle, 2024; Schkade & Schultz, 1992). Certain activities may demand greater cognitive aptitude, like studying, while others may rely more on psychosocial skills, such as forming relationships, and some may necessitate heightened sensory and motor capabilities, like physical exercise (Grajo & Boisselle, 2024). Schkade and Schultz (1992) recommend using a combination of preparatory and meaningful occupations related to the person's primary role. Figure 1 represents a schematic of the Occupational Adaptation model.

Figure 1

Occupational Adaptation Model



Note. In the OA model, the person and the environment form the *press for mastery.* The person undergoes an adaptive response cycle to adapt and then evaluates outcomes. This cycle is completed by using an occupation, modifying an occupation, and/or learning a new occupation. Adaptation is indicated by the ability to generalize learned skills in various settings. From "*Applied theories in occupational therapy: A practical approach"* by M. Cole, M. & R. Tufano, 2008, p. 109. Copyright 2008 by Slack, Incorporated. Adapted and printed with permission.

The OA model posits that promoting adaptation in clients is not a series of techniques but a client-centered way of thinking that empowers the client as an agent of change (Schkade & Schultz, 1992). As the client develops adaptiveness, their functional skills improve (Grajo et al., 2018; Schkade & Schultz, 1992; Schultz & Schkade, 1992). A key tenet of the OA model is that humans have a finite amount of energy to complete their daily occupations, so conserving energy is necessary (Schkake & Schultz, 1992). In this dissertation, the Occupational Adaptation frame

of reference guided the intervention, as it considered the college students' environmental demands and promoted healthy adaptive responses for success in their student role. The program integrated discussion questions similar to the ones developed by Schkade and Schultz (1992). The individual and group sessions integrated energy use and conservation. The OT program aimed to help the students learn to assess their occupational responses and to develop adaptiveness. Ultimately, the goal was for the participants to build competency, gain a sense of control, and make functional improvements.

Social-Ecological Model

The emotional health needs of college students are complex, and the problems students encounter often originate outside of the classroom (American College Health Association, 2023a, 2023b). Therefore, cultivating college students' emotional health and well-being requires a health promotion approach that reaches beyond the learner and the campus community. The social-ecological model for health promotion combines behavioral, organizational, environmental, regulatory, and political initiatives (Stokols, 1996; Stokols et al., 1996). The model's premise is that individual interventions are too narrow to create substantial and lasting change (Stokols et al., 1996). The model calls for expanding action to include communities and requires skills in advocacy and mediation (Wold & Mittelmark, 2018).

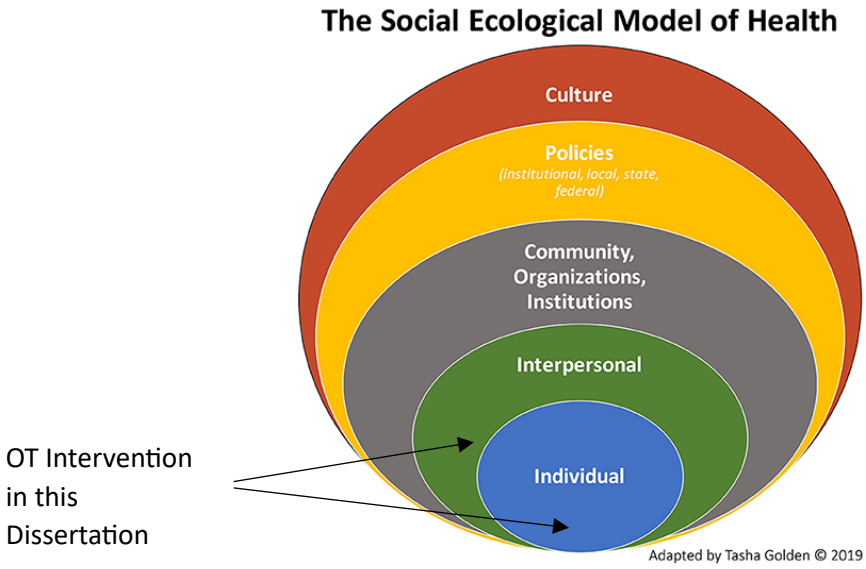
The three fundamental dimensions of the social-ecological model are settings, targets, and strategies (Stokols et al., 1996). The settings are the organizations, communities, and society. The targets are individuals, groups, or communities, and strategies are either direct transformations or the creation of networks (Stokols et al., 1996). This model requires extensive partnerships and multi-level interventions (Stokols et al., 1996; Wold & Mittelmark, 2018). The benefit of this model is that it addresses emotional health needs from a view that encompasses

the role of the entire campus community. Furthermore, the social-ecological model is in harmony with the Healthy Campus Framework, which advises employing multifaceted, theory-driven strategies to tackle mental health issues among college students. These strategies encompass mental health services, awareness and education, training and support, crisis intervention, peer support programs, collaboration with community resources, and policy development (American College Health Association, 2023a).

The social-ecological model is useful in mental health approaches because it promotes a sense of community that is supportive and protective against loneliness (Wold & Mittelmark, 2018). According to the model, health promotion programs can begin with a narrow focus on prevention and move to individual behavior interventions. Initiatives can become interdisciplinary and evolve into a comprehensive community approach (Wold & Mittelmark, 2018). Similarly, this dissertation study intended to begin with individual and group interventions, acknowledging that this complex problem requires comprehensive approaches that expand beyond these and into the community. Future studies may move toward interdisciplinary and community-based initiatives to support mental health and wellness in college students. The social-ecological model is graphically depicted in Figure 2.

Figure 2

The Social Ecological Model



Note. In the social-ecological model, the attention is not only at the level of the individual but also extends to communities, policies, and culture to make a lasting and widespread change. The model asserts that changes at the individual level and in society are necessary. From "Public Health's Next Step in Advancing Equity: Re-evaluating Epistemological Assumptions to Move Social Determinants From Theory to Practice," by T.L. Golden and M.L. Wendel, 2020, *Frontiers in Public Health*, 8, (https://doi.org/10.3389/fpubh.2020.00131). Copyright© 2020 Golden and Wendel. Reprinted with permission.

Summary

In summary, this dissertation examined the efficacy of a new OT mental health program for college students. The telehealth-delivered program focused on meaningful and psychologically rewarding occupations and was grounded in OA theory. This dissertation study aimed to be the initial step in a more scoping effort to promote mental health in college students. The results of the study added to the small body of literature regarding mental health OT interventions for college students who are struggling with mental health concerns now more than ever.

Chapter 2: Literature Review

This literature review examines occupational therapy (OT) as an approach to addressing college students' mental health, including how OT aligns with college students' mental health needs. This chapter examines the few OT programs on college campuses and the evidence on the efficacy of OT programs and mental health approaches in higher education. Although there are only a small number of OT programs, there were valuable findings that supported and informed the development of the intervention in this dissertation study.

College Student Mental Health Needs

The most commonly reported mental health challenges of college students are anxiety and depression, and many college students report that mental health concerns negatively impact their academic performance. According to a 2023 survey of 76,406 college students, 20% reported experiencing severe depression in the past two weeks, while an additional 20% reported moderate depression. Furthermore, 41% acknowledged experiencing any form of depression during this period. In terms of anxiety, 17% reported severe anxiety, 19% reported moderate anxiety, and 36% reported experiencing any level of anxiety within the same timeframe. Regarding academic challenges stemming from emotional or mental health issues in the past four weeks, 29% reported experiencing academic impairment on 1 to 2 days, 23% reported it on 4 to 5 days, and 22% reported it on six or more days during this period (Healthy Minds Network, 2023).

The number of college students reporting significant anxiety or depression has increased over the past several years. Between 2016 and 2021, the percentage of students with significant symptoms of anxiety rose from 21% to 34%, and the percentage of students with significant symptoms of depression rose from 25% to 41% (Abelson et al., 2023). Regarding stress, 21.2%

reported severe psychological stress, and 52.9% reported moderate psychological stress (American College Health Association, 2023a, 2023b). Only 36% of college students reported positive mental health in 2023 (Healthy Minds Network, 2023). Similar data exists among students who utilize college counseling centers; their most common concern was anxiety (65.5%), followed by stress (46.9%), depression (44.3%), and family (29.3%). Academic performance was another common concern, with 24.5% of students who received counseling reporting it as a concern (Center for Collegiate Mental Health, 2024).

Students reported various challenges when asked about their specific trials in the last 12 months. The most commonly reported challenges were procrastination (73.9%), physical appearance (53.3%), finances (50.3%), and academics (47.8%) (American College Health Association, 2023b). Regarding their perceived need for help for emotional or mental health problems such as feeling sad, blue, anxious, or nervous in the past 12 months, 25% strongly agreed, 17% agreed, and 15% somewhat agreed. When asked about their current need for help, 15% strongly agreed, 14% agreed, and 17% somewhat agreed (Healthy Minds Network, 2023).

For some college students, emotional issues are too much to bear. College students who experience depression are twice as likely to drop out of college without graduating (Abelson et al., 2023). In a Gallup (2023b) survey of 6,008 students, emotional stress and mental health were the top reasons students considered pausing their studies in the past six months. Moreover, 36% of students enrolled in bachelor's degree (N=3949) programs considered stopping out of college within the past six months due to emotional stress and mental health concerns (Gallup, 2023b).

Another result of the mental health crisis is the dramatic rise in counseling service use. In the 2007 to 2010 Healthy Minds Study, 20 to 25% of students with depression or anxiety had

received services in the past year; data from the 2021 survey indicated that more than 50% of students with depression or anxiety received treatment in the previous year (Abelson et al., 2023). The percentage of all college students who participated in counseling or therapy increased from 30% to 36% between 2020 and 2022 (Healthy Minds Network, 2023).

The increase in college student mental health concerns is noted across the United States as nearly all colleges devoted more resources to address mental health needs in recent years. However, there is still a gap in service availability as the need for mental health services on college campuses exceeds the capacity of traditional counseling services (Abelson et al., 2023; Chessman et al., 2023; Gallup, 2023b). Therefore, unique interventions beyond traditional college counseling services are recommended (American College Health Association, 2023a; Chessman et al., 2023; Chessman et al., 2020; Payton et al., 2018). OT is one approach that could prove to be beneficial for this population in closing the service gap. Current OT programs that address college student mental health include mindfulness, Lifestyle Redesign®, supported education, and transitioning from home to college.

Occupational Therapy Interventions

Few OT intervention programs exist on college campuses despite increased mental health needs among college students (American College Health Association, 2020; LeViness et al., 2019; Lipson, Lattie, et al., 2019). Ikiugu et al. (2017) found that theory-based mental health OT interventions may be effective in improving occupational performance and well-being in adults with a mental health diagnosis. However, there is limited evidence that supports theory-based OT programs in college students, specifically. Current mental health OT interventions for college students include mindfulness workshops, transition interventions for first-year college students, targeted programs for those with a documented Diagnostic and Statistical Manual of Mental

Disorders (DSM) diagnosis, and Lifestyle Redesign® interventions. Theoretical frameworks were not clearly illustrated in the literature describing most of these programs, except for the mindfulness and Lifestyle Redesign® interventions.

Mindfulness

Seo et al. (2020) evaluated a series of four occupation-based mindfulness group workshops offered to 240 college students. The Environment-Health-Occupation-Wellbeing (EHOW) model guided the development of the workshops. The students' perceived stress and quality of life were analyzed pre- and post-intervention. There was a statistically significant improvement in perceived stress ($p = .045$) and quality of life ($p = .023$) following the mindfulness intervention. This study supports theory-based group OT programs to decrease stress in college students.

Transition Program for College Freshmen

Keptner et al. (2016) implemented and evaluated an occupation-based group program for first-year college students transitioning to college life. The participants were 18-20 years old and attending college as full-time, first-year students. Fourteen participants completed the program, in which subjects met in person one hour per week for five weeks. The Canadian Occupational Performance Measure (COPM) guided the intervention and was the assessment of occupational performance. Cole's Seven Steps of a Group also guided the intervention. The intervention consisted of the following modules: Week 1: leisure, Week 2: sleep and rest, Week 3: work and education, Week 4: finances and budget, and Week 5: social participation. Pretest-posttest measures of occupational performance, performance satisfaction, and quality of life revealed statistically significant improvements in occupational performance and performance satisfaction but no significant differences in quality of life.

Keptner (2017) conducted a long-term follow-up of the transition program 18 months after the initial intervention. Seven of the original fourteen students participated in the long-term follow-up. Long-term post-test scores for occupational performance were significant, but long-term post-test scores for performance satisfaction were not significant. The limitations of this study were the small sample size, selection bias, and lack of control. Keptner (2017) recommended longitudinal studies with larger sample sizes. Another limitation not identified by Keptner (2017) was the lack of theoretical framework demonstrated in the intervention. Despite its limitations, the study by Keptner (2017) showed that using groups was promising with this population, as participants had similar occupational performance concerns. Keptner (2017) noted that in the long-term follow-up, participants conveyed that they continued to have occupational performance struggles past their first year. It may be beneficial for mental health programs to be available for students beyond the first year.

OT Programs for Students with a Diagnosis

There are a few targeted programs for students with a documented DSM diagnosis. These programs include The OTonCampus© Program, The Supported Education Program, The Client-Centered Program, and The GOALS^2 Program.

OTonCampus©

Eichler et al. (2015) described an occupation-based program at Saint Louis University (SLU) in partnership with university counseling services. Students at SLU are allowed a maximum of 10 psychotherapy sessions in the counseling center. Students who are appropriate for and qualify for reimbursement of OT services are referred to the OTonCampus© Program by the counseling office. Eichler et al. (2015) provided a case study that demonstrated the success of a student who had multiple mental health-related diagnoses. Eichler et al. (2015) posed that the

program offered overloaded mental health professionals with another resource for referral.

Moreover, Eichler et al. (2015) noted that this program corresponds with the American Occupational Therapy Association's (AOTA) recognition of transition services for older youth as a developing practice area within OT services. A limitation of this literature was that it was for descriptive purposes and did not include an evaluation of the program outcomes. Nevertheless, the OTonCampus© Program is an example of an OT program focused on mental health and wellness for college students, which had similar aims to the program in this dissertation study.

Client-Centered Program

Schindler (2010) evaluated an OT program for individuals with psychiatric disorders. The intervention was four semesters long and took place on a college campus using a pretest-posttest design with 38 participants. The participants were college students or community members. The COPM was used as a pretest and post-test measure. In addition, participants completed the Participant Overall Satisfaction Scale. Diagnoses included schizophrenia, schizoaffective disorder, bipolar disorder, major depression, Asperger's, anxiety, and adjustment disorder. Two participants did not indicate their mental illness. The disability office at the college worked closely with the OT program and referred participants. The program was led by master's level OT students and their faculty. Mentorship was a large part of the intervention; OT students mentored the participants. The participants created long-term, short-term academic, vocational, life-skill, and leisure goals. The results indicated statistically significant improvements in the COPM and positive results on the Participant Overall Satisfaction Scale. A limitation of this study in terms of correlation to this dissertation study is that the participants were a mix of college students and community members, so this study does not pertain exclusively to college student mental health. Another limitation of this study was that no theoretical conceptual practice

model was described.

In a later study of the Client-Centered Program, the participants (N=80) completed the program for at least one semester between 2008 and 2017 (Schindler, 2019). The primary diagnoses were ASD, ADHD, LD, and anxiety disorder, with more than 2/3 having a secondary diagnosis. An average change in GPA of 0.04 was noted but was not significant (Schindler, 2019). The graduation rate for the students in the program was positive (77.5%), which was much higher than the graduation rate (37%) of students with disabilities who did not participate (Schindler, 2019). Schindler (2019) credited the program's success to its structured, manual-based design that focused on skill development. A limitation of this study was that there was no description of the theoretical conceptual framework used in the interventions, and it was a convenience sample from one university. These studies are relative to this dissertation study in that they investigated an OT intervention offered on a college campus that focused on improving occupational performance in the student role (Schindler, 2019; Schindler, 2010).

GOALS^2 Program

The Greater Opportunity for Academic Learning and Living Successes (GOALS^2) program at Thomas Jefferson University collaborated with the Office of Student Accessibility (Boney, 2019). The pilot program included 13 of the 110 students with disabilities on the college campus. Graduate OT students led the program with faculty supervision and a coaching model. The ten clients who continued through the program developed goals in four categories: academic, health and wellness, interpersonal relationships, and time management/organization. Goal Attainment Scaling (GAS) was the primary outcome measure. The students met over 80% of their self-identified learning goals (Boney, 2019). In qualitative program analysis, participants reported benefits that included personal and academic growth, an open and supportive

environment, goal achievement, accountability, and engagement (Harrington, 2021). A limitation of the program evaluation by Boney (2019) was the small sample size, self-report measures only, and the authors noted recruitment challenges. This program is relevant to this dissertation study because it was an OT program for college students with health and wellness components.

Lifestyle Redesign®

The University of Southern California (USC) offers a Lifestyle Redesign® to college students struggling with academic, social, or personal tasks, transitioning to college life, or managing stress (McCarthy, 2009). Lifestyle Redesign® is "the process of developing and enacting a customized routine of health-promoting and meaningful activities" (McCarthy, 2009, p.11). The theoretical foundation of Lifestyle Redesign® is based on occupational science research, assuming that the ability to find meaning through occupation is central to people's lives (Clark et al., 1997; Jackson et al., 1998). Another conceptual basis for Lifestyle Redesign® is dynamic systems theory, which assumes people can reorder their occupational patterns from disequilibrium to more stable ones (Clark et al., 1997).

In the OT program at USC, students need a referral from the student health center or the campus counseling center before they can schedule a consultation with an occupational therapist. OT consists of individual sessions, typically one time per week, delivered in person or via telehealth (USC, n.d.). These sessions aim to use Lifestyle Redesign® to create health-promoting habits and routines so students can better manage their lives (USC, n.d.). Lifestyle Redesign® is an effective intervention for older adults (Levesque et al., 2019). However, there is a lack of evidence regarding the efficacy of Lifestyle Redesign® with college students participating in the OT program at USC.

Reviews of OT Interventions

Only a handful of OT programs help college students with mental health needs. Correspondingly, there are limited reviews of the studies. One is a scoping review by Keptner and McCarthy (2020), and the other is a systematic review by Spencer et al. (2020). Neither of the literature reviews described the theoretical frameworks of the literature.

Keptner and McCarthy (2020) completed a scoping review of OT practice with post-secondary students. The review aimed to map the literature that describes services provided in post-secondary settings and the corresponding populations, methods, and outcomes. The researchers used a "snowball" strategy and retrieved 25 studies. Keptner and McCarthy (2020) found that occupational therapy practitioners (OTPs) work to support education in K-12 settings, but OT services are rarely offered in post-secondary settings. The student populations varied and included students with mental illness, students with intellectual and developmental disabilities, students with autism/Asperger's, students with "hidden" disabilities, students with any identified disability, and the general student population. The design of the services included consultant, one-on-one, and/or group interventions as independent services on campus, undergraduate courses to help transition to post-secondary education, services in supported education, services as part of the student's primary health center team, assistive tech services in the campus tech center, and assistance through the Office of Disability Services on campus. Positive outcomes included higher enrollment in an academic program after participation, improved academic and social skills, more confidence overall, and increased competency in the student role. Other positive results included goal attainment, coping with stress, expanding social outlets, improved study skills, decreased anxiety, and increased self-awareness. One study did not find an improvement in quality of life after participation in a 5-week OT group.

Three main themes emerged from the analysis of the studies: focus on occupation and skills needed for success, use of the campus environment, and campus collaboration. Some OT interventions moved beyond supported education and mental health to include a wellness focus. Keptner and McCarthy (2020) posed that OTPs should look beyond supported education for only those with mental illness and extend services to those who do not have a diagnosis. "More research is needed to clarify OT's distinct value in providing services with post-secondary students and should quantify the benefit of OT services to a wide range of students" (Keptner & McCarthy, 2020, p. 14). This recommendation aligns with the program in this dissertation study, which focused on mental health and wellness for the general college student population, not limited to those with a documented DSM diagnosis. A limitation of this review is that it did not consider the quality of manuscripts; it included descriptive and intervention studies. Another limitation is that Keptner and McCarthy did not state the theoretical frameworks used in the studies.

Spencer et al. (2018) completed a systematic review of OT interventions for students with mental illness transitioning to post-secondary education. Spencer et al. (2018) noted that there is limited evidence examining OT interventions for people with mental illness in transitioning to post-secondary education. The study aimed to answer the question, "What is the current available evidence for interventions within the scope of OT for students with any mental illness during the transition process to post-secondary education?" (Spencer et al., 2018, p. 153). The review examined articles that included OT interventions specifically for students transitioning to post-secondary education who were between the ages of 16 and 21 and had any mental illness.

Only seven articles met the inclusion criteria. All seven articles focused on the occupation of education. The review examined the environment, performance skills, and performance

patterns. A level IV study evaluated Individual Placement Support (IPS), an employment support model, and found IPS effective at supporting education and work. Two Level III studies evaluated the Bridge Program (identified as the Client-Centered Program earlier in this chapter), an OT program promoting supported education and employment. In the Bridge Program, 84% of those enrolled remained in their education program, and the results of the COPM indicated overall improvements toward goals. A Level III study examined a program similar to the Bridge Program, in which OT students were mentors to individuals with disabilities for four semesters, and results on the COPM indicated statistically significant improvements in occupational performance. A Level V review found that the Transition to Independence model was successful in helping students achieve their education goals. Two Level I systematic reviews examined group interventions that proved effective and had high rates of participant satisfaction. Interventions included motor and process skills, and interaction skills, such as writing, reading, public speaking, social skills, daily living skills, vocational skills, and stress management. In addition, the interventions addressed habits and routines needed for success as a student. Spencer et al. (2018) highlighted positive results related to group intervention.

The limitations were that there were not enough studies, and the level of evidence for the research was low. In addition, Spencer et al. (2018) did not describe the theoretical frameworks of the studies. Although this review examined the transition to post-secondary education specifically and only included students with documented disabilities, it is relevant to this dissertation study in that it included literature on success in the occupation of education in post-secondary education and highlighted the benefits of group OT interventions.

Evidence-Based Strategies

Although there are limitations in the evidence for OT programs for college students, some specific strategies that can be incorporated into OT programs, such as journaling as a mindfulness practice, show promise to improve mental health in the general population. Moreover, social interaction in groups, time management, study skills training, and sleep interventions can potentially improve mental health and wellness in college students. These strategies are classified as *interventions to support occupations*, which are "methods and tasks that prepare the client for occupational performance and are used as part of a treatment session in preparation for or concurrently with occupations and activities….to support daily occupational performance"(American Occupational Therapy Association [AOTA], 2020b, p. 59). While occupation is the focus of treatment, these strategies can be used as part of a holistic treatment plan (AOTA, 2020b).

Journaling

Writing has been shown to have a positive effect on depression, anxiety, and stress symptoms in the general population (Guo, 2023). Keeping a gratitude journal is one of the easiest and most effective ways to cultivate a mindfulness practice and can potentially decrease negative affect, stress, and anxiety in college students (Tolcher et al., 2022). Incorporating expressive writing into daily life is a valuable tool for managing emotions, particularly for those grappling with depressive symptoms, anxiety, and stress (Guo, 2023). A systematic review and meta-analysis demonstrated that participants who underwent gratitude interventions, such as journaling, experienced greater satisfaction with life (6.86% higher), better mental health (5.8% higher), and fewer symptoms of anxiety and depression (7.76% and 6.89% lower scores, respectively) (Diniz et al., 2023). Moreover, Diniz et al. (2023) found that participants

experienced other benefits, such as more positive moods, greater optimism, less worry, more prosocial behavior, and less psychological pain. Similarly, a systematic review of the effect of journaling in the management of mental illness revealed that 68% of the intervention outcomes were effective, supporting the efficacy of journaling (Sohal et al., 2022).

Guo (2023) recommends that an ideal writing schedule involves spacing sessions closely across the week, such as arranging three sessions on consecutive days, every other day, or every two days. Interventions might include providing prompts for individuals to reflect on the temporal flow of their experiences. Consistent and sustained writing practices are most likely to foster positive changes (Guo, 2023). Reflective writing was promoted within the program of this dissertation due to compelling evidence supporting the positive effects of writing on mental health.

Group Discussions

Evidence describing the benefits of group support in OT programs for college students is described earlier in this literature review (Keptner, 2017; Keptner & McCarthy, 2020; Spencer et al., 2018). A systematic review of mental health interventions, including social support groups for college students, revealed that 80% of the interventions effectively reduced loneliness (Ellard et al., 2023). Programs that unite students around an activity, in a support group, or to socialize, either in person or virtually, can reduce feelings of loneliness (Ellard et al., 2023). Moreover, the benefits of social support in the general population of those with mental health concerns are evident across different types of group interventions, including discussion groups (Worrall et al., 2018). These benefits include the following: cultivating hope, learning about the topic of the group, developing coping mechanisms, overcoming feelings of isolation, establishing social and supportive connections, drawing inspiration from accomplished role models, enhancing a sense

of control over their circumstances, overcoming social stigma, familiarizing themselves with available services, and enhancing advocacy skills (Worrall et al., 2018). The evidence supporting the benefits of social support informed the incorporation of group discussions within the program in this dissertation.

Time Management

Time management is related to academic success and well-being in general (Aeon et al., 2021). Learning time management strategies, such as preventing postponement, previewing information, reviewing material shortly after it is presented, prioritizing, handling study periods, reviewing material repeatedly, and making time for other commitments, is essential to academic success (Ahmady et al., 2021). Educating students on the advantages of time management techniques and offering opportunities for students to implement these strategies can potentially enhance their time management habits (Cuccolo et al., 2022). Learning time management techniques may decrease procrastination, as procrastination in academic tasks is negatively correlated with effective time management (Liu F, 2022). Time management was one area of focus of the program in this dissertation.

Study Skills

Improving study skills correlates with reduced procrastination, similar to the effect of enhancing time management (Svartdal et al., 2022). The significance of effective study strategies for college students is evident, yet students frequently lack awareness of such strategies and often resort to ineffective methods. (Morehead et al., 2016). Furthermore, college instructors often fail to guide effective studying, as they are frequently unaware of optimal techniques (Morehead et al., 2016).

An extensive review by Dunlosky et al. (2013) evaluated the efficacy of study strategies.

Practice testing and distributed practice received were highly effective and have been shown to boost students' performance across many educational tasks and subjects (Dunlosky et al., 2013). Elaborative interrogation, self-explanation, and interleaved practice were moderately effective (Dunlosky et al., 2013). Elaborative interrogation is the technique of generating an explanation of why a fact or concept is true (Dunlosky et al., 2013.). Self-explanation is the process of explaining how new information relates to known information or outlining the steps taken to solve a problem. (Dunlosky et al., 2013). Interleaved practice is a scheduled practice of mixing different kinds of problems or material within a single study session (Dunlosky et al., 2013).

Five techniques were minimally effective or ineffective: summarization, highlighting, the keyword mnemonic, imagery use for text learning, and rereading (Dunlosky et al., 2013). While most students reported relying on strategies like rereading and highlighting, these methods do not consistently enhance their performance. Thus, alternative techniques, such as practice testing instead of rereading, should be used (Dunlosky et al., 2013). The program in this dissertation aimed to assist participants in developing effective study skills.

Rest and Sleep

Lack of sleep has been linked with high stress levels in college students; 23.4% report that sleep difficulties impede academic performance (American College Health Association, 2023b). Psychological interventions, including behavioral therapy and education, for improving sleep in college students in college students are effective, according to recent systematic reviews (Friedrich & Schlarb, 2018; Saruhanjan et al., 2021). Other techniques, such as mindfulness and sleep hygiene, have shown promise for efficacy (Friedrich & Schlarb, 2018). Moreover, interventions appear to be more effective for college students compared with other adults; this may be because college students overall have more sleep problems and, therefore, have more

room for improvement (Saruhanjan et al., 2021).

OTPs commonly address the occupation of sleep (American Occupational Therapy Association, 2020b). A scoping review by Yoo (2023) found that OT sensory-based techniques and lifestyle design in individual and group programs were substantially effective at promoting sleep. Although there are no systematic reviews of OT interventions for sleep in college students specifically, OT has been shown to promote positive sleep outcomes in other populations, such as older adults with chronic conditions (Smallfield et al., 2021). The evidence suggests that OT interventions for sleep should focus on education that addresses sleep hygiene, nutrition, relaxation techniques, and physical activity (Smallfield et al., 2021). Considering the prevalent and significant sleep deficits experienced by college students, along with the potential for interventions to address this crucial mental and physical health issue, rest and sleep interventions were implemented in the program outlined in this dissertation

The intricate landscape of college student mental health reveals a web of interconnected problems and interventions that mutually influence one another. For instance, although procrastination emerges as a primary stressor among college students, Sirois (2023) suggests that stress itself can be both a cause and consequence of procrastination, indicating that practices like mindfulness and stress reduction exercises might alleviate procrastination tendencies. Given the interconnected nature of these challenges and solutions in college student mental health, there is a pressing need for multimodal interventions. However, their complexity poses significant difficulties in evaluation, further complicating efforts to assess their efficacy. Recently, agencies such as the American Council on Education and the American College Health Association synthesized the evidence on this complicated issue and published recommendations to move college campuses in a positive direction regarding college student mental health.

Recommendations

Chessman et al. (2020) analyzed 16 campus mental health task forces' recommendations and interviewed 10 task force leaders to create an executive summary supported by the American Council on Education. The following eight themes emerged from the task force recommendations: improve communication about mental health, institutionalize structures to focus on mental health, provide training around mental health, create or enhance mental health programming, enhance or improve mental health services, hire or create positions, develop new or improve existing policies, and develop new or improve existing procedures (Chessman et al., 2020). The most common recommendation was to enhance communication about mental health (Chessman et al., 2020). The second most common overall recommendation by task forces was to develop creative interventions focusing on college students' mental health outside traditional counseling services (Chessman et al., 2020).

The American Council for Education posed six considerations for mental health in higher education for the 2023-2024 academic year. The considerations include the following: address turnover in counseling centers; cultivate degree pathways for mental health counselors, especially from diverse populations; build upon federal and state initiatives; implement evidence-based programs on campuses and assess their impact; focus on public health and trauma-informed interventions, and anticipate that incoming students will expect mental health support (Chessman et al., 2023). In addition, the American Council for Education advised college campuses on what works and what does not work to address college students' mental health needs. The recommendations in the 2023 report were the following: use data to assess population needs, priorities, and progress; invest substantially in strategies with proven effectiveness; discontinue ineffective interventions; invest modestly in new interventions that

show promise, and contribute to a broader effort in evidence-based approaches (Abelson et al., 2023).

Interventions with solid evidence for efficacy include the following: mindfulness programs, routine screenings, means restriction to prevent harm, and skills training (Abelson et al., 2023). Skills-training interventions that teach social, emotional, and coping skills with supervised practice and supportive feedback over multiple sessions are highly effective but not often employed (Conley et al., 2015). Interventions that show promise include cognitive behavioral skills training and relaxation exercises (Abelson et al., 2023). Interventions that should be modified or discontinued for lack of efficacy include psychoeducation-only interventions and meditation training. Gatekeeper training to increase knowledge about mental health in those who are not mental health professionals has questionable effectiveness and should be abandoned or modified (Abelson et al., 2023). Efforts that show promise but need more evidence include the following: peer support programs, supportive learning environments, mental health-focused courses, mentoring, and post-crisis intervention (Abelson et al., 2023).

In summary, the mental health needs of college students are significant, and existing literature underscores the value of employing innovative methods to address these needs effectively. One such approach is OT. OT services may focus on health management, rest and sleep, education, and leisure and social participation to promote success in the college student role (American Occupational Therapy Association, 2020b). The literature indicates a need for creative, evidence-based approaches that focus on mental health promotion offered to the general student population, as many students who need support are not seeking out services (Abelson et al., 2023; Chessman et al., 2020; Huang et al., 2018; Payton et al., 2018). An OT program targeting the general college student population might reach those not seeking traditional mental

health services. More approaches that focus on overall mental wellness and health promotion are needed (American College Health Association, 2023a; Chessman et al., 2023; Chessman et al., 2020; Huang et al., 2018; Payton et al., 2018; Yusufov et al., 2019). OTPs may help fulfill this need and promote mental health by supporting productive participation in occupations (Scaffa et al., 2010).

Theoretical Practice Models in OT Mental Health Practice

In a meta-analysis investigating the effectiveness of theory-based OT mental health interventions, Ikiugu et al. (2017) examined 11 studies. The researchers found the following theoretical practice models were used to guide intervention: the behavioral/cognitive-behavioral (B/CB) model in 5 studies, the Canadian Model of Occupational Performance and Engagement in 3 studies, and the Cognitive Disabilities (CD) model, an unspecified client-centered model, and a psychodynamic model were used in 1 study each. However, Ikiugu et al. (2017) noted that clear identification of specific theoretical practice models is often lacking in published mental health OT research.

The lack of clear identification of theoretical practice models is evident in the literature for OT interventions focusing specifically on college student mental health, except for the Lifestyle Redesign® interventions and the intervention by Seo et al. (2020). This lack of identification of theoretical practice models is common in OT literature, as OTPs often find it challenging to clearly articulate the conceptual practice models that guide their interventions (Ikiugu et al., 2009). Theory-based OT is effective in improving the well-being of people with mental health concerns (Ikiugu et al. 2017). To that end, the program in this dissertation was guided by the Occupational Adaptation (OA) model. The OA model aligns well with health promotion and wellness because an adaptive response is a positive way for people to develop

healthy habits (Scaffa et al., 2010). In the OA model, clients are agents of change and develop mastery over their health (Scaffa et al., 2010). The OT program in this dissertation combines OA principles with evidence-based positive mental health practices. This individual and interpersonal intervention fits within the larger scope of the social-ecological model, which has been used extensively in health promotion (Wold & Mittelmark, 2018).

Guidelines for OT Inventions

Ikiugu et al. (2019) developed Guidelines for Occupational Therapy Interventions Based on Meaningful and Psychologically Rewarding Occupations to inform theory-based interventions. There are four phases in the guidelines. Phase one includes creating an occupational profile, categorizing and rating occupations, and collaborating with the service user in intervention planning. Phase two includes implementing the intervention. In phase three, the OTP assesses outcomes and determines progress towards goals. Phase four is the discharge of the service user from therapy. The Meaningful and Psychologically Rewarding Occupations Rating Scale (MPROPS) was developed to aid clients in identifying meaningful and psychologically rewarding occupations (Ikiugu et al., 2019). The program in this dissertation followed the four phases listed above, as recommended by the guidelines.

Professional Significance

The lack of sufficient services to address college students' growing mental health needs is evident, and OTPs can support this population, as the profession is rooted in mental health and health promotion. OTPs are called upon by leaders in the profession to rise to the challenge and help clients in areas outside of traditional practice settings (Clark, 2010; Stoffel, 2013a, 2013b; Tempest & Dancza, 2019). Post-secondary education is not a typical practice venue for OTPs. Kertcher (2014) poses post-secondary education as an emerging practice area for people with

disabilities. However, one could argue that post-secondary education is an emerging practice area that should not be limited to those with a diagnosis. OTPs are known for their ability to *think outside of the box*. Indeed, this complex issue requires creative problem solvers. With college administrators, task force groups, counselors, and students calling for help, OT has a professional and societal obligation to explore service provision for this population.

Summary of the Literature

In summary, the mental health needs of college students are significant, and recommendations include the evaluation of promising approaches, such as OT. OT support for education is widely utilized in the K-12 system but underutilized in post-secondary education (Keptner & McCarthy, 2020; Nagata et al., 2023). Currently, there are few occupation-based programs on campuses that provide services. Most programs target those with a documented diagnosis; the evidence is limited for programs that target the general student population, which includes students who are struggling and need services but do not have a diagnosed condition.

A scoping review of OT practice with post-secondary students revealed that the most common interventions were supported education programs, assistive technology, and individual services provided through the counseling office (Keptner & McCarthy, 2020). Positive outcomes included higher enrollment in an academic program after participation, improved academic and social skills, more confidence, and increased competency in the student role (Keptner & McCarthy, 2020). For students with mental illness transitioning to post-secondary education, evidence supports goal setting, skill development, cognitive training, and student-directed planning in OT interventions (Spencer et al., 2018). However, more research is needed to determine best practices for transitioning interventions.

More evidence is needed regarding OT programs for college students; more robust evidence may pave the way to offer OT services to support college students (Keptner & McCarthy, 2020). In addition to the paucity of literature on college student mental health, there is a lack of identification of theoretical practice models used in OT in mental health interventions in general (Ikiugu et al., 2009). Most articles about OT interventions aimed at improving mental health and wellness in college students did not describe a theoretical framework, so it is challenging to discern whether or not the programs have solid theoretical foundations. In contrast, this dissertation explicitly describes the program and study's solid theoretical base of the OA practice model. More theory-based programs and evaluations of their efficacy are needed to help college students with their mental health needs. To that end, the research methods in this dissertation were designed to examine the effectiveness of a theory-based mental health intervention for college students.

Theoretical practice frameworks guide OTPs in helping clients overcome complex, individualized challenges (Ikiugu & Smallfield, 2011). OT practitioners must understand theoretical influences to evaluate the evidence, apply it to practice, and facilitate change in the client's occupational performance (Ikiugu & Smallfield, 2011). The Guidelines for Occupational Therapy Interventions based on Meaningful and Psychologically Rewarding Occupations were developed to guide clinicians to use theory in practice and to incorporate meaningful and psychologically rewarding occupations in mental health interventions (Ikiugu et al., 2019). The OT program in this dissertation followed the Guidelines for Occupational Therapy Interventions based on Meaningful and Psychologically Rewarding Occupations in addition to the OA theoretical model.

Chapter 3: Methods

This dissertation study explored the efficacy of a newly developed, theory-based mental health occupational therapy (OT) program. The study included a pre-program survey that examined college students' preferences for group sessions (discussion board, live sessions, or a combination of the two), scheduling preferences, and overall perception of an OT program delivered via telehealth. The pre-program survey aimed to inform the development and delivery of an OT program for college students. A pilot study preceded the main study to evaluate the feasibility and acceptability of the newly developed intervention and the assessments. The primary study in this dissertation evaluated the effectiveness of the program. An experimental pretest-posttest design evaluated changes in relative mastery scores, and a crossover design examined repeated measures of perceived stress.

Research Design and Methodology

This dissertation study included three design methodologies. The first methodology was a survey design that informed the delivery of the 4-week OT program. The electronic survey included closed and open-ended questions. The survey aimed to answer the following three research questions:

Q1: What are college students' preferences for the delivery modality of group OT mental health intervention?

Q2: What are college students' preferences for scheduling sessions in a telehealth-delivered OT mental health intervention?

Q3: What are college students' overall perceptions of telehealth-delivered OT mental health intervention?

Survey designs allow for quantitative and qualitative analysis of a population sample that may be generalizable to a larger population (Cresswell & Cresswell, 2018). A strength of survey design is the efficiency of collecting data from many participants in a relatively short time frame (Portney, 2020). Furthermore, survey methodology offers anonymity to participants, which may encourage them to provide honest answers, especially for sensitive topics such as mental health (Portney, 2020). The weaknesses of the survey design include response bias, low response rates, validity concerns due to memory recall issues, and misinterpretation of questions (Portney, 2020). Additionally, while surveys can establish associations, they do not establish causation between variables (Portney, 2020).

The rationale for the survey design in this dissertation was to gather quantitative and qualitative information from a sample of college students regarding their preferences for the delivery mode of group intervention, scheduling, and their overall perceptions about participating in an OT program for mental health. Results from this survey informed the development and delivery of the 4-week program. The survey was also a recruitment tool. The final question asked respondents to click on a link to a screening recruitment survey if they were interested in participating in the program and study.

The second design incorporated a quasi-experimental quantitative pretest-posttest design to evaluate participants' relative mastery of one occupation of their choosing, as indicated by scores on the Relative Mastery Measurement Scale (RMMS). The pretest-posttest methodology allows researchers to assess changes in the variable over time in a group of participants before and after the intervention (Portney, 2020). Strengths of the pretest-posttest design include ease of implementation and inclusion of a baseline (Portney, 2020). The pretest-posttest design is valuable in situations where it might not be feasible or ethical to have a control group (Portney,

2020). Weaknesses of this methodology include threats to internal validity; changes can be attributed to maturation, testing effects, or external events that occur during the study (Cresswell & Cresswell, 2018). The absence of a control group makes it challenging to determine if the effect was from the intervention or from other factors (Portney, 2020).

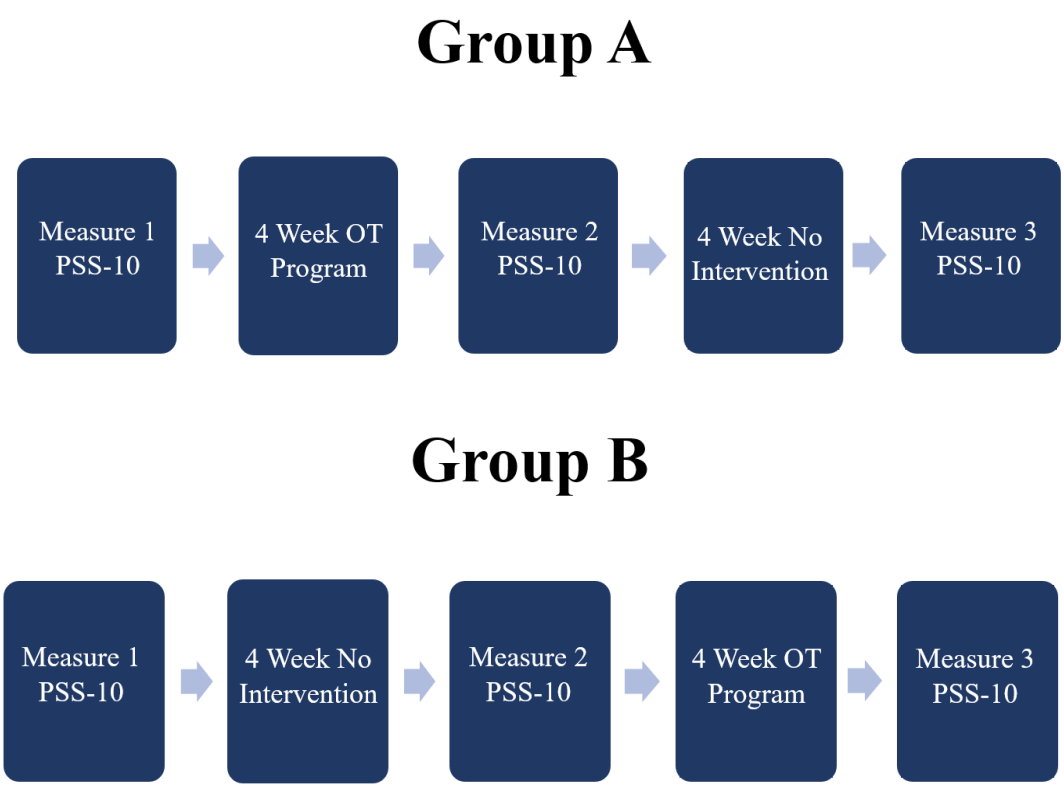
The pretest-postest design was deployed to measure relative mastery for practical purposes. A repeated-measures crossover design was used to measure perceived stress at three time points in the main study, but time constraints prohibited the administration of the RMMS in the orientation sessions at the beginning of the study. Therefore, all participants completed the RMMS in Week 1 of the intervention program and Week 4. This design addressed the following research question:

> Q4: How did the relative mastery of undergraduate college students change after the telehealth-delivered OT intervention?

The third design was an experimental repeated measures crossover design to examine perceived stress at three time points during the study. Experimental designs manipulate one or more variables to evaluate how the manipulation impacts one or more outcomes (Cresswell & Cresswell, 2018; Portney, 2020). Repeated measures design is an experimental design in which the subjects are tested under multiple conditions and act as their own control (Portney, 2020). Figure 3 depicts the repeated measures assessment of the 10-item Perceived Stress Scale (PSS-10), assessed three times in the main study.

Figure 3

Repeated Measures Assessment of the PSS-10



A strength of the crossover design is that since the variables are measured on the same participants, the risk of confounding is minimized (Cresswell & Cresswell, 2018; Portney, 2020). Thus, crossover designs require fewer participants than other designs, and the reduction in sample size is beneficial when recruitment is challenging or resources are limited (Heesen, 2020). Furthermore, selection bias is minimized because the participants are randomly assigned into groups (Cresswell & Cresswell, 2018).

Weaknesses of the crossover design are threats to internal validity, including maturation, instruments, and interaction of factors (such as maturation and instruments, etc.) (Cresswell & Cresswell, 2018; Dimitrov & Rumrill, 2003; Leedy & Ellis Ormrod, 2019; Portney, 2020).

Repeated measures crossover design is more prone to attrition since the design itself takes more time (Portney, 2020). Period effects can arise due to various factors, such as changes in environmental conditions, participant characteristics, or the natural progression of the condition being evaluated (Cresswell & Cresswell, 2018). Another threat is the Hawthorne effect; the participants may be more likely to improve when they are aware of being observed (Cook et al., 2002; Leedy & Ellis Ormrod, 2019; Portney, 2020).

As mentioned previously, it is unethical to provide one group with a known less effective intervention or withhold a beneficial treatment from one group (Portney, 2020). Repeated measures crossover design overcomes this ethical dilemma, enabling both groups to receive the treatment. In this experimental study, both groups participated in the 4-week intervention at different times.

Crossover design addressed the final research question:

Q5: What is the effect of a group OT intervention on perceived stress in undergraduate college students?

Survey

An anonymous survey incorporated a 5-point Likert scale to query the following: familiarity with OT, perception of the need for a mental health/wellness intervention for themselves or their peers, and the likelihood of participating in an OT program focused on mental health and wellness in college students (see Appendix E). The survey contained open-ended questions to gather perceptions of the potential benefits and challenges of an OT program focused on mental health and wellness in college students. Participants ranked their preferences for delivery methods for group intervention. The options included group discussions via secure discussion boards, live Zoom sessions with the same group of students during the same time each

week, live Zoom sessions with different students each week, and a combination of live sessions with discussions. Participants indicated their preferences for the best time of day to attend live sessions. The final question prompted participants to click on a link to the pilot study recruitment screening survey for more information if they were interested in participating in the intervention or if they had questions (see Appendix F).

Sample Size

The sampling method for the survey was a convenience sample of participants who were available and willing to complete the survey. In 2020, there were 7,103 undergraduate students enrolled at the midwestern university, which was the target population for recruitment for the survey. For populations larger than 5,000, a sample size of 400 to 500 is recommended (Leedy & Ellis Ormrod, 2019). Ideally, the sample size would include approximately 400 undergraduate students. However, the purpose of this survey was not to obtain results generalizable to a large population but rather to determine a feasible and acceptable design for an OT program. Therefore, the goal was to gather as many responses as possible from a general population of undergraduate college students during the three weeks the survey was open, with one initial email and two reminder emails.

Recruiting Procedures

Recruitment for the survey was via emails to the school, department, and program listservs at a midwestern university, social media platforms, and by word of mouth. The survey was open for three weeks.

Inclusion Criteria

Inclusion criteria for the survey were the following: undergraduate students 18 years or older, fluent in English, able to complete the survey independently, and access to a computer or

mobile device to complete the survey. Potential participants were excluded if they did not meet the inclusion criteria.

Data Collection & Analysis

Data collection for the survey was via Qualtrics XM software, Copyright © (2020). Responses from the anonymous survey were analyzed, and descriptive statistics were reported describing the preferences for group modality and the preferred time for live sessions. Open-ended questions were evaluated for themes.

Use of Survey Results

The survey results shaped the creation and implementation of the intervention program and research study in several crucial aspects:

1) Determining the format and duration of group sessions in the program delivery.
2) Addressing participant concerns and obstacles identified during the survey.
3) Tailoring participant recruitment strategies to communicate the focus of the program effectively.

Program Development

The program was developed based on an extensive literature review outlined in Chapter 2, insights gleaned from survey results, and practical considerations—the design aimed to accommodate deployment by a single OT researcher. Upon reviewing the literature, it was apparent that there was a notable gap in mental health services catering to a diverse student population (Keptner & McCarthy, 2020), with challenges faced by undergraduate students extending beyond their initial year (Keptner, 2017). Consequently, the program was designed to serve the broader undergraduate college demographic. In light of evidence from systematic

reviews emphasizing the effectiveness of group interventions within OT programs for college students, the program was crafted to incorporate a group intervention component.

Moreover, in adherence to client-centered principles, weekly individual sessions with the OT researcher were integrated into the program structure. In response to survey findings indicating scheduling and time commitments as primary concerns, the program duration was set at four weeks, as originally planned. The intent was to offer a shorter-term commitment that would likely be more feasible for students to undertake. This decision aimed to enhance student engagement by aligning with their scheduling constraints.

The program design included various evidence-based strategies, such as journaling for mindfulness, group discussions, time management techniques, study skills training, and promotion of rest and sleep. The individual sessions in the program were designed to include a structured framework encompassing evaluation, intervention planning and implementation, outcomes assessment, and discharge, following the model outlined by Ikiugu et al. (2019). Individual sessions within the program were tailored to focus on goal-setting and self-reflection, rooted in the Occupational Performance (OA) model. Concurrently, group sessions facilitated discussions exploring OA-based constructs such as person and environment factors, role expectations, and energy use. A comprehensive program integrity document, which was later revised based on pilot study results, was formulated to ensure consistency across participant and group experiences and served as a guiding framework (see Appendix G for the revised document).

Pilot Study

The pilot study aimed to evaluate the feasibility and acceptability of the program and assessments. Participants attended a synchronous orientation session in which they completed

pre-test assessments of the Relative Mastery Measurement Scale (RMMS) and the 10-item Perceived Stress Scale (PSS-10) via Qualtrics. Participants also completed the Pilot Study Participant Demographics and Characteristics Survey (see Appendix H). All participants participated in the intervention program in weeks 2 through 5 and completed the RMMS and PSS-10 in week 6. Participants in the pilot study completed an additional satisfaction survey in week 6 (see Appendix I). Specifically, the additional survey queried their satisfaction with the delivery mode of group intervention and the frequency and length of online sessions. The satisfaction survey also included open-ended questions regarding suggestions for improvement for the program. Intervention procedures in the main study were identical to those in the pilot study, except for administering the RMMS in Week 1 of the program instead of the orientation session and the changes recommended by participants in the pilot study, outlined later in this section. Feasibility measures included intervention and assessment acceptability based on the satisfaction survey, adherence, and retention rates.

Sample Size

The pilot study aimed to recruit approximately ten participants via a convenience sample. According to Cole (2017), the ideal group size is 7 to 8 participants, with 4 to 10 being acceptable. Nine participants enrolled in the pilot study. The participants were divided into two separate groups for the weekly Zoom sessions to accommodate schedules. The dropout rate for the pilot study was 11.1% (n=1); one participant withdrew after week two due to a family emergency. The remaining eight participants demonstrated 100% adherence to program procedures and 100% retention through the final week of the study.

Recruiting Procedures

Due to the limited enrollment target of ten participants for the pilot study, recruitment focused solely on undergraduate students from a single midwestern university. Recruitment methods included email, word of mouth, and the survey. Students who expressed interest in the study were sent a link to the screening survey and the consent form for the pilot study. DocuSign (2023) software was used to obtain signatures for the consent form. Pilot study participants were offered an incentive of a $10 Starbucks gift card and a drawing for a $20 Amazon gift card to be awarded upon completion of the program and assessments. A School of Health Sciences Research and Scholarship Seed Grant funded the gift cards.

Inclusion Criteria

Inclusion criteria for the pilot study included the following: undergraduate students at a university in one state, fluent in English, able to complete assessments independently, and having access to a computer or mobile device with webcam and microphone capabilities. Participants had to consent to a plan to complete the assessments at weeks 1 and 6 and attend the intervention for four weeks. The participants had to be physically located in the state identified for all the synchronous intervention sessions, as the researcher held a license to practice OT in only one midwestern state. Potential participants were excluded if they did not meet the inclusion criteria.

Instruments and Measures

Relative Mastery Measurement Scale

George et al. (2004) developed the Relative Mastery Measurement Scale (RMMS) to measure relative mastery, a construct in Occupational Adaptation (OA) theory. Relative mastery is the self-assessment of the client's response relative to achievement of efficiency, effectiveness,

and satisfaction (Schkade & Schultz, 1992). The RMMS is a 12-item dichotomously rated measurement in which individuals rate their effectiveness, efficiency, and satisfaction with themselves and others regarding their occupational functioning. Scores on the 12-item RMMS range from 12, which represents the greatest degree of relative mastery possible, and 0, which represents the least degree of relative mastery possible (George et al., 2004). Six positively worded statements (2, 3, 5, 7, 10, and 12) and six negatively worded statements (1, 4, 6, 8, 9, and 11) represent each of the three aspects of relative mastery, which are rated as "agree" or "disagree" by the participant. Statements 2, 4, 9, and 10 assess efficiency; statements 1, 6, 8, and 12 assess effectiveness; and statements 3, 5, 7 and 11 assess satisfaction (George et al., 2004). The five experts on the OA model statistically evaluated the content validity of the RMMS (George et al., 2004). The final instrument had an acceptable correlation coefficient of 0.95. Rasch analysis and traditional statistics examined construct validity and reliability. Reliability and validity were supported by goodness-of-fit statistics, point-biserial correlations, and factor analysis (George et al., 2004).

Perceived Stress Scale

The Perceived Stress Scale is a 10-item scale (PSS-10) that evaluates perceived stress experience in adults (Cohen et al., 1983). The PSS-10 is the most widely used assessment for measuring perceived stress and queries how unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen et al., 1983). In a normative sample, Cronbach's α ranged from 0.84 to 0.86 (Cohen et al., 1983). Reliability and validity of PSS-10 scores in similar populations have been established (Cohen et al., 1983). In a review of studies that use the PSS-10, Lee (2012) found that Cronbach's alpha was evaluated at >0.70 in all 12 studies. The test-retest reliability of the PSS-10 in four studies met the criterion of >0.70 in all studies (Lee,

2012). The reliability and validity of the PSS-10 in a sample of college students was confirmed by Roberti et al. (2006). A systematic review and meta-analytic confirmatory factor analysis of the PSS-10 found that it was a valid measurement tool to measure perceived helplessness and self-efficacy, distinguishing features of subjective perceived stress (Yılmaz Koğar & Koğar, 2024).

A higher score indicates a greater degree of perceived stress, and PSS-10 scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. The PSS-10 queries as to how often over the past month respondents have felt or thought about each of the 10 items on a 5-point Likert scale (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, and 4 = very often). Six items are negatively worded (e.g., "How often have you been upset because of something that happened unexpectedly?"), and four are positively phrased (e.g., "How often have you felt that you were on top of things?"). A total PSS-10 score is obtained by reverse scoring the four positively worded items and then adding the scores for all ten items (Cohen & Williamson, 1988). Scores on the PSS can range from 0 to 40. Higher scores indicate higher perceived stress. Low Scores ranging from 0-13 are considered low stress. Scores ranging from 14-26 are considered moderate stress. Scores ranging from 27-40 are considered high perceived stress (Cohen & Williamson, 1988).

Data Collection & Analysis

To de-identify the data, each participant created a unique identifier number to complete the pilot study surveys. The survey included 5-point Likert questions regarding the adequacy of the orientation session, the quality of the individual sessions, the frequency of the individual sessions, the length of the individual sessions, the quality of the group sessions, the number of

group sessions, the time it took to complete the sessions, and the overall experience as a participant. Each Likert question was followed by an open-ended prompt for participants to comment. The final four open-ended questions asked participants what they liked about the program, what they would like to see changed, what they liked about the research process, and what they would like to see changed about the research process. Qualtrics XM software (2020) analyzed the data collected from the pilot study surveys. The researcher downloaded data from Qualtrics XM (2020) into Excel files stored in a password-protected file. Descriptive statistics were reported for all queries. Responses to the open-ended questions underwent evaluation for themes.

Pilot Program Protocol

The program was delivered via HIPAA-compliant Zoom software (Zoom Video Communications, 2023). It consisted of four weeks of intervention with one individual online session each week with the OT researcher, one group session, and an assignment of activities for participants to complete on their own in between sessions. The individual live Zoom sessions were approximately 30 minutes, except for the first meeting, which was approximately 1 hour long. The group sessions were approximately 1 hour. The sessions were live via Zoom, as directed by the dissertation study survey results. The OA theoretical framework (Schkade & Schultz, 1992) and the Guidelines for Meaningful and Psychologically Rewarding Occupations (Ikiugu et al., 2019) informed the development and delivery of the intervention sessions. The OT researcher devised a Program Integrity Plan to maintain program consistency while employing personalized and client-centered treatment methods.

All participants attended an orientation session, individually or in small groups, during the first week, depending on participant schedules. The orientation session consisted of an

overview of the program, administration of the PSS-10 (pre-test) and the Demographics and Characteristics Survey, and a Group Code of Conduct discussion with attestation (Breeskin, 2011) (see Appendix J). During the orientation session, the OT researcher provided participants with mental health resources and the number to the National Suicide Prevention Hotline and website address (988 Suicide & Crisis Lifeline, n.d.). In the first week of intervention, the OT researcher collaborated with participants in their initial session to create personalized occupational profiles using the template (see Appendix B) (American Occupational Therapy Association [AOTA], 2020a). Participants completed the Meaningful and Psychologically Rewarding Occupation Rating Scale (MPRORS) to determine their meaningful and psychologically rewarding occupations (Ikiugu et al., 2021) (see Appendix A). In addition, participants focused on one occupation to complete the RMMS. Group sessions in the first week of the intervention included discussing person and environment factors.

In the second week of intervention, individual sessions focused on the occupation the participants evaluated on the RMMS, including an in-depth discussion of occupational performance issues and balance. Each week, the OT researcher provided the participants with an assignment of individualized activities aimed at addressing occupational performance issues. Group discussion in the second week of intervention focused on motivation and role expectations, including self-expectations and others' expectations. Individual sessions in the third week of intervention focused on adaptive response generation or identifying meaningful changes for improved occupational performance. Group discussions in the third week of intervention were about energy levels, including primary and secondary energy discussions. In the final week of intervention, individual sessions focused on self-feedback, including self-reflection on performance and identifying possible future changes. Group sessions in the final week of

intervention involved discussion of evaluating responses, changing habits, and rewards. In addition to the discussion topics listed above, program topics included stress management, procrastination, studying, and sleep. An outline of the pilot study program and assessments is presented in Table 2.

Table 2

Pilot Study and Program Outline

Study Week	Program Week	Individual Live Zoom with OTP	Group Zoom Activities/Discussion
Week One (Orientation)		Overview of Program PSS-10 Demographics/Characteristics Survey Code of Conduct Attestation	
Week Two	Week One	Occupational Profile RMMS for One Occupation MPRORS Identification of Goals	Person and Environment Factors
Week Three	Week Two	Occupational Performance Issues Response to Challenges	Role Expectations
Week Four	Week Three	Adaptive Response Generation	Energy Levels
Week Five	Week Four	Self-Feedback	Evaluating Responses
Week Six	Week Five	RMMS for One Occupation PSS-10	

Use of Pilot Study Results

Results from the pilot study offered insights into participant perceptions and experiences and provided valuable feedback that was used to refine the main study protocols and procedures. Changes included preventing awkwardness during the group sessions by using the *Raise Hands* feature of Zoom and by taking turns speaking in the group sessions, follow-up emails with reminders of specific activities, and addition of other activities besides journaling to the program integrity documents (Zoom Video Communications, 2023). Based on feedback from the pilot study, no change was made to the length and frequency of individual and group sessions. Upon analysis of the pilot study findings, it emerged that the demographic survey did not include an identifier question. Therefore, the demographic survey for the main study was revised to include a query for a unique identifier (see Appendix K). There were time constraint issues in completing the RMMS during orientation, so the program integrity documents were changed to administer the RMMS assessment during the program's first week. An IRB modification was submitted to reflect this change in assessment timing for the main study. Changes were made to the discussion questions on the program integrity document to be more specific and to make the program integrity documents easier to use (see Appendix G).

Main Study

The main study included the same assessments and the same intervention procedures as the pilot study, with the addition of a third measurement at Week 11 for the PSS-10. While the pilot study included only one group of participants, the experimental study included two randomized groups of participants. Furthermore, the main study's recruitment procedures differed from the pilot study's to obtain a larger sample size of students from across the state. An

outline of the main study program and assessments for Group A and Group B are presented in Tables 3 and 4, respectively.

Table 3

Group A Program and Assessments

Study Week	Program Week	Individual Live Zoom with OTP	Group Activities/ Discussion
Week One (Orientation)		Overview of Program PSS-10 Demographics/ Characteristics Survey Code of Conduct Attestation	
Week Two	Week One	Occupational Profile RMMS for One Occupation MPRORS Identification of Goals	Person and Environment Factors
Week Three	Week Two	Occupational Performance Issues Response to Challenges	Role Expectations
Week Four	Week Three	Adaptive Response Generation	Energy Levels
Week Five	Week Four	Self-Feedback	Evaluating Responses
Week Six		RMMS for One Occupation PSS-10	
Week Seven		No Intervention	
Week Eight		No Intervention	
Week Nine		No Intervention	
Week Ten		No Intervention	
Week Eleven		PSS-10	

Table 4

Group B Program and Assessments

Study Week	Program Week	Individual Live Zoom with OTP	Group Activities/ Discussion
Week One (Orientation)		Overview of Program PSS-10 Demographics/ Characteristic Survey Code of Conduct Attestation	
Week Two		No Intervention	
Week Three		No Intervention	
Week Four		No Intervention	
Week Five		No Intervention	
Week Six		PSS-10	
Week Seven	Week One	Occupational Profile RMMS for One Occupation MPRORS Identification of Goals	Person and Environment Factors
Week Eight	Week Two	Occupational Performance Issues Response to Challenges	Role Expectations
Week Nine	Week Three	Adaptive Response Generation	Energy Levels
Week Ten	Week Four	Self-Feedback	Evaluating Responses
Week Eleven		RMMS PSS-10	

Sample Size

Sampling for the main study involved non-probability convenience sampling, targeting undergraduate students from one midwestern state's public and private universities. As per the state's 2023 Board of Regents website, the total number of undergraduate students at the six public universities was approximately 28,000. In addition, there were five private four-year universities in the midwestern state, with an enrollment of approximately 7,000 students (College Simply, 2024).

The relative mastery variable required a minimum sample size of 101 for a paired t-test and 106 for a Wilcoxon Signed Rank test to achieve 80% power with a medium effect size (0.25) and an alpha value of 0.05. For the perceived stress variable, a minimum sample size of 54 was required for a mixed ANOVA with 80% power, effect size of 0.25, and alpha of 0.05. The sample size was limited by the constraints posed on a single OT researcher to provide the services in the program. Given that the intervention required individual live sessions with only one OT researcher, including a maximum of 40 participants was feasible.

Recruiting Procedures

For the main study, the recruitment of undergraduate students at four-year public and private universities was completed via email, personal and university social media, such as Facebook pages, flyers posted around campuses, and word-of-mouth. A consent form accompanied the recruitment emails and a link to the Main Study Screening Survey, which was identical to the Pilot Study Screening Survey (see Appendix F). Provosts, deans of students, chairs, and program directors at four public universities granted permission to send the recruitment email to the general student listserv. One public university reported that using the

general student listserv was against policy, but it approved the use of individual school, department, and program listservs. One public university did not respond. Two private institutions approved of sending emails to students and flyers. Three private institutions did not respond. Students who expressed interest in the study were sent a link to the screening survey and the consent form for the main study. Signatures for consent were collected using DocuSign (2023) software. The main study participants were offered an incentive of a $10 Starbucks gift card and a drawing for a $20 Amazon gift card, which were to be awarded upon completion of the program and assessments. A School of Health Sciences Research and Scholarship Seed Grant funded the gift cards.

Inclusion Criteria

The inclusion criteria for the main study were as follows: undergraduate students in a midwestern state, fluent in English, able to complete assessments independently, and having access to a computer or mobile device with webcam and microphone capabilities. Participants had to consent to a plan to complete the assessments over 11 weeks and attend the four-week intervention sessions. The participants had to be physically located in the midwestern state for all the synchronous intervention sessions, as the researcher held a license to practice OT in only that state. Potential participants were excluded if they did not meet the inclusion criteria. Participant data were excluded from analyses if the participant missed more than one group session or more than one individual session.

Data Collection Procedures

Assessment surveys were created and distributed using Qualtrics XM (2020) software.

Data Analysis

The researcher used IBM Statistical Package for the Social Sciences (SPSS) to perform analyses on the data (SPSS Statistics [28.0], 2021). Winsorization was applied to address potential outliers in the analysis of the overall RMMS scores and the subscales of effectiveness and satisfaction, following the method proposed by Winsor (1932). Notably, the assumption of normality was compromised due to substantial skewness in post-RMMS, post-effectiveness, and post-satisfaction scores. Consequently, the Wilcoxon signed-rank test, a non-parametric alternative, was utilized to assess the significance of score changes in these domains (Portney, 2020). The Wilcoxon signed-rank test, a robust non-parametric method, was employed to evaluate the significance of changes in scores for overall RMMS, effectiveness, and satisfaction (Portney, 2020). This test is particularly suitable for data with violated assumptions of normality and is robust against outliers, making it an appropriate choice for skewed datasets (Portney, 2020). In contrast to the overall RMMS and the other two sub-scores, efficiency met the assumptions of parametric tests, displaying no significant skewness or outliers. Thus, a paired t-test was conducted to compare pre-test and post-test efficiency scores, leveraging the robustness of parametric tests under normality assumptions (Portney, 2020).

For the variable of perceived stress, a mixed ANOVA was conducted on the Winsorized dataset to explore the intervention's effects, as measured by the PSS-10 (Cresswell, 2015). This statistical approach allowed for the examination of within-subjects and between-subjects effects, offering insights into the impact of the intervention over multiple time points and across the two groups (Leedy & Ellis Ormrod, 2019).

Ethical Considerations and Review

The university's Institutional Review Board (IRB) approved the protocol for the survey, the pilot study, and the main experimental study. Consent was obtained according to university IRB-recommended protocols. Participant data was de-identified and kept in a password-protected laptop. All sessions were held in private spaces with HIPAA-compliant Zoom software (Zoom Video Communications, 2023). During the intervention, participants shared experiences and thoughts about mental health and wellness topics. These may have been sensitive topics for participants, so they were informed throughout the eleven weeks, both verbally and in written form, that they were free to excuse themselves from any part of the intervention or study at any time. In addition, all participant information was kept confidential according to HIPAA and FERPA guidelines. The orientation session included education regarding the importance of confidentiality of group discussions and the code of conduct during group discussions. Participants were informed that if any participant breached confidentiality or was inappropriate or disruptive during a group session, they would be withdrawn from the study immediately. A detailed safety plan was designed in case a participant demonstrated they were a threat to themselves or others. Treatment continued for the participants, even if they missed sessions or did not complete all the assessments. A waiting room was used for online sessions to protect individuals who were not part of the study from joining. The recruitment gift cards had minimal monetary value, so they were not an undue influence.

Summary of the Chapter

In summary, this dissertation involved developing, delivering, and evaluating a novel approach that addressed mental health in college students. The survey design provided data that informed the delivery of the intervention. A pilot study examined the feasibility and acceptability

of the main study, which employed a quasi-experimental pretest-posttest design and an experimental, crossover randomized control group design. The methods aimed to examine the effectiveness of the novel, theory-based program designed to promote mental health and wellness in undergraduate college students.

Chapter 4: Results

This dissertation study comprised three phases: a survey, a pilot study, and a main study. The survey gathered data on college students' perceptions of an occupational therapy (OT) program and their likelihood of participating. The pilot study examined the feasibility and acceptability of the program and the study procedures. The main study evaluated the effect of the intervention program with a pretest-posttest design, with four dependent variables: the overall Relative Mastery Measurement Scale (RMMS) scores and the associated sub-scores of efficiency, effectiveness, and satisfaction with participant occupational performance. The main study also evaluated perceived stress levels, as evidenced by the scores obtained from repeated measures of the PSS-10. Before conducting the statistical analyses, assumptions were tested, including normality of data distribution and identification of extreme outliers to ascertain the suitability of parametric and non-parametric tests for each variable. This chapter presents the findings derived from three phases of this investigation: the survey, the pilot study, and the main study.

Survey Results

A total of 71 students participated in the survey (see Appendix E). All participants completed the Likert questionnaire (items assessing familiarity with OT, likelihood of participating, and perception of necessity); 49 completed the item assessing preference for modality, and 51 completed the item inquiring about scheduling preferences.

Familiarity with OT

Participants were asked to rate their familiarity with OT. The responses varied, with 7.1% (n=5) indicating that they were extremely familiar with OT, 16.9% (n=12) indicating being very

familiar, 35.2% (n=25) indicating moderate familiarity, 26.8% (n=19) indicating slight familiarity, and 14.1% (n=10) reporting not being familiar at all with OT.

Likelihood of Participating in a Program

When asked, "How likely would you be to participate in a 4-week telehealth-delivered OT program focused on mental health and wellness for college students?" the responses were as follows: 23.9% (n=17) extremely likely, 40.9% (n=29) somewhat likely, 12.7% (n=9) neither, 18.3% (n=13) somewhat unlikely, and 4.2% (n=3) extremely unlikely to participate.

Based on their responses to the open-ended question, factors impacting participants' likelihood to participate included the program's potential to assist with mental health struggles, concerns about time constraints and the need for program flexibility, general interest and desire to learn, preference for in-person services, disinterest or perceived lack of need, and anticipated acquisition of future skills and healthy habits. Table 5 outlines these themes and their frequency.

Table 5

Likelihood of Participating

Explained Likelihood of Participating N = 71	
Supportive Explained Likelihood	Frequency of Comments
Improves mental health	21
Interesting / learn new things	7
Provides skills for the future / healthy habits	3
Opposing Explained Likelihood	
Lack of free time / worried about schedule	19
Prefers face-to-face compared to telehealth	6
I don't need it / not interested	6

Perception of Necessity

When asked, "Do you agree or disagree with the following statement: A mental health and wellness intervention is needed for myself and/or my peers?" 46.5% (n=33) strongly agreed, 35.2% (n=25) somewhat agreed, 12.7% (n=9) neither agreed nor disagreed, 4.2% (n=3) somewhat disagreed, and 1.4% (n=1) strongly disagreed.

Perception of Potential Benefits and Challenges

Respondents identified potential benefits of a 4-week OT program as improved mental health and reduced stress, developing healthy habits, bringing awareness to mental health/reducing stigma, sharing with others, learning about self, short duration of the program, and expanding mental health resources. The most frequently reported challenge was finding time/scheduling, followed by concerns about stigma and difficulty sharing mental health issues. Some participants did not understand how OT could address their problems, as indicated by comments such as, "I don't have a good explanation of what OT means in this application." Additional challenges included Zoom communication/internet connectivity issues and suggestions for broader program content beyond OT. Perceptions of potential benefits and challenges are presented in Table 6.

Table 6

Perceived Potential Benefits and Challenges of the Program

Potential Benefits	Frequency of Comments
Improve mental health and reduce stress	27
Develop healthy habits	13
Brings awareness to mental health / reduces stigma	9
Sharing with others	9
Learn about self	4
Short duration	4
Expands mental health resources	3
Potential Challenges/Problems	
Time commitment / scheduling	17
Stigma/difficulty in sharing with new people	15
Not understanding how OT could address challenges	6
Zoom communication / Internet connectivity challenges	5
Should include more than OT to be useful	2

Preference for Modality

Forty-nine participants responded to the item inquiring about presentation modality preference. Preferred modality was identified if the participant selected it as their first or second preferred option. There was a clear preference for one-hour group sessions conducted live on Zoom with the same group of students for the program's duration, with a set time each week (n=35). Other preferred modalities included one-hour group sessions live on Zoom with potentially different peer participants and flexible meeting times (n=30). The two least popular selections were group discussions in a secure online discussion board, completed at any time

during the week (n=19), and a combination of group discussions with discussion board activities (n=14).

Scheduling Preferences

In response to the item: "What is the best time of day to attend live sessions? (Select all that apply)", the most respondents were available on late afternoon Tuesdays (n=20), late afternoon Mondays (n=19), late afternoon Wednesdays (n=18), Sunday evenings (n=18), and late afternoon Thursdays (n=17). Additionally, 16 participants indicated their availability for live sessions on Tuesday and Wednesday evenings. Upon examination of the time of day, evening sessions were most popular regardless of the day of the week, and late mornings were the least popular selection. The participants were asked to indicate all availability, and the responses were as follows: early morning (n=45), late morning (n=37), early afternoon (n=53), late afternoon (n=98), and evening (n=105).

Use of Survey Results

Results from the survey informed the development and delivery of the intervention program and research study in the following key areas. Based on participant preferences and concerns identified in the survey:

1. The program design included one-hour group sessions conducted live on Zoom with the same group of students for the duration of the program, with a set time each week.
2. The OT researcher was available for late afternoon and evening sessions. In addition, recruitment materials indicated that the program would have flexible scheduling.

3. The recruitment materials included specific information about issues the OT program could address (stress management, procrastination, time management, rest and sleep, and study habits).

Pilot Study Results

Nine participants from one midwestern university enrolled in the pilot study. One participant (11.1%) withdrew after week two due to a family emergency. The remaining 8 (88.9%) participants demonstrated 100% adherence to program procedures and 100% retention through the final week of the study. According to Moore et al. (2011), pilot and feasibility studies can help estimate attrition rates and can follow general rules for attrition bias. Studies with an attrition rate of 5% or less are at a low risk for bias, and studies with attrition of 20% or more are at a higher risk of attrition bias (Babic et al., 2019). At the end of the pilot study, the eight participants completed a survey to evaluate the following: adequacy of the orientation session, the time required to complete the assessments, individual sessions, group sessions, their overall experience in the program, and the research study activities (see Appendix I).

Participant Characteristics

Pilot study participants were queried for the following characteristics: grade level (freshman, sophomore, junior or senior), coursework (all online, mostly online, equal mix of online and in-person, mostly in person, or all in-person), gender (male, female, non-binary/third gender, or prefer not to say), age in categories (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, or 85 or older), and mental health diagnosis (yes or no) (see Appendix H).

The nine participants in the pilot study included 1 (11.1%) freshman, 6 (66.7%) juniors, and 2 (22.2%) seniors. There were 2 (22.2%) male participants, 4 (44.4%) female participants, 2

(22.2%) individuals identifying as non-binary/third gender, and 1 (11.1%) participant who preferred not to disclose their gender. Regarding the nature of their coursework in college, responses varied, with 1 participant reporting mostly online coursework, 5 (55.5%) participants indicating mostly in-person coursework, and 3 (33.3%) respondents reporting all in-person coursework. All participants fell within the age category of 18 to 24 years old. Additionally, 5 (55.5%) participants indicated that they had been diagnosed with a mental health condition.

Orientation Session

Participants were asked to evaluate the adequacy of the orientation session in preparing them for the study. On a 5-point Likert scale, 75.0% (n=6) respondents rated it as extremely adequate, while 25.0% (n=2) rated it somewhat adequate. All comments (n=5) about the orientation session were positive, with statements such as "The orientation session was very clear. It laid out each step of the study and set expectations" and "I think it was very straight forward and organized. I think we were given all of the information and there were no major surprises".

Assessments

Most participants were satisfied with the time required to complete the assessments, with 87.5% (n=7) reporting extremely satisfied, and 12.5% (n=1) were neither satisfied nor dissatisfied. Comments about the assessments were largely positive (n=5), with one participant suggesting a shift towards more feeling instead of task-oriented questions as indicated in the statement: "They were nice and short but maybe word the questions to be more feeling-oriented instead of task-oriented."

Individual Sessions

In assessing the quality of individual sessions with the occupational therapist, 87.5% (n=7) participants were extremely satisfied, while 12.5% (n=1) were somewhat satisfied. Feedback on these sessions was predominantly positive and included statements such as: "I enjoyed these sessions. I felt that I learned good techniques to complete the task at hand. It was also nice to discuss what was stressing me out." Some participants offered suggestions for improvement, such as increased session content and a more personalized experience over Zoom, stating: "I wish we could've done a little bit more, but overall, it was good" and "A little weird over Zoom, it felt less personal but for such a big study I guess it didn't really need to feel super personal." Regarding the frequency of individual sessions, 100% (n=8) of participants preferred maintaining the current frequency of once per week. Additionally, opinions on the length of the 30-minute sessions varied, with 62.5% (n=5) reporting they were adequately timed and 37.5% (n=3) indicating a preference for slightly longer sessions.

Group Discussions

Participants were asked about their satisfaction with the quality of group discussions and activities. 62.5% (n=5) were extremely satisfied, 25.0% (n=2) were somewhat satisfied, and 12.5% (n=1) were somewhat dissatisfied. Three participants provided feedback that was positive, including statements such as:

> "I think the group of people that we got to work with were very open and respectful. I think that we had good discussions and I appreciated being able to talk to and learn from people in the same position as me…The sessions were thought-provoking and I think I got a lot out of them."

Suggestions for enhancing group cohesion and communication dynamics on Zoom included: "It would be nice if there was more consistent input from more of the group." One participant reported that it was difficult to know when to talk on Zoom and suggested using the Raise Hand feature of Zoom and calling on participants to lessen anxiety about knowing when to speak. Opinions on the amount of group discussion varied, with 12.5% (n=1) indicating that it was slightly too much, 75.0% (n=6) were neutral, and 12.5% (n=1) thought it was slightly too little.

Overall Experience in the OT Program

Regarding satisfaction with the program, 50.0% (n=4) of participants indicated extreme satisfaction, and 50.0% (n=4) were somewhat satisfied. When asked: "What did you like about the OT program?" responses included group sessions, the structured nature of the program, scheduling options, and strategies for stress management. Two participants were satisfied with the blend of group and individual sessions, stating: "I liked the discussion topics we had during our group sessions. I also enjoyed that there was a group and individual component."

When asked: "What would you like to see changed about the OT program?" the response was a need for clearer instructions on weekly activities as indicated by the statement: "More guidance of the conversation for the OT therapist. There were times when I didn't quite understand what was expected of me." Other suggestions were to include more activities to work on during the week (n=1), ask more questions for group discussion (n=1), and provide the group discussion questions ahead of time so they could prepare for discussion (n=1).

Research Study Activities

Participants provided feedback on participating in the research study. When asked: "What did you like about the research study process?" two participants commented about the simplicity of the assessments, and two participants commented that they enjoyed the learning experience of being in a research study. Other feedback indicated that the question may have been confusing, with comments regarding the program instead of research study activities, such as recruitment, consent, and assessment procedures. For example, the following comments were more about the program: "I enjoyed the mix of customized individual sessions and more general group sessions" (1 comment), "being able to identify challenges and work on them" (1 comment), and "feeling heard" (1 comment). One participant reported satisfaction with the amount of time the study took, reporting that it was not overly time-consuming (1 comment). When asked: "What would you like to see changed about the research study process?" recommendations included developing a more defined progress tracking (1 comment), including emotional progress evaluations, not just task progress (1 comment), more frequent assessments (1 comment). Results again indicated that there may have been some confusion with the question, with one participant offering suggestions for more activities to work towards goals. Four participants did not have any suggestions for improvement of the research study activities.

Use of Pilot Study Results

Results from the pilot study offered insights into participant perceptions and experiences and provided valuable feedback to refine the main study protocols and procedures. Specifically, the following approaches were implemented in the main study:

1. The Raise Hand feature of Zoom and taking turns was incorporated to prevent awkwardness and assist participants in knowing when to talk in group Zoom sessions.
2. Follow-up emails were sent to participants after each session to provide more activities and guidance and remind them of the specific activities they were to complete before the next session. Progress was discussed in detail during individual sessions.
3. The program in the main study was implemented as originally planned, with once-per-week group sessions for approximately one hour and once-per-week individual sessions for approximately 30 minutes.

Upon analysis of the pilot study findings, it was discovered that the demographic survey did not include an identifier question. Therefore, the demographic survey for the main study was revised to include an item requiring participants to use a unique identifier. In addition, it was apparent that there was not enough time for participants to complete the RMMS during the orientation session. The study was modified to include completion of the RMMS during the first and last week of the program. Next, some participants were not interested in journaling. Therefore, program integrity documents were revised to indicate *journaling or other activities*. Finally, a topic that arose frequently in the pilot program was *getting/being organized*. This discussion topic was added to a group session, and the program integrity document was revised accordingly (see Appendix G).

Main Study Results

A total of 41 participants signed consent forms for the main study; as participants withdrew before the start of the study, they were replaced with eligible participants. Nine participants dropped out during the recruitment period before the orientation session. Attrition in the main study was 22.0%. The remaining 32 participants from 5 public and private universities

in a midwestern state completed the program and study. There were 18 participants in Group A, who began the program immediately, and 14 in Group B, who started the program at week 7. Groups A and B were each subdivided into three smaller groups to accommodate participants' schedules for group Zoom sessions. Two participants in Group A and one from Group B missed more than one group or individual session. They were allowed to continue the program and study, but their data were excluded from analyses. The OT researcher monitored treatment integrity throughout the study by following a program integrity protocol with checklists for each individual and group session. Treatment integrity, or treatment fidelity, is the degree to which the intervention was delivered as intended and is essential to establish internal validity (Cox et al., 2019). High treatment integrity may be represented by 80-100% adherence, whereas low integrity is noted at 50% or less (Perepletchikova & Kazdin, 2005). The overall treatment for the main study intervention was 88.0%, indicating a high level of adherence to the program procedures (Perepletchikova & Kazdin, 2005).

Participant Characteristics

The 32 participants in the study included 12 (37.5%) freshmen, 7 (21.9%) sophomores, 6 (18.8%) juniors, and 7 (21.9%) seniors. There were 22 (68.8%) females, 7 (21.9%) males, and 3 (9.4%) non-binary/third gender. Regarding the nature of their coursework in college, 19 (59.4%) reported all in-person coursework, 8 (25.0%) reported mostly in-person coursework, 3 (9.4%) reported an equal mix of in-person and online coursework, and 2 (6.3%) reported all online coursework. Thirty participants (93.8%) were 18 to 24 years old, with 1 (3.1%) age 25 to 34 and 1 (3.1%) age 35 to 44. Half of the participants (n=16) reported having a mental health diagnosis. The 32 participants were randomly assigned to either Group A or Group B.

Occupations

All participants selected occupations on which they focused in the individual sessions. They rated their mastery of these occupations before and after the program using the RMMS. They selected the following occupations:

- Group A, intervention-first group (n=16): studying (n=5), time management (n=4), stress management (n=3), exercise (n=1), confidence (n=1), handwriting (n=1), and motivation (n=1)
- Group B, intervention second group (n=13): time management (n=4), stress management (n=3), studying (n=3), exercise (n=1) socializing (n=1), and sleep (n=1)

Outliers and Assumptions Analysis of RMMS and Subscores

Pretest and posttest RMMS data for both groups was aggregated. No between-group analysis was completed on the RMMS data. Inspection of the data set for outliers revealed three extreme outliers (above the 95th or below the 5th percentile) in the posttest RMMS data, four in the posttest effectiveness data, and three in the posttest satisfaction data. To mitigate the influence of outliers on the statistical analysis of these variables, the affected data was winsorized at the 95th percentile (90% winsorization), following the method proposed by Winsor (Winsor, 1932). This constituted assigning the 95th percentile score to any dataset above the 95th percentile and the 5th percentile score to any dataset below the 5th percentile. The assumption of data distribution's normality was violated due to the posttest RMMS, effectiveness, and satisfaction variables (skewness=1.202, -1.252, and -1.042, respectively). The Wilcoxon signed-ranks test, a non-parametric test, was used to determine the statistical significance of changes in RMMS, effectiveness, and satisfaction following the intervention.

The efficiency variable displayed no outliers in the data set and met the statistical assumptions of normality of data distribution, independence of observations, and sphericity. A paired samples t-test was conducted to determine if there was a statistically significant change in this variable after intervention.

Statistical Analysis of RMMS, Efficiency, Effectiveness, and Satisfaction. The Wilcoxon Signed Ranks Test indicated a statistically significant increase in scores on relative mastery as measured on the RMMS, $z = 4.60$, $p < .001$, (pretest Mdn = 4, posttest Mdn = 10). A paired samples t-test indicated a statistically significant change in efficiency scores as measured on RMMS after intervention, $t(28) = 3.56$, $p < .001$, pretest mean = 1.52 (SD = 1.15), posttest mean = 2.52 (SD = .99). A Wilcoxon Signed Rank test indicated improved effectiveness following intervention, $z = 4.68$, $p < .001$ (pretest Mdn = 1, posttest Mdn = 4). Similarly, there was a statistically significant increase in satisfaction $z = 4.68$, $p < .001$ (pretest Mdn = 1, posttest Mdn = 4).

Outliers and Assumptions Analysis of PSS-10 Scores

Inspection of the data set for outliers revealed one outlier in the post-1 PSS 10 data (2nd time point of the 3 time points). There were no outliers in the post-2 PSS 10 data (3rd time point). The winsorizing technique was used for the post-1-PSS-10 data (Winsor, 1932).

Statistical Analysis of PSS-10 Scores. A mixed analysis of variance (ANOVA) was performed to determine the main effect of group (Group A: Intervention-first group or Group B: Intervention-last group) and time (Week 1, Week 6 and Week 11) on perceived stress. No significant main effects or interactions were found. Specifically, the time x group interaction ($F(2,54) = 0.60$, $p > .05$), the main effect for time ($F(2,54) = 1.53$, $p > .05$), and the main effect for

group (F (1,27) = 2.10, p = >.05.) were not significant. PSS-10 scores were not influenced by either time or group. A paired t-test was performed to explore the increase in scores from Week 6 to Week 11 for Group A. The increase in Group A's PSS-10 scores between Week 6 and Week 11, t (15) =0.528, p > .05 was not significant. Similarly, a paired t-test was performed to explore the decrease in scores from Week 1 to Week 6 for Group B. The decrease in Group B's PSS-10 scores between Week 1 and Week 6, t (12) = -.406, p >.05, was not significant. Descriptive statistics for the PSS-10 scores are presented in Table 7, and a graphic depiction of changes in mean scores for each group is presented in Figure 4.

Table 7

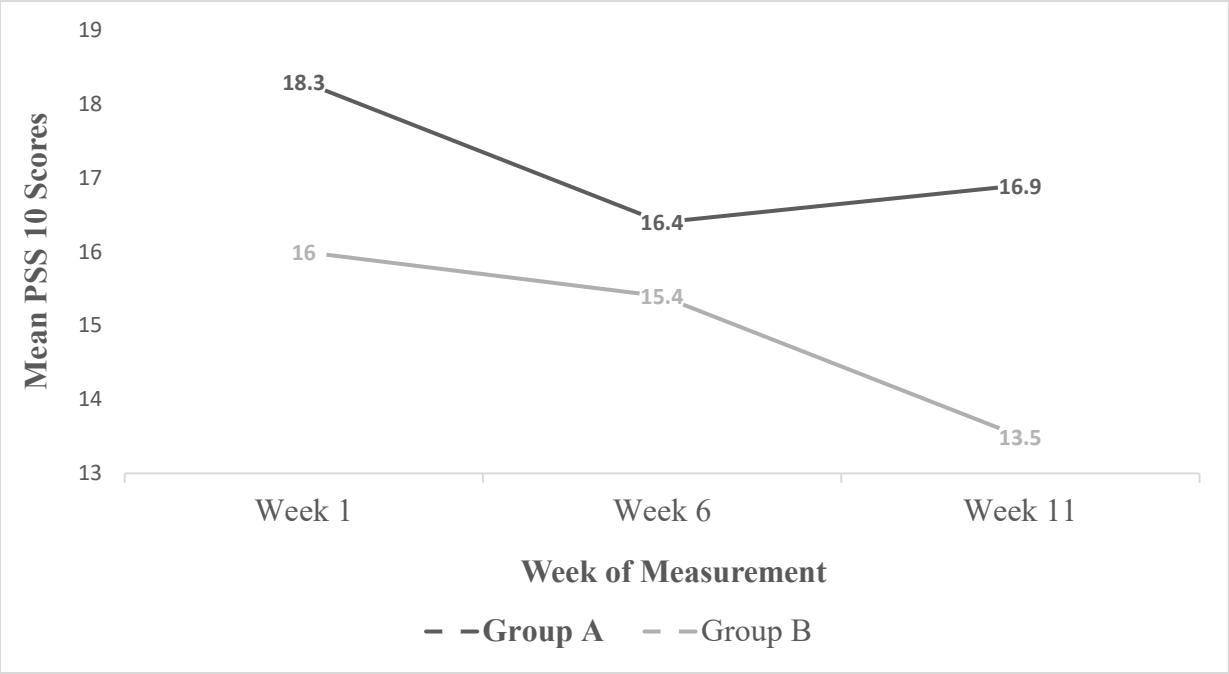
Means and Standard Deviations of PSS-10 Scores

Group	Time Point	*M*	*SD*
Group A	Week 1	18.25	6.1
	Week 6	16.38	3.8
	Week 11	16.94	4.7
Group B	Week 1	16.00	7.8
	Week 6	15.38	4.6
	Week 11	13.54	4.2

Note. Scores on the PSS can range from 0 to 40. Higher scores indicate higher perceived stress. Low Scores ranging from 0-13 are considered low stress. Scores ranging from 14-26 are considered moderate stress. Scores ranging from 27-40 are considered high perceived stress (Cohen & Williamson, 1988).

Figure 4

Changes in Perceived Stress



Note. The y-axis has been scaled and modified for visual clarity. The values shown do not represent the entire numerical scale of the PSS-10, but rather a proportional representation to illustrate trends and relationships between data points.

Summary of Results

In summary, this dissertation study included a survey to guide the development of a program, a pilot study to examine the acceptability and feasibility of the program and the research, and a main study to evaluate the intervention program's effectiveness. Responses to the survey indicated mixed results for familiarity with OT, while most participants reported that they would likely participate in an OT program. Moreover, most participants agreed that there was a need for a program for themselves or their peers. Respondents identified several potential benefits of such a program, such as improved mental health and stress reduction, developing

healthy habits, and reducing stigma. Survey respondents identified several potential barriers to programming, including concerns about time commitment and scheduling. Other barriers included fear of stigma against mental health/difficulties in sharing with new people, and not understanding how OT can help. When asked about preference for modality, there was a discernible preference for one-hour group sessions live on Zoom with the same group of students at the same time each week. There was a clear preference for late afternoon and evening sessions, with early and late morning the least popular times.

Results from the pilot study indicated that participants were generally satisfied with the orientation session, the individual sessions, the group discussions, and the assessments. Participants were also satisfied with the frequency and duration of individual sessions and the amount of group discussion. They noted that positive aspects of the program and study included the blend of individual and group components and the simplicity of the assessments. Suggestions for improving individual sessions included having more activities, improving instruction on the activities, and more progress tracking. Recommendations for group sessions were to enhance group cohesion, use the *Raise Hand* feature of Zoom, and call on participants to promote taking turns in discussion (Zoom Video Communications, 2023). Finally, the main study program participants demonstrated notable improvements in relative mastery and its components: efficiency, effectiveness, and satisfaction. Although perceived stress levels decreased overall for both groups, the changes were not statistically significant.

Chapter 5: Discussion

This dissertation addressed five inquiry questions to develop, implement, and evaluate a new theory-driven mental health occupational therapy (OT) program for college students. This chapter will provide a discussion of the key findings.

Survey

Data from the survey addressed the first three research questions:

Q1: What are college students' preferences for the delivery modality of group OT mental health intervention?

Q2: What are college students' preferences for scheduling sessions in a telehealth-delivered OT mental health intervention?

Q3: What are college students' overall perceptions of a telehealth-delivered OT mental health intervention?

There was a clear preference for one-hour group sessions conducted live on Zoom with the same group of students for the program's duration, with a set time each week. Participants may have preferred to engage with the same cohort of students due to a perceived comfort in sharing within a familiar group rather than potentially encountering new peers each week. Comfort in sharing is further explored in subsequent sections of this chapter. Late afternoon and evening time slots emerged as the preferred options among participants, while early morning sessions were the least favored, followed by late morning and early afternoon sessions. Given the typical daytime commitments of college students, evening sessions were likely seen as more compatible with their schedules. The program was structured in accordance with the survey

outcomes, featuring one-hour weekly group sessions conducted live on Zoom with consistent group members scheduled for the evenings. The subject of scheduling and time limitations was raised frequently in survey results and will be extensively examined later in this chapter.

Perceived Need for Intervention

Most of the students surveyed in this dissertation study reported a need for mental health and wellness intervention, with 81.7% responding "strongly agree" or agree" to the question about the need for themselves or their peers. In contrast, in a survey from a larger sample of college students, only 46% reported a current need for emotional or mental health problems such as feeling sad, blue, anxious, or nervous (Healthy Minds Network, 2023). This discrepancy could be because the survey in this dissertation queried a need *for themselves or their peers*, whereas other survey data only queried a need *for themselves*. Future research could gather more information about perceptions of the need for self versus the need for peers by including separate questions to address the need for self-help versus help for peers.

Likelihood of Participating

The majority of participants reported that they were either extremely likely 23.9% (n=17), or somewhat likely 40.9% (n=29) to participate in a program. Some participants (n=21) commented that the program could improve mental health and provide an opportunity to learn (n=7). The strong likelihood of participating was supported by the high number of participants who completed the screening survey during the later phases of the study. This is discussed later in the Participant Interest section of this chapter.

Potential Benefits

Participants' perceptions regarding the benefits of OT programs align with the documented positive outcomes encompassing enhanced proficiency in assuming the student role, increased self-confidence, and improved academic and social skills (Keptner & McCarthy, 2020). Specifically, the potential benefit cited most frequently was *improved mental health and reduced stress*, followed by *developing healthy habits*. Participants commented about the potential to *bring awareness, share with others,* and *learn about self*. Similar benefits were listed by students in their qualitative feedback regarding their likelihood to participate in a program, with the most frequent comments supporting participation in the theme *improves mental health* and the second most frequent comment in the theme of *interesting/learning new things.*

OT interventions aimed at nurturing skills, establishing routines, and boosting motivation exhibit significant potential to positively influence the symptoms and outcomes experienced by adults with mental illness, thereby enhancing overall health (Kirsh et al., 2019). Moreover, the evidence underscores the effectiveness of OT interventions for college students, highlighting strategies such as goal setting, skill development, cognitive training, and student-led planning (Spencer et al., 2018). Notably, despite many participants initially expressing unfamiliarity with OT and its potential benefits, they were open-minded towards the program's benefits. The benefits they identified align closely with those reported in existing literature.

Potential Challenges

The most commonly identified challenges were time constraints and scheduling, stigma, and reluctance to share, and lack of awareness of OT.

Time Constraints and Scheduling

While many students thought a mental health intervention was needed and that they were likely to enroll in a program, they cited time constraints and scheduling challenges as the most significant barrier to participating and the biggest challenge of a program overall. This aligns with the literature regarding barriers to seeking help; 24% of students report insufficient time, and 11% report difficulty finding an appointment (Healthy Minds Network, 2023). Moreover, students in this dissertation study reported evening and late afternoon as the best times to participate, respectively. While the program in this study offered individual and group sessions in the evenings and late afternoon, this is not true for most campus services for mental health. For example, most college counseling centers do not provide routine services after 5 p.m. (Association for University and College Counseling Center Directors, 2022). Given that students cited scheduling challenges/time constraints as the most significant barrier, occupational therapy practitioners (OTPs) and others aiming to assist college students in their struggles should consider offering services in the evenings or late afternoons to overcome the time constraints of busy college students.

Furthermore, the results of this dissertation study may strengthen the argument for telehealth service delivery in this population. Telehealth is a convenient delivery modality that can be used in all OT practice areas and settings (Cason, 2014; Cason, 2015; Cason et al., 2018; Frontera et al., 2017; Linder et al., 2015). This includes health promotion and wellness (Cason et al., 2018). Telehealth OT is being deployed more frequently to overcome clients' transportation and financial barriers (Feldhacker et al., 2023). The shortage of health providers and services to address college student mental health is evident (Abelson et al., 2023; Chessman et al., 2023; Chessman et al., 2020; Gallup, 2023a, 2023b). Telehealth delivery of OT may be a solution as it

can potentially increase access to care, including health and wellness promotion (Cason, 2014). Telehealth OT can save transportation time for both the provider and the student and can eliminate the barrier of weather-related travel issues (Cason, 2014).

Moreover, group telehealth is efficient for the provider and the client since the provider can see multiple clients simultaneously (Banbury et al., 2018; Feldhacker et al., 2023; Hilty et al., 2013). Additionally, telehealth delivery may be more convenient for providers to offer services after hours, which many students prefer. Future programs and studies should consider telehealth as a delivery modality that may accommodate college students' busy schedules, thus addressing the time-constraint barrier.

Stigma and Reluctance to Share

In the past decade, there has been a notable decrease in stigma regarding mental health among college students (Lipson, Lattie, et al., 2019). This includes decreases in both personal stigma (individual's attitude) and perceived stigma (individual's belief about the attitude of others) (Lipson, Lattie, et al., 2019). However, college students who responded to the survey in this dissertation study reported that they may still be reluctant to participate in a group program due to the challenges of sharing sensitive information. Evidence supports group interventions for positive outcomes for college student mental health (Keptner, 2017; Keptner & McCarthy, 2020; Seo et al., 2020; Spencer et al., 2018). The reluctance to share information with a group may hinder achieving these positive outcomes.

As mentioned above, reluctance to share emerged as a theme in the survey. Still, some participants appreciated the opportunity to share with a group in the pilot study that followed. Specifically, 25% (n=2) of participants in the pilot study appreciated the program's incorporation

of both group and individual components. Moreover, 25% (n=2) of participants cited that the benefit of the group sessions was sharing with people who had similar problems. In the future, it may be worth offering a program that allows the group sessions to be optional, as the idea of sharing ideas may turn some students away. Offering the group sessions as optional may attract students who would otherwise not enroll in the program due to the stigma of mental health issues or the fear of sharing sensitive information.

Similarly, the provision of this program through telehealth might offer an advantage concerning hesitancy in engaging. Literature supports telehealth as a modality that can improve comfort with sharing in a group. Participants in group therapy reported feeling at ease and secure in their own residences during telehealth support group therapy sessions, perceiving online groups as safer compared to in-person meetings (Banbury et al., 2018).

Lack of Awareness of OT

A theme in the results was that students were unsure how OT could help or what the program would be about. These comments appeared as responses to survey questions regarding familiarity with OT, the benefits and challenges of the program, and the likelihood of participating. One survey respondent wrote, "I am not really sure about the specific benefits from an OT program because most of what I have seen with OT works with rehab from injuries and surgeries." Researchers have noted the general public's misunderstanding or lack of understanding about the profession of OT (Royeen, 2002; Wu & Lin, 1999). Moreover, *occupation* has been widely considered an ambiguous term (Royeen, 2002). Although OT is highly regarded among health professionals, they often are unaware of the specific interventions OT can provide (Bonsall et al., 2016). If health professionals are not aware of the role of OT, it is unlikely that college students in the general population would be aware. This lack of awareness

about the scope of OT in the general public may be partly because accurate information about the scope of OT services is unavailable in many media outlets. For example, a recent study that investigated the visibility and perception of the profession of OT in news and online platforms, including social media, revealed no images and a lack of information in general, about core niches and emerging practice settings, such as mental health, telemedicine, cognition, and group treatment (Walsh, 2018).

Moreover, college students' lack of understanding regarding the potential benefits of OT services on college campuses is understandable, given that OT has historically not been prevalent in higher education settings (Keptner & McCarthy, 2020). Furthermore, there is limited evidence on students' perceptions of OT. Royeen et al. (2001) surveyed a small sample of students in grades 3 through 7 (N=103), and most young students had no idea what OT was. Similarly, results from a survey of undergraduate students in health sciences programs in Kuwait revealed that about one-fifth of the students reported being unsure of the role of an OTP on the healthcare team (Alotaibi et al., 2015). The health professions students were not aware of the scope of OT services (Alotaibi et al., 2015). In a survey of nursing and physician assistant students at a midwestern university, students were mindful of an OTP's role within a narrow scope, considering mainly activities of daily living (ADLs) (Jamnadas et al., 2002). To this investigator's knowledge, there has not been a study that evaluated the general population of United States undergraduate college students' awareness of the profession of OT.

Successful promotion of OT interventions in college students would include advocacy for OT mental health, telehealth in OT, and group OT services. Moreover, programs should incorporate detailed explanations outlining the specific tasks and areas in which OTPs can assist college students, ensuring students understand that OTPs can support in domains such as time

management, rest and sleep, study habits, and stress management. In addition, future studies to determine college students' perceptions of what OTPs do may guide advocacy efforts so that advocacy is effective in this population. Just as occupation is a means to an end, however, more OT programs for college students may lead to increased public awareness regarding the value of OT for college students. Consequently, the following section addresses key findings from the evaluation of the OT program in the main study.

Main Study

The final two research questions regarding the efficacy of the program were addressed with data from the main study:

> Q4: How did the relative mastery of undergraduate college students change after the telehealth-delivered OT intervention?
>
> Q5: What is the effect of a group OT intervention on perceived stress in undergraduate college students?

Participants experienced significant improvement in relative mastery of their occupations by the program's conclusion. While there was an overall decrease in perceived stress among participants, the improvement was not statistically significant. Several factors may account for this outcome. First, to maintain a client-centered approach, participants were given the autonomy to select a specific occupation to focus on. While a few individuals (n=6) chose stress management as their area of focus, the majority opted for other occupations. Consequently, while stress management was addressed with each participant, it was not the primary focus for most. Additionally, while all participants established goals for their chosen occupation, not all created

specific stress management objectives; this discrepancy in goal setting may have contributed to the observed difference in perceived stress reduction.

Another possible explanation for the lack of a statistically significant decrease in perceived stress might be attributed to the timing of assessments and the temporal characteristics of the study. The Perceived Stress Scale (PSS-10) was selected for the study because of its temporal characteristics; it evaluates respondents' perceptions of unpredictability, uncontrollability, and overload over the past month (Cohen et al., 1983). However, assessments coincided with mid-term and final exams, a period characterized by heightened stress levels for students. Furthermore, the timing of assessments may have influenced the observed differences between intervention groups. Group B, the second intervention group, exhibited more pronounced improvements in perceived stress compared to Group A. However, despite a downward trend from pretest levels, perceived stress for Group A increased from Week 6 to Week 11. The relatively short duration of the study, spanning only 11 weeks, may also have posed limitations. These and other limitations are discussed further in subsequent sections of this chapter.

In addition to assessing the program's efficacy, exploring the occupations chosen by participants proves valuable as it offers insights into their occupational performance challenges. Time management was a common occupation that participants selected to address. Time management is how a person organizes, schedules, and prioritizes certain activities and is a crucial component of successful occupational performance patterns (American Occupational Therapy Association, 2020b). Effective time management is reflected in a person's ability, even under changing circumstances, to use their time efficiently for the pursuit of goals and to avoid distractions, procrastination, or other misappropriations of time (Strunk et al., 2013). Many

participants reported difficulty with procrastination. Evidence supports that the most common impediment to academic performance is procrastination, with 46.6% of college students reporting procrastination as an impediment to academic performance (American College Health Association, 2023b). Time management is a common focus of OT practice (American Occupational Therapy Association, 2020b); future OT programs and studies could focus on time management and procrastination in college students specifically, as it is a widespread problem among college students.

Effective studying was another commonly selected occupation participants chose to address. Studying is an occupation classified as an instrumental activity of daily living (IADL) in formal education (American Occupational Therapy Association, 2020b). Effective study skills are necessary for academic success in college. OTPs commonly assist K-12 students with formal education participation by providing strategies and interventions that promote effective learning and overall academic success, but OTPs do not commonly practice in higher education (Keptner & McCarthy, 2020). Future OT programs and studies that focus on study skills may prove to be beneficial for college students.

Finally, a few participants focused on other widely known occupational performance issues often addressed in OT practice, such as help with sensory issues in teeth brushing and handwriting. These interventions are not typically provided for the general population of college students. Further investigation may be warranted to discern how common these occupational performance deficits are in the general population of college students. Moreover, in individual sessions with the researcher, three participants asked for help with anxiety while driving; it may warrant further investigation to determine if driving anxiety is a common occupational performance issue among college students.

Theory

Utilizing the Occupational Adaptation (OA) theory in program development led to the explicit inclusion of OA concepts covered each week in the program integrity document. This represents a strength of the program and the study, addressing a critical need in OT research and practice. Johansson et al.'s scoping review in 2018 highlighted that OA is predominantly described in relation to various contexts or health conditions, often within the literature review. However, there is a common absence of clear delineation regarding applying OA in OT practice (Johansson et al., 2018). Reed (2015) noted that *adaptation* is a widely used term in occupational therapy literature but is not often clearly defined. Additionally, a scoping review of occupational adaptation as a construct identified two significant gaps in the literature concerning the utilization of OA (Grajo et al., 2018). First, there is a deficiency in precisely defining how the OA model is implemented in interventions. Second, many OT intervention studies neglect to measure OA constructs. There is a pressing need for programs and studies to articulate explicitly how the OA model is employed in practice. The design of this program and research serves as a noteworthy example by explicitly demonstrating how the OA model was utilized and by evaluating an OA-specific construct, relative mastery.

Contemporary guidelines for promoting mental wellbeing among college students advocate for intensive interventions. Among these, interventions emphasizing supervised practice of social, emotional, and coping skills alongside supportive feedback across numerous sessions have demonstrated significant efficacy, although they remain underutilized (Abelson et al., 2023; Conley et al., 2015). This recommendation resonates with the OA model and its application in this program. Within the OA framework, OTPs help clients generate adaptive responses, necessitating profound self-reflection and self-assessment of occupational

performance (Schkade & Schultz, 1992; Schultz & Schkade, 1992). In the context of this program, the OT researcher engaged participants through individual and group sessions, meeting four times individually and an additional four times in group sessions. Throughout these interactions, the OT researcher provided feedback and encouraged participants to engage in weekly reflection regarding adjustments necessary to advance their chosen occupations in alignment with their long-term goals. It is plausible that providing feedback and opportunities for self-reflection played a role in the observed enhancements in participants' mastery of selected occupations within this study. Future programs and research endeavors should consistently integrate components of self-reflection and intensive feedback across multiple sessions, as evidence suggests their superiority over psychoeducation alone (Abelson et al., 2023; Conley et al., 2015). Future studies could include longer programs and evaluation of relative mastery at subsequent time points to potentially ascertain whether the program's effects persist over time. Given that occupational adaptation is an ongoing and normative process, it is possible that relative mastery could continue to increase beyond what was observed in the limited timeframe of this study.

The theory of the OA model suggests that fostering adaptation in clients isn't merely a set of methods but rather a client-focused mindset that empowers the client as the driving force of change (Grajo et al., 2018; Petersen et al., 2019; Schkade & Schultz, 1992; Schultz & Schkade, 1992). One participant's comment in the pilot study satisfaction survey aligns with the OA theory in this regard, as the participant recognized themselves as the agent of change, "I liked how the program was not gamified to make it about a point system. I felt this helped me to realize that the changes I wanted had to come from my efforts."

The OA model was pivotal in developing and implementing this program, specifically designed to address students' unique needs. The aim of this program, developed specifically for delivery by OTPs, was not to replace traditional psychotherapy but to be a preventive or supplemental approach to provide services from the lens of occupational therapy practice. While individualized interventions are crucial, they represent only one component within the broader social-ecological framework. Recent guidelines advocate for comprehensive strategies encompassing mental health services, awareness and education initiatives, training and support provisions, crisis intervention measures, peer support programs, collaboration with community resources, and policy development efforts (American College Health Association, 2023a).

Future efforts can include this program as a part of larger initiatives with a public health focus, such as the one from the JED Foundation. The JED approach aligns with the social-ecological framework and advocates for a comprehensive approach (JED Foundation, 2019). The JED approach includes developing life skills, promoting social connectedness, increasing help-seeking behaviors, providing mental health and substance misuse services, identifying at-risk students, following crisis management procedures, and restricting access to potentially lethal means (JED Foundation, 2019). Improving college student health is a massive endeavor; future work could include incorporating this OT program into interdisciplinary and community-based initiatives as part of a public health approach to promote mental health and wellbeing among all students (Abelson et al., 2023).

Practical Suggestions

In the pilot study, participants offered valuable insights for enhancing the group sessions, particularly regarding virtual communication expectations. For instance, one participant suggested utilizing Zoom's *Raise Hand* feature and having the OT researcher facilitate turn-

taking during discussions (Zoom Video Communications, 2023). These recommendations were implemented in the subsequent main study. The researcher noted a noticeable reduction in awkwardness during group conversations in the main study compared to the pilot, with increased participation from members.

Additionally, pilot study feedback highlighted the need for more explicit guidance on self-reflection activities and more asynchronous tasks between sessions. In response to this suggestion, customized emails were promptly dispatched to each participant following their respective session in the main study. These emails detailed specific weekly activities and served as a reference for participants throughout the week. The strategy proved useful, providing written instructions, reminders, and encouraging feedback to prompt reflection on performance and progress.

Participant Interest, Attrition, and Retention

Participant interest in this program was high. In addition to the participants who enrolled in the study, 93 students from 6 different colleges across the state of South Dakota completed the screening survey between August 14, 2023, and September 9, 2023. The program's online availability likely contributed to its appeal, offering a convenient option for students. Moreover, the timing of the program, coinciding with the beginning of the academic year, may have motivated students to proactively seek opportunities for success in the upcoming year.

It should be noted, however, that the gender representation in this study was skewed, with male participants underrepresented. Of the 41 pilot and main study participants, 40 (97.6%) attended the state's public university system. Only 9 (21.9%) of the 41 participants were male. This percentage is much lower than the percentage of male students in the state's public university system overall, which was 45.0% in the fall of 2023, according to a 2024 factbook

report by the state's board of regents. The low number of male students who enrolled in this program and study aligns with the literature; male college students are much less likely to seek treatment than female or non-binary students (Sagar-Ouriaghli et al., 2023; Seehuus et al., 2021). Similarly, a higher percentage of female students (47%) report they frequently experience emotional stress compared to male students (30%) (Gallup, 2023b).

This does not mean that male college students do not need mental health help. The treatment-seeking behaviors of male college students are disproportionately low compared to the prevalence of symptoms observed in this population (Seehuus et al., 2021). Male college students may be more susceptible to stigma (Sagar-Ouriaghli et al., 2023). Susceptibility to stigma could explain why more female students report struggles in college, but male students are more likely to drop out (Gallup, 2023a). While this program aimed to provide services to a general population of college students, future efforts could explore strategies to target male college students who may benefit from treatment but are not seeking it.

Although the survey conducted in this study included inquiries about preferred times of the day and week, it did not delve into the best time of the year for students. While the successful recruitment for this program suggests that launching initiatives at the start of the academic year could be an attractive proactive approach for students, future research should explore students' preferences regarding the timing of such programs. This insight is crucial for designing effective recruitment strategies for future studies, particularly those with larger sample sizes. It underscores the potential for delivering services in formats that students readily embrace. Additionally, future studies could benefit from the involvement of a team of OT researchers to expand the program's capacity and reach a broader group of students.

Another favorable aspect of this program was the comparatively low attrition and high retention rates compared to similar online programs. Comparing the attrition rates with similar studies presents a challenge because there is a lack of evidence on attrition rates in online programs focusing on mental health in college students (Oti & Pitt, 2021). However, attrition rates in this study were lower than the few other online programs noted in the literature. For example, Doherty et al. (2012) and Papadatou-Pastou et al. (2019) reported a dropout rate of 36% and 53.9%, respectively, for 8-week online programs that addressed college student mental health. Other attrition rates for internet-based interventions for college students include 57% reported by Cavanagh et al. (2013) and 46% reported by Morledge et al. (2013). In this dissertation research, the dropout rate in the pilot study was 11.1%. Attrition in the main study was 22.0%. However, It is worth noting that the 9 participants who dropped out of the main study withdrew before the orientation session and were replaced with more participants. Of the 32 who enrolled in the main study, all finished the program.

The low attrition and high retention rates observed in this program could be attributed to the significant level of human interaction. Doherty et al. (2012) noted that self-guided online mental health interventions experienced higher attrition rates compared to interventions involving human support. Moreover, participants in the pilot study preferred the frequency of weekly individual and group meetings. The sustained low attrition rate in the main study, alongside the preference for weekly sessions observed in the pilot study, suggests that this level of intensity is acceptable to participants, even amidst their busy schedules. The weekly frequency over four weeks may accommodate college students' hectic schedules while providing a more effective intervention consistent with recommendations for multiple sessions with feedback (Abelson et al., 2023; Conley et al., 2015).

Limitations

As mentioned previously, a challenge in measuring perceived stress in this study was the timing; assessments occurred just before mid-term exams and then again just before final exams. College student stress is elevated during examination periods (Garett et al., 2017; Pitt et al., 2017). The amount of stress participants perceived at these times could have been affected by the timing of the assessments near their exams. Additionally, this study occurred over the short duration of one semester. Therefore, the long-term outcomes or effects that may emerge over time are unknown. A longitudinal study that includes a follow-up is recommended.

Another limitation of this study was the sample size, which was limited by the time constraints of one researcher to deploy the program. Underpowered studies are more likely to miss true effects (Type II error), which means that potentially important relationships or effects may go undetected due to the insufficient sample size. It is crucial to interpret the findings cautiously and recognize their limitations. Addressing the issue of underpowering through larger sample sizes or alternative study designs may lead to more robust and reliable research outcomes. Recognizing the limitations of underpowered studies when translating research findings into practice recommendations is essential.

In addition to the small sample size, the sample was limited to participants in one midwestern state, prohibiting the results from being generalizable to a larger population. The state's unique socio-cultural, economic, and educational context might have influenced results in ways that are not representative of other regions or demographics. A team of researchers to deploy the program would allow for a larger sample size that could potentially include a more diverse population of students from across the nation. A team of OT researchers would be a

practical approach to offer the program at times when students are most likely to be able to participate, in the afternoons and evenings.

Another limitation was that all the pilot and main studies' assessments were self-report measures subject to social desirability and recall bias. The absence of a control group hindered the ability to attribute changes to the program. This study collected minimal qualitative data; therefore, the students' perceptions of all aspects of the intervention remain unknown. Another limitation is that the OA model has not been used in a population of undergraduate college students for a mental health intervention (Grajo et al., 2018; Johansson et al., 2018). Finally, the RMMS has not been evaluated for use with college students specifically; there is a need to establish reliability and validity with this population (Grajo et al., 2018; Johansson et al., 2018).

In summary, while this study provides preliminary positive effects of the new program, the underpowered nature of the study warrants a cautious interpretation of the findings. Addressing the limitations will be crucial for advancing evidence-based practice in OT in this practice area.

Summary

In conclusion, results indicated that participants preferred Zoom sessions individually and in groups once weekly with the same group. Late afternoons and evenings were popular choices for scheduling. Participants cited time constraints/scheduling issues as a significant obstacle and reluctance to share with others; telehealth delivery could overcome these challenges. Despite their unfamiliarity with the OT profession, participants cited mental health help and developing healthy habits as potential benefits of the program. The intervention was designed specifically for delivery by an OTP and showed promise with low attrition, high retention, and the potential to help college students improve relative mastery. The intervention was not effective in

improving perceived stress. Studies with larger sample sizes that are longer in duration are needed to advance evidence-based OT in this area. Despite its limitations, this dissertation study contributes to the growing body of literature exploring the effectiveness of OT mental health inventions for college students.

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Appendix A: MPRORS

Meaningful and Psychologically Rewarding Occupation Rating Scale (MPRORS)

Participant ID: **AI** Age: **23** Gender: **F** Date: **August 2, 2017**

Instructions: For each of the occupations in the left column, please rate the extent to which it fits into each of the descriptors listed on the top row (fun, physically not stimulating, connecting me with others, boring, mentally not stimulating, physically stimulating, isolating, and mentally stimulating) on a scale from 1 to 7 (see Figure 7)

Occupation	Fun	Not physically stimulating	Connecting me with others	Boring	Not mentally stimulating	Physically stimulating	Isolating	Mentally stimulating	Total	
									Psych. Rew.	Meaningful
1. School	[4]	[5]	[6]	[5]	[7]	[6]	[7]	[7]	[26]	[38]
2. Cooking	[4]	[3]	[2]	[5]	[5]	[4]	[2]	[6]	[20]	[22]
3. Being with dog	[7]	[7]	[5]	[7]	[2]	[7]	[3]	[1]	[36]	[25]
4. Exercise	[6]	[7]	[2]	[6]	[2]	[7]	[3]	[2]	[31]	[23]
5. Being with friends	[6]	[2]	[7]	[6]	[6]	[2]	[7]	[6]	[30]	[30]
6. Watching TV	[4]	[1]	[1]	[3]	[2]	[1]	[2]	[2]	[12]	[9]
7. Spending time with family	[7]	[5]	[7]	[6]	[6]	[5]	[7]	[5]	[37]	[35]
8. Sporting events	[6]	[2]	[7]	[6]	[6]	[1]	[7]	[5]	[29]	[28]
9. Concerts	[7]	[7]	[7]	[7]	[2]	[1]	[7]	[1]	[36]	[25]

Scoring Instructions:

1. **Reverse** the ratings for: **Physically not stimulating**; **Boring**; **Mentally not stimulating**; and **Isolating** so that 1=7, 2=6, 3=5, 4=4, 5=3, 6=2, and 7=1. Place the reversed scores in the appropriate boxes for each listed occupation.

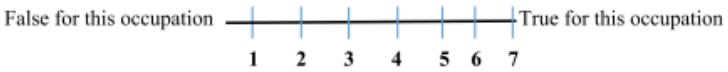
2. For each occupation, compute:
Fun+**reversed Boring**+**Physically stimulating**+**reversed Physically not stimulating**+ **Connecting me with others**+**reversed Isolating** scores. Write the total in the **Psych. Rew.** (Psychologically Rewarding) column.

3. Similarly, for each occupation, compute:
Mentally stimulating+**reversed Mentally not stimulating**+**Physically stimulating**+**reversed Physically not stimulating**+**Connecting me with others**+**reversed Isolating** scores. Write the total in the **meaningful** (occupation) column.

4. Based on the score totals, identify the occupation with the highest **psychologically rewarding** score which is also rated highest on "**Fun**". Also, identify the occupation with the highest **meaningfulness** score which is also rated the highest on "**mental stimulation**".

The two occupations are the ones that should be used as media when planning occupational therapy interventions for the client.

Occupational Rating Scale



Appendix B: AOTA Occupational Profile Template

aota.org

AOTA Occupational Profile Template

"The occupational profile is a summary of a client's (person's, group's, or population's) occupational history and experiences, patterns of daily living, interests, values, needs, and relevant contexts" (AOTA, 2020, p. 21). The information is obtained from the client's perspective through both formal and informal interview techniques and conversation.

The information obtained through the occupational profile contributes to a client-focused approach in the evaluation, intervention planning, intervention implementation, and discharge planning stages. Each item below should be addressed to complete the occupational profile. Page numbers are provided to reference the description in the *Occupational Therapy Practice Framework: Domain and Process* (4th ed.; AOTA, 2020).

OCCUPATIONAL PROFILE			
Client Report	**Reason the client is seeking service and concerns related to engagement in occupations (p. 16)**	Why is the client seeking services, and what are the client's current concerns relative to engaging in occupations and in daily life activities? (This may include the client's general health status.)	
	Occupations in which the client is successful and barriers affecting success (p. 16)	In what occupations does the client feel successful, and what barriers are affecting their success in desired occupations?	
	Occupational history (p. 16)	What is the client's occupational history (i.e., life experiences)?	
	Personal interests and values (p. 16)	What are the client's values and interests?	
Contexts		What aspects of their contexts (environmental and personal factors) does the client see as supporting engagement in desired occupations, and what aspects are inhibiting engagement?	
	Environment (p. 36) (e.g., natural environment and human-made changes, products and technology, support and relationships, attitudes, services, systems and policies)	Supporting Engagement	Inhibiting Engagement
	Personal (p. 40) (e.g., age, sexual orientation, gender identity, race and ethnicity, cultural identification, social background, upbringing, psychological assets, education, lifestyle)	Supporting Engagement	Inhibiting Engagement

Performance Patterns	Performance patterns (p. 41) (e.g., habits, routines, roles, rituals)	What are the client's patterns of engagement in occupations, and how have they changed over time? What are the client's daily life roles? (Patterns can support or hinder occupational performance.)	
Client Factors		What client factors does the client see as supporting engagement in desired occupations, and what aspects are inhibiting engagement (e.g., pain, active symptoms)?	
	Values, beliefs, spirituality (p. 51)	Supporting Engagement	Inhibiting Engagement
	Body functions (p. 51) (e.g., mental, sensory, neuro-musculoskeletal and movement-related, cardiovascular functions)	Supporting Engagement	Inhibiting Engagement
	Body structures (p. 54) (e.g., structures of the nervous system, eyes and ears, related to movement)	Supporting Engagement	Inhibiting Engagement
Client Goals	Client's priorities and desired targeted outcomes (p. 65)	What are the client's priorities and desired targeted outcomes related to the items below?	
		Occupational Performance	
		Prevention	
		Health and Wellness	
		Quality of Life	
		Participation	
		Role Competence	
		Well-Being	
		Occupational Justice	

For a complete description of each component and examples of each, refer to the *Occupational Therapy Practice Framework: Domain and Process* (4th ed.).

Resources

American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy, 74*(Suppl. 2), 7412410010. https://doi.org/10.5014/ajot.2020.74S2001

The occupational therapy evaluation and reevaluation *CPT*® codes established in 2017 require the inclusion of an occupational profile. For more information, visit https://www.aota.org/coding.

Appendix C: Relative Mastery Measurement Scale (RMMS)

Appendix

Relative Mastery Measurement Scale (RMMS)

Administration Instructions:

1. *Begin administration only after the client has read and signed an informed consent.*
2. *Administer the items in the order they appear on the scale (#1-12).*
3. *Do not attempt to paraphrase or define the terms or words used in any items [e.g., successful/failed/desired level]. The meaning of these words is likely unique to each person and therefore each client must interpret the terms/words for themselves. Allowing clients to define the terms/words will allow an assessment of whether or not the scale works.*
4. *If a client does not understand any item(s), you may repeat them as many times as needed before going on to the next item.*
5. *If after repeating an item a number of times, and after encouraging a client to either agree or disagree with the item, you may circle the item number of any item to reflect a client's inability to respond.*

Read the following instructions exactly as they appear:

"Tell me the name of an important activity that you have recently performed in occupational therapy."

"Thinking back on your most recent performance of this activity, tell me whether you 'agree' or 'disagree' with the 12 statements I am about to read to you. I will be recording your responses as we go along." If a client changes their mind before going on to the next question, please place an X over their first answer and circle their new answer.

(Raters: Circle A for Agree and D for Disagree).

1.	A	D	My performance was not adequate to complete the task.
2.	A	D	I completed the task within about the same time frame it usually takes.
3.	A	D	Overall, I am satisfied with myself regarding this activity.
4.	A	D	I felt physically or mentally tired after finishing the task.
5.	A	D	People other than my family and friends would be happy with my level of ability on this task (give an example that relates to this person and task).
6.	A	D	I did not produce the result I expected.
7.	A	D	I am very pleased with my performance of this task.
8.	A	D	I failed to complete all steps of the task.
9.	A	D	The task took a great deal more time than is typical for me.
10.	A	D	I am aware of people, equipment, and techniques that would help make this task easier.
11.	A	D	My family members would not be happy with my performance of this task.
12.	A	D	I successfully completed the task.

Appendix D: Perceived Stress Scale

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (*Circle*): **M F** Other _____

	0 = Never	1 = Almost Never	2 = Sometimes	3 = Fairly Often	4 = Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	0	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	0	1	2	3	4
4. In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
5. In the last month, how often have you felt that things were going your way?	0	1	2	3	4
6. In the last month, how often have you found that you could not cope with all the things that you had to do?	0	1	2	3	4
7. In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
8. In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
9. In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Please feel free to use the *Perceived Stress Scale* for your research.

Mind Garden, Inc.
info@mindgarden.com
www.mindgarden.com

References

The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24,* 386-396.

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Appendix E: Student Preferences Survey

UNIVERSITY OF SOUTH DAKOTA Institutional Review Board Informed Consent Statement

Title of Project: A Survey to Examine Student Preferences for an Occupational Therapy Program Focused on Mental Health and Wellness in College Students

Principal Investigator: Ranelle Nissen, Sanford Coyote Sports Center, Vermillion, SD 57069 (605) 658-6378 Ranelle.Nissen@usd.edu

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Invitation to be Part of a Research Study You are invited to participate in a survey for a research study. To participate, you must be an undergraduate college student, at least 18 years of age, fluent in English and able to complete the survey independently. You must have access to a computer or mobile device to complete the survey. Taking part in this research project is voluntary. Please take time to read this entire form and ask questions before deciding whether to take part in this research project. What is the study about and why are we doing it? The purpose of the survey is to explore undergraduate student preferences for delivery of an occupational therapy program that will be delivered via telehealth. The aim of the survey is to determine what type of modality students prefer for group discussions and what dates and times would work best for live sessions. Finally, this survey aims to examine students' general perceptions of possible benefits and disadvantages of an occupational therapy mental health and wellness program for college students. The results of this study will be used to create an occupational therapy program that will be studied later. What will happen if you take part in this study? If you agree to take part in this study, you will click on the link to complete the survey that will take approximately 10 to 15 minutes to complete. If you are interested in participating in an OT program, you will provide your email address. What risks might result from being in this study? There are no risks in participating in this research beyond those experienced in everyday life. How could you benefit from this study? Although you will not directly benefit from being in this study, others might benefit through the development of programs based on results of this survey. How will we protect your information? We will protect the confidentiality of your research records by assigning you a numerical ID. All your information will be stored in a password protected computer and/or locked cabinet in the OT researcher's office and will be identified using only the numerical ID. Your email address and any other information that can directly identify you will be stored separately from the data collected as part of the project. Your information can only be disclosed to an authorized agency such as the USD IRB for the purpose of an audit. The researchers will be the only ones with access to the assessment results in the Qualtrics secure online platform. The records of this study will be kept confidential to the extent permitted by law. Any report published with the results of this study will remain confidential and will be disclosed only with your permission or as required by law. To protect your privacy, we will not include any information that could identify you. It is possible that other people may need to see the information we collect about you. These people work for the University of South Dakota and

can view all the research data for oversight purposes, as required by law or allowed by federal regulations. Your Participation in this Study is Voluntary. It is totally up to you to decide to be in this research survey. Participating in this survey is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer. Contact Information for the Study Team and Questions about the Research The researchers conducting this study are Dr. Ranelle Nissen and Dr. Amy Nelson. You may ask any questions by emailing Dr. Amy Nelson or calling her at (605) 658 5951. If you later have questions, concerns, or complaints about the research please contact Dr. Nelson during the day. If you have questions regarding your rights as a research subject, you may contact The University of South Dakota- Office of Human Subjects Protection at (605) 658-3743. You may also call this number with problems, complaints, or concerns about the research. Please call this number if you cannot reach research staff, or you wish to talk with someone who is an informed individual who is independent of the research team. Your Consent Before agreeing to be part of the research, please be sure that you understand what the study is about. Keep this copy of this document for your records. If you have any questions about the study later, you can contact the study team using the information provided above. By completing the survey questions, you are providing consent to the survey.

By completing the survey questions, you are providing consent to the survey. Are you an undergraduate college student?

- ○ No (1)
- ○ Yes (2)

If participant answers No, survey skips to end of survey: “We thank you for your time spent taking this survey. Your response has been recorded.”

Are you at least 18 years old?

- ○ No (1)
- ○ Yes (2)

If participant answers No, survey skips to end of survey: “We thank you for your time spent taking this survey. Your response has been recorded.”

How familiar are you with occupational therapy?

- ○ Not familiar at all (1)
- ○ Slightly familiar (2)
- ○ Moderately familiar (3)
- ○ Very familiar (4)
- ○ Extremely familiar (5)

Do you agree or disagree with the following statement: A mental health and wellness intervention is needed for myself and/or my peers.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Situate yourself as a participant in a 4-week occupational therapy (OT) program focused on mental health and wellness for college students. The delivery method is telehealth (Zoom). The aim is to help students identify goals for mental health and wellness and adapt to be successful in their college student role. This OT program will include a 30-minute individual session (one-on-one) with the occupational therapist in real time on Zoom, 1 time per week for 4 weeks. In addition, this program may include group discussions/activities.

How likely would you be to participate in a 4-week telehealth-delivered occupational therapy program focused on mental health and wellness for college students?

- ○ Extremely unlikely (1)
- ○ Somewhat unlikely (2)
- ○ Neither likely nor unlikely (3)
- ○ Somewhat likely (4)
- ○ Extremely likely (5)

Text Entry Question: Please explain your answer to the previous question about your likelihood to participate in the occupational therapy program.

Text Entry Question: What do you think would be the potential benefits of an occupational therapy program focused on mental health and wellness for yourself and/or your peers? Please explain.

Text Entry Question: What would be the potential challenges/problems with an occupational therapy program focused on mental health and wellness for yourself and/or your peers? Please explain.

Rank Order Question: Please indicate your preferences for meeting with a group (other undergraduate students) for this program. Please rate your choices for the following formats in the order of 1 (favorite choice) to 4 (least favorite choice).

_____ Group discussions (2 per week) in a secure online discussion board. The group discussions can be completed anytime during the week.
_____ Approximately one hour of group discussion in real time on Zoom. The group discussion is live with approximately 4 to 9 other students, based on student schedule availability. The group Zoom includes the same students each week at a fixed time each week.
_____ Approximately one hour of group discussion in real time on Zoom. The group discussion is live with approximately 4 to 9 other students, based on student schedule availability. The group Zoom may include different students each week, and there may be a few choices for meeting times each week.
_____ Approximately one hour of group discussion in real time on Zoom AND group discussion/activities in a secure online discussion board.

Matrix Table Question: What is the best time of day to attend live sessions? (Select all that apply).

	Early Morning (1)	Late Morning (2)	Early Afternoon (3)	Late Afternoon (4)	Evening (5)
Monday (1)	○	○	○	○	○
Tuesday (2)	○	○	○	○	○
Wednesday (3)	○	○	○	○	○
Thursday (4)	○	○	○	○	○
Friday (5)	○	○	○	○	○
Saturday (6)	○	○	○	○	○
Sunday (7)	○	○	○	○	○

If you are interested in participating in a study that includes a 4-week mental health and wellness promoting occupational therapy program delivered via telehealth, or if you have questions, please click the link below to complete a brief survey and the investigator will contact you for more information. Click here to be contacted for more information. (live link to the Participant Screening Survey)

We thank you for your time spent taking this survey. Your response has been recorded.

Appendix F: Pilot Study Screening Survey

By completing the survey questions, you are providing consent to the survey. Are you an undergraduate college student?

- ○ No (1)
- ○ Yes (2)

If participant answers No, survey skips to end of survey: "We thank you for your time spent taking this survey. Your response has been recorded."

Are you at least 18 years old?

- ○ No (1)
- ○ Yes (2)

If participant answers No, survey skips to end of survey: "We thank you for your time spent taking this survey. Your response has been recorded."

Text Entry Question: Please provide your email address.

Do you have access to a computer or mobile device with webcam and microphone capabilities?

- ○ Yes (1)
- ○ No (2)

Are you able and willing to attend a live Zoom orientation session?

- ○ Yes (1)
- ○ No (2)

Will you be physically located in South Dakota for online Zoom sessions (the researcher will work with your schedule) during the course of the study (6 weeks)?

- ○ Yes (1)
- ○ No (2)

We thank you for your time spent taking this survey. Your response has been recorded.

Appendix G: Revised Program Integrity

Occupational Therapy Program Integrity for Orientation Session

(Individually or in Small Groups via Zoom)

Date: _____

Time: _____

ID Numbers of Participants in Attendance:

_____

_____

_____

	Yes	No	N/A
1. Welcome and introductions			
2. Read script of the overview of the program			
3. Answer questions regarding overview of the program			
4. Document questions and answers regarding overview of the program			
5. Read the Group Code of Conduct document			
6. Answer questions regarding Group Code of Conduct			
7. Document questions and answers regarding group code of conduct			
8. Have participants sign the Group Code of Conduct agreement form			
9. Have participants complete PSS-10 assessment			
10. Have participants complete the demographics and characteristics survey			

Accurate steps completed___/Total Steps (10) X 100 = ____%

Documentation:

Questions asked with answers regarding overview of program:

Questions asked with answers regarding group code of conduct:

Week One of Occupational Therapy Program One-on-One Sessions with OT

Date: _____Time: _____

ID Number of Participant: _____

	Yes	No	N/A
1. Welcome participant			
2. Read script to describe occupational profile			
3. Administer the occupational profile using the occupational profile template			
4. Read script to describe the Meaningful and Psychologically Rewarding Occupations Rating Scale (MPRORS)			
5. Administer the MPRORS			
6. Aid participant in developing 1 to 4 goals			
7. Read script for choosing occupation for RMMS			
8. Have participants complete RMMS assessment			
9. Check with participant that at least 1 goal relates to the occupation cited in the RMMS for client			
10. Summarize session			

Accurate steps completed___/Total Steps (10) X 100 = ____%

Documentation:

Reminder: Schedule for next week

Week One of Occupational Therapy Program Group Sessions

Date: _____Time: _____

ID Numbers of Participants: _____

_____

_____

	Yes	No	N/A
1. Welcome and introductions			
2. Read script of definitions regarding person factors which include physical, thinking and emotion/social self			
3. What do attention/memory/judgment problems look like for you? When is your attention/memory the best? When is it the worst? What do you do to support your memory? What time of day is the best for studying?			
4. How does your social group support you? How does your social group present barriers/challenges to you? What have you done in the past when your social group was not supporting you? How would you describe your group?			
5. Record notes on discussion of physical, thinking and emotion/social self			
6. Read script of definitions of environment and self-cares, leisure, and work/studies			
7. How does your living environment support your leisure/fun activities? How does it support your work/studies? Sleep? Where do you study? What have you done to make changes to your living environment? Do your roommates promote or prohibit your success?			
8. Record notes on discussion of environment and self-cares, leisure, and work/studies			
9. Read script regarding rest and sleep and stress management			
10. What does disorganization look like for you? What have been some consequences? How do you get organized? What has worked for you in the past and what doesn't work?			
11.Record notes on discussion of rest and sleep, stress management and organization			
12. Summarize group session and close group			

Accurate steps completed___/Total Steps (12) X 100 = ____%

Documentation:

Week One Group Session:

Notes on physical, thinking and emotion/social self:

Notes on environment and self-cares, leisure, and work/studies:

Notes on rest and sleep, stress management and organization:

Summary of discussion:

Week Two of Occupational Therapy Program One-on-One Sessions with OT

Date: _____Time: _____

ID Number of Participant: _____

	Yes	No	N/A
1. Welcome participant			
2. Refer to Occupational Profile Template to discuss occupational performance issues with participant			
3. Write note about participant performance issues			
4. Refer to MPRORS to discuss balance in meaningful and psychologically rewarding occupations			
5. Write note about occupational balance			
6. Discuss journaling or other individualized intervention with participant			
7. Answer questions regarding intervention			
8. Summarize session			

Accurate steps completed___/Total Steps (8) X 100 = ____%

Documentation:

Notes about performance issues:

Notes about occupational balance:

Reminder: Schedule for next week

Week Two of Occupational Therapy Program Group Sessions

Date: _____Time: _____

ID Numbers of Participants: _____

_____

_____

	Yes	No	N/A
1. Welcome and introductions			
2. Read script regarding role expectations			
3. Are your expectations of yourself realistic? Has there ever been a time when you or someone you care about had unrealistic expectations of you? What was the result? Are your expectations of others realistic? Have you had unrealistic expectations of others? What was the result? How does social media influence your expectations? Can your expectations attract negative and/or positive energy? What forms our expectations? What is the difference between planning/expecting and unnecessary worrying?			
4. Record notes about expectations			
5. Read script regarding motivation, time management, procrastination, and study habits			
6. Do you consider yourself a procrastinator? What does procrastination look like for you? What has worked for you or what tips do you have to overcome procrastination?			
7. Record notes about motivation, time management, procrastination and study habits			
8. Summarize group session and close group			

Accurate steps completed___/Total Steps (8) X 100 = ____%

Documentation:

Notes on role expectations:

Notes on motivation, time management, procrastination, and study habits:

Summary of discussion:

Week Three of Occupational Therapy Program One-on-One Sessions with OT

Date: _____Time: _____

ID Number of Participant: _____

	Yes	No	N/A
1. Welcome participant			
2. Read script about adaptive response generation.			
3. Refer to occupational performance template			
4. Discuss journaling or other individualized intervention with participant			
5. Have participant describe identifiable changes			
6. Discuss changes with participant			
7. Instruct participant to regarding individualized intervention			
8. Record notes regarding discussion of changes			
9. Refer to MPRORS to discuss occupational balance with participant			
10. Record notes regarding discussion of occupational balance			
11. Summarize session			

Accurate steps completed___/Total Steps (11) X 100 = ____%

Documentation:

Notes about changes:

Notes about occupational balance:

Reminder: Schedule for next week:

Week Three of Occupational Therapy Program Group Sessions

Date: _____Time: _____

ID Numbers of Participants: _____

_____

_____

	Yes	No	N/A
1. Welcome and introductions			
2. Read script about energy levels			
3. Describe a time when you used secondary energy to solve a problem or dilemma. What activities in your day require primary energy? How long does your primary energy last before you need to switch to secondary energy? What/who depletes your energy? What/who restores it? Have you ever had brain fog? How long does it last? What do you think causes it and what can stop it?			
4. Record notes about energy levels			
5. Read script about balancing energy and the energy needed for change			
6. Do you have an example of a time you made a change to your routine? How much mental energy did it take? Have you tried cutting back on caffeine? If so, what was the result? Have you tried cutting back on sugar? If so, what was the result? Have you tried cutting back on social media or watching shows or gaming (things that may overstimulate your brain)? If so, what was the result? What is your sleep routine? Has it changed since you have been in college? How has it changed? How do you balance out your energy? How does energy play a role in your success as a college student? Do you do a good job balancing your energy?			
7. Record notes about balancing energy and the energy needed for change			
8. Summarize group session and close group			

Accurate steps completed___/Total Steps (8) X 100 = ____%

Documentation:

Notes about energy levels:

Notes about balancing energy and the energy needed for change:

Summary of discussion:

Week Four of Occupational Therapy Program One-on-One Sessions with OT

Date: _____

Time: _____ ID Number of Participant: _____

	Yes	No	N/A
1. Welcome participant			
2. Read script about self-feedback: time and energy and overall results			
3. Refer to occupational profile template			
4. Discuss intervention with participant			
5. Discuss time and energy of change with participant			
6. Discuss overall results with participant			
7. Discuss possible future changes with participant			
8. Record notes about self-feedback and changes			
9. Refer to MRPORS to discuss occupational balance			
10. Record notes about occupational balance			
11. Summarize session			

Accurate steps completed___/Total Steps (11) X 100 = ____%

Documentation:

Notes about self-feedback, time, and energy:

Notes about occupational balance:

Reminder: Schedule for next week!

Week Four of Occupational Therapy Program Group Sessions

Date: _____ Time: _____

ID Numbers of Participants: _____

_____

_____

	Yes	No	N/A
1. Welcome and introductions			
2. Read script regarding change and self-feedback			
3. Have you set a goal for yourself but didn't think about the steps to achieve it? What happened? Have you ever made specific goals for yourself? SMART goals? Specific Measurable Attainable Relevant and Time sensitive. What was the result? Have you ever encountered the valley of disappointment, when you were making small changes and not noticing anything? What was the result? Explain a situation in which you associate a challenging habit with a positive experience. Do rewards help you to be productive or change a habit? What immediate rewards do you give yourself? Have you ever used visual rewards?			
4. Record notes for change and self-feedback			
5. Read script about future changes			
6. What role does your identity have in making positive changes? Have you ever had an accountability partner? What was the result? Who could be your accountability partner now?			
7. Record notes for future changes and self-feedback			
8.Summarize discussion and close group			

Accurate steps completed___/Total Steps (8) X 100 = ____%

Documentation:

Notes about change and self-feedback:

Notes about future changes:

Summary of discussion:

Reminder about assessments next week!

Week 6 and 11 Assessment Weeks (Individually or in Small Groups via Zoom)

Date: _____

Time: _____

ID Numbers of Participants in Attendance: _____

_____

_____

_____

_____

_____

	Yes	No	N/A
1. Offer Welcome			
2. Read script regarding RMMS			
3. Have participants complete RMMS assessment			
4. Read script regarding PSS-10			
5. Have participants complete PSS-10 assessment			
6. Offer thanks and close session			

Accurate steps completed___/Total Steps (8) X 100 = ____%

Documentation:

Appendix H: Pilot Study Demographics and Characteristics Survey

What is your class level?

- ○ Freshman (1)
- ○ Sophomore (2)
- ○ Junior (3)
- ○ Senior (4)

How would you describe your coursework in college?

- ○ All online courses (1)
- ○ Mostly online courses (2)
- ○ An equal mix of online and in-person courses (3)
- ○ Mostly in-person courses (4)
- ○ All in-person courses (5)

What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

What is your age?

- ○ 18 - 24 (1)
- ○ 25 - 34 (2)
- ○ 35 - 44 (3)
- ○ 45 - 54 (4)
- ○ 55 - 64 (5)
- ○ 65 - 74 (6)
- ○ 75 - 84 (7)
- ○ 85 or older (8)

Do you have a mental health diagnosis?

- ○ No (1)
- ○ Yes (2)

We thank you for your time spent taking this survey. Your response has been recorded.

Appendix I: Pilot Study Satisfaction Survey

Rate your overall experience as a participant in this research study.

- ○ Extremely dissatisfied (1)
- ○ Somewhat dissatisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat satisfied (4)
- ○ Extremely satisfied (5)

Text Entry Question: Please provide comments about your overall experience.

How adequate was the orientation session in preparing you for what to expect in the study?

- ○ Extremely inadequate (1)
- ○ Somewhat inadequate (2)
- ○ Neither adequate nor inadequate (3)
- ○ Somewhat adequate (4)
- ○ Extremely adequate (5)

Text Entry Question: Please provide comments about the orientation session.

How satisfied are you with the time it took you to complete the assessments (Relative Mastery Measurement Scale, Perceived Stress Scale) for this study?

- ○ Extremely dissatisfied (1)
- ○ Somewhat dissatisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat satisfied (4)
- ○ Extremely satisfied (5)

Text Entry Question: Please provide comments about the time it took you to complete the assessments.

How satisfied are you with the quality of the live one-on-one sessions with the occupational therapist?

- ○ Extremely dissatisfied (1)
- ○ Somewhat dissatisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat satisfied (4)
- ○ Extremely satisfied (5)

Text Entry Question: Please provide comments about the live one-on-one sessions with the occupational therapist.

How often would you prefer the one-on-one sessions with the occupational therapist?

- ○ No one-on-one sessions (1)
- ○ Sessions every other week (2)

- ○ Keep the same, once per week (3)
- ○ Twice per week (4)
- ○ Three times per week (5)

How would you rate the length of the 30-minute one-on-one sessions with the occupational therapist?

- ○ Far too short (1)
- ○ Slightly too short (2)
- ○ Neither too long nor too short (3)
- ○ Slightly too long (4)
- ○ Far too long (5)

How satisfied are you with the quality of group discussions/activities?

- ○ Extremely dissatisfied (1)
- ○ Somewhat dissatisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat satisfied (4)
- ○ Extremely satisfied (5)

Text Entry Question: Please provide comments about the group discussions/activities.

How would you rate the amount of group discussions/activities?

- ○ Far too little (1)
- ○ Slightly too little (2)
- ○ Neither too much nor too little (3)
- ○ Slightly too much (4)
- ○ Far too much (5)

Text Entry Question: What did you like about the OT program?

Text Entry Question Q8 What would you like to see changed about the OT program?

Text Entry Question Q11 What did you like about the research study process?

Text Entry Question Q12 What would you like to see changed about the research study process?

We thank you for your time spent taking this survey. Your response has been recorded.

Appendix J: Group Code of Conduct

Group Code of Conduct
Adapted from Procedures & Guidelines for Group Therapy

Confidentiality
Anything said between any two or more group members at any time is part of the group and is confidential. I understand that everything said in group is confidential. I agree to keep secret the names of other members of the group and what is said in the group. I agree to keep secret anything which occurs between or among group members. I understand that there is an exception to this confidentiality which applies to the group leader. If the group leader believes that someone is in danger, the leader has a professional obligation to take direct action in order to keep everyone safe. I understand that if I violate this confidentiality I could be removed from the group.

Privacy (The Stop Rule)
No group member is ever required to answer any question, to participate in any activity, or to tell anything. If I am asked questions or asked to participate in an activity which makes me feel uncomfortable, I understand that I have the right to pass, that is, the right to refuse. I agree that will never pressure other group members to participate in any discussion or activity after the member has passed or refused. I understand that the group leader is obliged to protect this right. I also understand that I will benefit from group if I am able to share and participate.

Dignity
No group member is ever humiliated, hazed, or abused in any way. I agree to avoid this destructive behavior.

Violence or intimidation
Violence or intimidation toward other group members is never tolerated. I understand that I must never be violent or intimidating toward other group members and that if I threaten to harm persons or property I will be asked to leave the group.

Alcohol and Other Drugs
Group members cannot participate in the group under the influence of alcohol or other mind altering drugs. When under the influence of chemicals, persons do not have access to their emotions and have less control over their behavior. I understand that if the leader believes that I am under the influence of alcohol or other drugs, I will be asked to leave the group.

Gossip
Gossip and secret grudges can be very destructive in a group. I agree that if I have something to say to another group member, I will try to say it to the member directly rather than talk about him/ her behind his/her back.

Responsibilities
I understand that it is the group leader's responsibility to enforce these procedures and guidelines. By typing my name in the box below, I am agreeing to abide by these guidelines.

Appendix K: Main Study Demographics and Characteristics Survey

Text Entry Question: What is your participant ID number (MONTH of birth followed by last 4 digits of your SS#)?

What is your class level?

- ○ Freshman (1)
- ○ Sophomore (2)
- ○ Junior (3)
- ○ Senior (4)

How would you describe your coursework in college?

- ○ All online courses (1)
- ○ Mostly online courses (2)
- ○ An equal mix of online and in-person courses (3)
- ○ Mostly in-person courses (4)
- ○ All in-person courses (5)

What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

What is your age?

- ○ 18 - 24 (1)
- ○ 25 - 34 (2)
- ○ 35 - 44 (3)
- ○ 45 - 54 (4)
- ○ 55 - 64 (5)
- ○ 65 - 74 (6)
- ○ 75 - 84 (7)
- ○ 85 or older (8)

Do you have a mental health diagnosis?

- ○ No (1)
- ○ Yes (2)

We thank you for your time spent taking this survey. Your response has been recorded.