GUIDED IMAGERY AS A SUPPLEMENTAL TREATMENT FOR UPPER EXTREMITY DYSFUNCTION AND PSYCHOSOCIAL ASPECTS OF PAIN

A Thesis submitted to the faculty at Stanbridge University in partial fulfilment of the requirements for the degree of Master of Science in Occupational Therapy

by

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Certification of Approval

I certify that I have read Guided Imagery as a Supplemental Treatment for UE Dysfunction and Psychosocial Aspects of Pain by Amanda Brinkman, Zoe Matson, Angelina Nacionales, and Catherine Ninh, and in my opinion, this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy at Stanbridge University.

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Abstract

Psychosocial symptoms, such as depression and anxiety, are commonly associated with pain from upper extremity (UE) injuries or disorders. Previous studies have shown guided imagery (GI) to be an effective means to address psychosocial symptoms associated with pain, but very few studies explore the application of GI for UE conditions. We distributed an electronic survey to identify the current use and interest in integrating a GI manual in interventions to certified hand therapists and other related therapists working in UE rehabilitation. Of the 22 survey responses we received, we found 82% of participants have some knowledge of GI. However, 54% of participants rated their knowledge as low. We also found 73% of participants reported using GI in their practice, and within those participants, 75% reported implementing GI in 0-25% of their interventions. In contrast, 27% of participants reported they do not use GI in their practice but would likely implement GI if provided a manual. Barriers of implementing GI into clinical practice include time constraints, patient-related issues, reimbursement factors, and limited knowledge. Future studies are needed to: (1) obtain a larger sample size; (2) create an evidence-based GI manual to increase the use of GI; and (3) advocate for an evidence-based GI manual as an alternative treatment in addressing psychosocial symptoms among patients with UE injuries or disorders.

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Guided Imagery as a Supplemental Treatment for Upper Extremity Dysfunction and Psychosocial Aspects of Pain

Certified Hand Therapists (CHTs) are occupational therapists (OTs) or physical therapists (PTs) that treat a complexity of upper extremity (UE) disorders and dysfunction. A CHT has a minimum of three years of clinical experience, in addition to 4,000 hours of direct practice in hand therapy. After the minimum requirements are fulfilled, a therapist must successfully pass a comprehensive certification test that outlines advanced skills and theory in UE rehabilitation (Hand Therapy Certification Commission [HTCC], 2018). CHTs often work alongside other healthcare professionals that also treat patients with UE dysfunction. For instance, generalist OTs, PTs, certified occupational therapy assistants (COTAs), and physical therapy assistants (PTAs) may work in the same realm as CHTs in UE rehabilitation.

CHTs and general therapists treat clients that complain of pain and physical dysfunction. The typical hand therapy intervention strategies for treating UE disorders, such as the use of modalities, manual mobilization, and orthotics, primarily focus on the biomechanical aspects of pain. However, the perceived problem is that clients who experience pain also undergo psychosocial symptoms, such as anxiety and depression, that are associated with pain after an UE injury or disorder (Hardison & Roll, 2016). This thesis project sought to identify the perceived knowledge, interest, and potential use of a specific mindfulness intervention amongst practicing CHTs, OTs, PTs, COTAs, and PTAs. We then determined if guided imagery (GI) could potentially reduce pain, anxiety, and depression in patients with UE dysfunction.

Statement of the Problem

Numerous studies have revealed that mindfulness-based interventions can be resourceful for tackling negative mental health, anxiety, stress, and pain (Adeola et al., 2015; Bekkers et al., 2014; Cherkin et al., 2016; Ruskin, Kohut, & Stinson, 2014; Vasantha, Almeida, & Kanagari, 2013).

Opioids have been used to treat chronic pain which has led to an exponential growth of opioid misuse and addiction. Statistics related to opioid misuse highlight the importance of developing a nonpharmacological approach to treat pain (Zeidan & Vaggo, 2016). Mindfulness meditation, such as GI, is a technique that has been found to significantly reduce pain in experimental and clinical settings.

However, further analysis of the current literature revealed the absence of a study that indicated GI to be generalizable to hand therapy patients. In the absence of evidence-based literature of the use of GI among therapists treating UE dysfunction, the current researchers aimed to survey CHTs, OTs, PTs, COTAs, and PTAs to identify their knowledge, use, and interest in using GI with a provided manual. The results will assist in determining whether the development of a self-directed GI manual will be a feasible supplemental intervention for CHTs and therapists treating UE dysfunction to use in their future practice.

Occupational therapists value viewing clients' needs holistically. In doing so, clinicians reinforce client-centered practice and embody the principles and values outlined by the Occupational Therapy Practice Framework (AOTA, 2014). As part of Stanbridge University's Masters of Occupational Therapy curriculum, students are encouraged to perceive, understand, and practice client-centered practice, in addition to

evidence-based practice. Therefore, it was critical for the current researchers to survey therapists and advocate for a more holistic approach when addressing hand therapy patients. We anticipated that the research would contribute to the field of occupational therapy by increasing evidence-based practice and offering an alternative, non-pharmacological approach to addressing pain, anxiety, and depression among hand therapy patients.

The purpose of this thesis project was to survey eligible therapists to identify their understanding and use of GI with patients experiencing UE dysfunction. The survey results were used to determine the level of interest and support for implementing GI as a supplemental intervention among therapists. In this project, we revealed that therapists will need and/or currently use GI in their interventions, which supported the suggestion that a GI manual should be developed to reduce psychosocial symptoms. The targeted population were clinical CHTs, OTs, PTs, COTAs, and PTAs that provide therapeutic intervention to clients experiencing UE dysfunction. This population was specifically desired because there we found a lack of research among these therapists in using GI as an effective intervention to treat pain, anxiety, and depression.

GI has been identified as a mindfulness intervention among healthcare practitioners used to treat pain, anxiety, and depression among various settings and populations. Upon reviewing the literature for the usefulness of GI, 32 articles pertaining to mindfulness-based interventions in treating pain, stress, anxiety, and depression among various populations were examined. The researchers narrowed down the literature to eight articles that specifically examine the effectiveness of GI and its outcomes.

Literature Review

Various themes emerged in past research regarding mindfulness-based interventions, including GI. Mindfulness-based interventions have been shown to have an influence on anxiety and depressive symptoms, pain management, and the recovery process throughout therapy. In terms of pain management, meditation-based stress reduction (MBSR) has been shown to be more effective in treating back pain and functional limitations than usual pain care, such as surgical or pharmacological interventions (Cherkin et al., 2016). It has even been shown to decrease chronic pain and improved function in adolescents (Ruskin et al., 2014). These studies indicate that mindfulness-based interventions target pain and can work with individuals of various conditions. However, the remaining gaps include how mindfulness-based interventions may affect adults with UE dysfunction and psychological aspects of pain, including depression and anxiety. Current researchers will explore the effectiveness of GI as a subtype of MBSR, when combined with a usual treatment, on individuals with UE dysfunction.

Mindfulness-based interventions have also been shown to decrease anxiety and depressive symptoms. The physiological experience of pain serves to reinforce patients' perceptions of pain. As a result, most patients are hesitant to push themselves with their recovery to avoid exacerbating psychological symptoms. Patients who receive guidance on restructuring their pain perceptions tend to respond better to painful experiences during the healing process (Bekkers et al., 2014). Overall, mindfulness-based interventions have been shown to alter pain transmission and pain perception, by influencing the mood of patients and making them relaxed (Vasantha et al., 2013). Other

studies also support the intervention's positive effects on emotions, which usually tend to be negative when associated with pain. For example, Ruskin et al. (2014) found that MBSR helped facilitate stress reduction in adolescents teaching them to be more kind to themselves, resulting in decreased anxiety.

However, the studies in our literature review concluded that results could not be generalized, due to limited sample size, or loss of participants due to participant drop out. We surveyed therapists specializing in treating UE conditions and dysfunction in order to identify the perceived knowledge, interest, and potential use of a specific mindfulness intervention amongst practicing CHTs, OTs, PTs, COTAs, and PTAs in reducing pain, anxiety, and depression.

Previous studies have indicated that GI can significantly improve the functional status and quality of life of many people (Vasanta et al., 2013). GI allows individuals to form mental images, use their sensory experiences, and modulate pain perception (Vasanta et al., 2013). According to Adeola et al. (2015), GI complements hand therapy interventions by providing an opportunity for client-centered care, by promoting autonomy, and by encouraging independence with a home exercise program. Patients are able to control their schedule outside of clinic times. They can choose the time of day, location, and frequency of the intervention. They are able to reflect on their experiences of pain and restructure the experiences to change their physiological behavior (Adeola et al., 2015). There is a lack of higher-level evidence that supports the efficacy of GI as an intervention strategy for reducing pain with UE conditions, suggesting the need for further research.

Statement of Purpose, Hypothesis, and Research Question

While substantial literature supports the use of GI among clinicians in tackling pain, anxiety, stress, and depression of patients with various disorders and conditions, a large gap in the research remains regarding generalizing these outcomes to therapists treating UE dysfunction. This thesis project focused on describing the perceived knowledge, interest, and potential use of GI among practicing therapists to treat patients with UE disorders. We gathered information through the use of an electronic survey formed of detailed questions to garner therapists' understanding, use, and interest of GI.

We aimed to evaluate the perceived need and interest of therapists in using GI for this population, if a self-directed manual was provided. To address this, the researchers determined the following research question: Will the survey reveal positive results or a positive response regarding interest in an evidence-based GI manual to support it as a non-pharmacological therapy intervention in UE rehabilitation? Based on the survey data, we then determined if a self-directed GI manual was needed.

Theoretical Framework

When managing pain and anxiety resulting from an injury or condition, both pharmacological and non-pharmacological approaches are involved. A heavily researched non-pharmacological approach is mindfulness; mindfulness interventions such as relaxation, meditation, MBSR, GI, and progressive muscle relaxation (PMR) have all shown potential in the reduction of pain, anxiety, depression, and stress (Vasantha et al., 2013; Di Giovanni & Piatt, 2016). According to Ruskin et al. (2017), mindfulness is the act of nonjudgmentally directing intentional attention to the present moment lending

itself to the cognitive behavioral therapy (CBT) framework in the field of occupational therapy.

Under the CBT framework, psychological problems are believed to be created based on one's thoughts and feelings about specific events. In turn, these perceptions (whether positive or negative) influence one's behaviors and actions in their lives, and how they perceive life events (Di Giovanni & Piatt, 2016). CBT interventions promote self-regulation, restructuring negative thoughts and behaviors into rational alternatives, and the practice of implementing alternative behaviors with new, healthy thoughts (Forkmann et al., 2014; Di Giovanni & Piatt, 2016). Within the CBT framework, mindfulness interventions utilizing relaxation, imagery, and distraction have been shown to be effective in increasing personal perceptions of control over symptoms. As a result, individuals experience a reduction in depressive and anxiety symptoms related to pain perceptions (Brown & Jones, 2013; Di Giovanni & Piatt, 2016; Ruskin et al., 2017).

Aside from improving overall mental health, CBT interventions offer patients a non-pharmacological and cost-effective option, supporting the theory that CBT may be a useful approach when discussing pain management among hand therapy patients and patients experiencing UE injuries (Di Giovanni & Piatt, 2016). GI is a feasible intervention in conjunction with typical occupational therapy and hand therapy treatments because it requires minimal time commitment, can be done at the patient's own leisure, and is effective in pain and stress reduction (Vasantha et al., 2013). According to Menzies, Taylor, & Bourguignon (2006), CBT combined with GI has been shown to have a significant impact on functional status, self-efficacy, reduced emotional distress, and reduced pain symptoms among patients with fibromyalgia. CBT interventions have been

shown to not only have a positive effect on patients' mental health outcomes, but to also provide patients with a non-pharmacological and cost-effective option that is applicable when addressing pain and stress reduction.

GI implemented under the CBT framework has been shown to be effective when used in conjunction with other therapeutic interventions and is a viable option for pain management among patients with UE dysfunction (Di Giovanni & Piatt, 2016). According to Menzies et al. (2006), GI is the dynamic, psychophysiological process in which one visualizes and experiences an internal reality in the absence of external stimuli. GI uses imagination along with incorporation of as many senses as possible, such as stimulating the visual, auditory, and olfactory systems, to alter pain experiences and perceptions (Di Giovanni & Piatt, 2016; Vasantha et al., 2013). GI is a cognitive process that works on refocusing attention, invoking active coping, utilizing distraction and relaxation, and managing perceptions of pain, anxiety, or stress, aligning itself with the CBT frame of reference (Adeola et al., 2016).

GI encompasses cognitive restructuring by reshaping symptom-related thoughts that may exacerbate pain and forming new thoughts that support positive pain management (Di Giovanni & Piatt, 2016). Vasantha et al. (2013) found that practicing GI regularly can reduce pain intensity and improve quality of life among cancer patients. GI, when used as a CBT pain management intervention, may help the person being treated modulate pain, alter pain transmission and pain perception, distract attention from the pain stimulus, relax, or influence the emotional or mood contexts (Vasantha et al., 2013). Based on the conclusions of past research, the use of GI among hand therapy patients to reduce pain may be a feasible intervention.

Methodology

This research project used descriptive statistical analysis and collected quantitative data using an electronic survey. The study was reviewed and approved by Stanbridge University's Institutional Review Board. Due to the specialized expertise in hand therapy, CHTs along with OTs, PTs, COTAs, and PTAs working with patients experiencing UE dysfunction/ injuries were invited to participate in the study. A total of 22 therapists completed the survey, consisting of seven CHTs, 10 OTs, three COTAs, and two PTs. There were no PTAs included in the survey responses.

The researchers created a novel survey to meet the goals of this research project. After a thorough investigation of survey development, four graduate students in occupational therapy and one supervising CHT drafted the initial survey. A pilot version of the study was distributed to a handful of therapists that are in the direct care of clients with UE injuries/ dysfunctions, including CHTs, OTs, COTAs, PTs, and PTAs. Survey revisions were completed based on feedback from the therapists. Revisions included enhancement of sentence structure and quality of questions. The final electronic survey was created using Google Forms.

Survey Design

The survey was designed with an introductory letter to ensure participants understood our background, the aims of our study, and study design. The introductory letter also outlined ethical considerations such as asking for eligible participants' consent and provided information regarding time, reimbursement, risks, and benefits. After the introductory letter, the survey questionnaire included 13 questions, which asked for consent, demographic questions regarding therapists' credentials, highest degree of

educational attainment, years of practice, practice settings, and percentage of current caseloads spent treating patients with hand or UE injuries. We also included questions that targeted therapists' current knowledge GI, use of GI, and interest in using GI if provided a self-directed manual (see Appendix A for survey questions and answer choices).

Survey Distribution

The final survey was distributed to CHTs, OTs, PTs, COTAs, and PTAs through purposive sampling and a snowball effect, asking individuals, professionals, and therapists to pass the survey on to other qualified professionals via email.

Statistical Analysis

The current researchers collected 22 survey responses from participants. The researchers used descriptive statistics using IBM SPSS to conduct the percentage, means, and standard deviation of each response.

The numbers inputted in SPSS indicate the respective responses for the following questions: "Have you used GI in your therapy treatments to address pain and/or anxiety and/or depression?" (1 = yes, 2 = no); "How would you rate your current knowledge of the evidence for GI in reducing anxiety, depression, and/or pain in UE patients?" (1 = low, 2 = moderate, 3 = high); "Do you currently use GI in your practice?" (1 = yes, 2 = no); "What percentage of your treatment sessions include GI?" (1 = 0-25%, 2 = 25-50%, 3 = 50-75%, 4 = 75-100%); "Would using a self-guided GI manual into your practice improve the likeliness of implementing GI into your daily practice?" (1 = yes, 2 = no); "What would you identify as a desired outcome as a result of implementing GI into your clinical practice?" (1 = improve clinical expertise, 2 = develop awareness of evidence; 3

= improve patient outcomes; 4 = all of the above; 5 = other); and "What would you identify as a barrier to implementing GI into your clinical practice?" (1 = time constraints, 2 = lack of knowledge, 3 = reimbursement factor, 4 = patient-related issues, 4 = other).

After the statistical analysis was conducted, results showed that 46% of therapists worked directly with patients with UE complications. In comparison, 27% of therapists had little to no caseload of similar complications. Regardless of the exposure to caseloads regarding UEs, results indicate that 81% of therapists tend to use GI in their interventions (M = 1.2, SD = .42), but 50% of them had little knowledge, while 41% of them had moderate knowledge of using GI in their practice (M = 1.6, SD = .67). Therapists who use GI in their practice state that it is included in about 0-25% of their past interventions (M = 1.21, SD = .42). Of those therapists, 68% still use them in their interventions (M = 1.27, SD = .46). Some of the therapists stated they choose not to continue GI in their interventions because of lack of knowledge (M = 2.45, SD = 1.22). However, 100% of therapists that responded indicated that they are likely to use a GI manual that could assist with carrying out the GI sessions in their interventions (M = 1, SD = 0).

Development of an Evidence-based GI Manual

We developed a preliminary GI manual and GI audio recording to distribute to interested CHTs, OTs, COTAs, PTs, and PTAs. The GI manual includes an introduction to GI, current research on the benefits of GI, and a prerecorded audio link for patients to listen to before, during, or after their treatment session. The research team also included a written script in anticipation of supporting those that prefer a written script as opposed to an electronic audio script.

Results

Demographics

Using purposive sampling and a snowball effect method, surveys were emailed to CHTs, OTs, COTAs, PTs and PTAs throughout the United States, 22 were completed and returned. Of the 22 therapists that completed the survey, 100% gave consent to participate in the survey.

When asked about credentials, 10 reported to be OTs, seven CHTs, three COTAs, and two PTs. When asked about the highest educational attainment level, five reported doctorate degrees, seven master's degrees, six bachelor's degrees, three associate's degrees, and one did not report. Data revealed that work experience ranged from six to 21 or more years, with 82% of therapists (18) having 21 or more years of experience as a therapist. The participants' practice settings included nine hospital-based outpatient settings, six private practice outpatient settings with two specifically in orthopedics and hand therapy, three home health with one specifically in assisted-living/independent living, three in academia with one including part-time skilled nursing and one including clinical experience in pediatrics, and one in a skilled nursing facility.

When participants were asked about their percentage of current caseload that treats patients with UE injuries and dysfunction, 45% of therapists (10) reported having 75-100% of cases that deal directly with UE patients. The remaining participants included two reported having 50-75% of UE cases, four reported having 25-50% of these cases, and six reported 0-25% of cases (see Appendix B).

Participants' Current Knowledge of GI

When provided with a definition of GI and asked if they had used GI in their therapy interventions to address pain, and/or anxiety and/or depression, 82% (18) of the surveyed therapists reported that they had, while 18% (4) reported that they had not (see Appendix C). When addressing their level of current knowledge of GI, 55% (12) of the participants reported low knowledge levels, while 41% (9) reported that they were moderately knowledgeable, and 9% (2) reported high levels of knowledge (see appendix D).

These results revealed a significantly high usage of GI in therapists' past practice with over 80% of prior implementation. Although a significantly high number of prior use was reported, only a small number (2) reported high levels of knowledge with the majority reporting moderate to low knowledge. The finding that over 80% of our participants had prior use of GI suggested that a GI manual is a feasible resource to address therapists' knowledge and confidence in addressing pain with clients experiencing UE dysfunction.

Participants' Use and Interest in GI

When the therapists were asked if they currently used GI in their practice, 73% (16) of the therapists reported that they did, while 27% (6) reported that they did not. Of the 16 therapists who answered that they did use GI in their practice, 12 of them reported that they used GI 0-25%, while the remaining four reported that they used GI 25-50% in their practice (see Appendix E). When the six therapists who reported that they did not use GI in their practice were asked if a GI manual would improve the likelihood of them using GI in their everyday practice, 100% of them said yes (see Appendix F). These

results supported our hypothesis that over 80% of therapists are interested in using GI if a manual was provided to them.

Participants' Perceived Barriers and Outcomes

When surveyed about desired outcomes when implementing GI into clinical practice, zero selected improving clinical expertise, zero selected developing awareness of evidence, 23% (5) selected improving patient outcomes, and 77% of therapists (17) selected all of the above (see Appendix G). When asked about potential barriers the therapists foresee when implementing GI into their clinical practice, 23% (5) selected time constraints, 23% selected patient related issues, 9% (2) selected reimbursement factor, 41% (9) selected lack of knowledge, and 5% (1) selected "none, we already use it" (see Appendix H).

These results suggest that the majority of therapists (77%) have multiple perceived outcomes for the implementation of GI as they desire to increase patient outcomes, clinical expertise, and awareness of evidence. Results for perceived barriers are dispersed; however, the highest percentage (41%) agreed that lack of knowledge was the most common barrier to GI implementation. These results also provided support to our hypothesis, as the GI manual was designed to increase knowledge for therapists to use with their patients with the aim to increase patient outcomes, clinical experience, and awareness of evidence.

Limitations

A possible limitation in the study was the lack of responses for certain questions. There were two questions that not everyone answered, which could have skewed the data. While the average length of the survey questions was short and concise, there is still a

possibility that the meaning the researchers were trying to convey could have been misunderstood by the participants and resulted in no responses. Other limitations and potential factors that could have led to skewed data include human error when inputting the data points in SPSS, malfunction of the data analysis program itself, and lack of overall interest from the therapists when completing the survey. Lastly, the researchers had a limited time frame for collecting data and only collected a total of 22 survey responses from eligible therapists. In order to increase validity and reliability of data, the researchers needed more time for recruitment. Because the researchers only collected responses from 22 therapists, the data may not accurately reflect the true population of qualified professionals regarding the use of GI in UE rehabilitation.

Ethical Considerations

Ethical and legal considerations addressed mainly anonymity and informed consent. Therapists were not asked to provide any names as name disclosures were not required to complete the survey. The survey only sought to include therapists' credentials, highest educational attainment level, practice setting, and years of practice. In order to address informed consent, the survey included an introductory letter that outlined the ethical considerations of this study and asked for informed consent prior to partaking in the questionnaire. In the introductory letter, therapists were informed of the research aim of the survey and the eligible participants that the researchers were seeking. Therefore, CHTs, OTs, PTs, and COTAs were the target audience of the study and were asked to continue the questionnaire if they met the criteria.

In addition, participants were informed of the survey's length, which approximated to about 10-15 minutes, and that completing the survey required no

financial cost. Participants were advised that there were no known risks in taking the survey and that there were no payments or reimbursements for participation in the study. Therapists were advised that their participation was strictly voluntary and that they may refuse to complete the survey at any point.

Lastly, participants were informed how their responses would be used in the research project and ensured confidentiality, anonymity, and legal considerations as outlined by IRB guidelines. Participants were provided a contact email address and researchers' names if the participants should have any questions or comments pertaining to the research study and usage of their responses.

Conclusion

A non-pharmacological approach that addresses pain and psychosocial factors affecting clients experiencing UE dysfunction, that is grounded in evidence, is mindfulness; interventions such as relaxation, meditation, MBSR, GI, and PMR have all demonstrated benefits in reducing pain, anxiety, depression, and stress (Vasantha et al., 2015; Di Giovanni & Piatt, 2016). Our thesis focused on GI as a potential mindfulness intervention. Guided imagery has been identified as an intervention among healthcare practitioners that has been positively utilized in treating pain, anxiety, and depression among various settings and populations.

The purpose of this study was to determine the surveyed therapists' understanding of GI, and their interest in the potential implementation of a GI manual that would supplement typical interventions performed with hand therapy patients. The quantitative data was collected using an electronic survey created on the platform, Google Forms. The

survey was distributed to 22 therapists that deal with UE injuries or dysfunction, including CHTs, OTs, COTAs, PTs and PTAs.

The results and analysis of the surveys found that therapists have, on average, low knowledge of GI and of the evidence that GI can help reduce anxiety, depression, and/or pain in patients with UE complications. Results and analysis reveal that despite the low knowledge (55%), a significant amount of therapists (82%) have used GI in their interventions. However, 100% reported they will likely use a GI manual, if provided, because it will increase their knowledge about the practice. In effect, they feel that it might help with improving clinical expertise, developing awareness of evidence, and improving patient outcomes. These results support our research question that over 80% have used GI in their practice and over 80% will likely use GI as a supplemental tool with a provided manual.

Future Directions for Occupational Therapy

Future studies should consider creating a GI manual that will help therapists, whether they have lack of knowledge to a high level of knowledge, that targets pain, anxiety, and/or depression among hand therapy patients. Future researchers should also consider increasing the number of participants to increase validity and reliability of data results. These results may reflect the true population of therapists working in UE rehabilitation.

Implications for Occupational Therapy

Results from this study support the occupational therapy profession's philosophy of advocating for non-pharmacological and holistic interventions. The results have implications for occupational therapy in that it has contributed evidence-based research

for the use and interest of using GI in UE rehabilitation. Future research should seek out and implement GI as an alternative treatment among hand therapy patients, as well as evaluate the implementation of GI to determine its effectiveness in addressing psychosocial symptoms.

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Table A Survey Questions and Answer Choices

1. Do you consent to participation? A. Yes B. No 2. Are you a(n): A. Physical Therapist (PT) B. Certified Occupational Therapy Assistant (COTA) C. Certified Hand Therapist (CHT) D. Occupational Therapist (OT) E. Physical Therapy Assistant (PTA) 3. What is the highest educational degree you have earned? A. Associate's Degree B. Bachelor's Degree C. Master's Degree D. Doctorate Degree 4. How many years of experience do you have as a therapist? A. 0-5 years B. 6-10 years C. 11-15 years D. 16-20 years E. 20+ years 5. What type of setting are you currently working in as a therapist? A. Hospital-based outpatient B. Private-practice outpatient C. Hospital-based inpatient D. Telehealth E. Other: Hand therapy, skilled nursing facility (SNF), academia, or home health 6. What percentage of your current caseload do you spend treating patients with hand or UE injuries?	A. 0-25% B. 25-50% C. 50-75% D. 75-100% 7. Have you used GI in your therapy treatments to address pain and/or anxiety and/or depression? A. Yes B. No 8. How would you rate your current knowledge of the evidence for Gi in reducing anxiety, depression, and/or pain in UE patients? A. Low B. Moderate C. High 9. Do you currently use GI in your practice? A. Yes B. No 10. If yes, what percentage of your treatment sessions include GI? A. 0-25% B. 25-50% C. 50-75% D. 75-100% 11. If no, would using a self-guided GI manual into your practice improve the likeliness of implementing GI in your daily practice? A. Yes B. No

12. What would you identify as a desired outcome as a result of implementing GI into your clinical practice?

A. Improve clinical expertise
B. Develop awareness of evidence
C. Improve patient outcomes
D. All of the above
E. Other:

13. What would you identify as a barrier to implementing GI into your clinical practice?

A. Time constraints
B. Lack of knowledge
C. Reimbursement factor
D. Patient related issues (diagnosis is not appropriate, patient not interested)
E. Other:

Table B Percentage of Caseload with UE Patients

Statistics

		PercentCaseLoadWithUE	PastUseofGI	CurrentKnowledgeOfGI	CurrentUseofGI	PercentageOfUsingGI	LikelyToUseGIManual	DesiredOutcomeforGI	BarriersOfImplementingGI
N	Valid	22	22	22	22	19	14	22	22
	Missing	0	0	0	0	3	8	0	0

PercentCaseLoadWithUE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	27.3	27.3	27.3
	2	4	18.2	18.2	45.5
	3	2	9.1	9.1	54.5
	4	10	45.5	45.5	100.0
	Total	22	100.0	100.0	

Figure B Percentage of Caseload with UE Patients

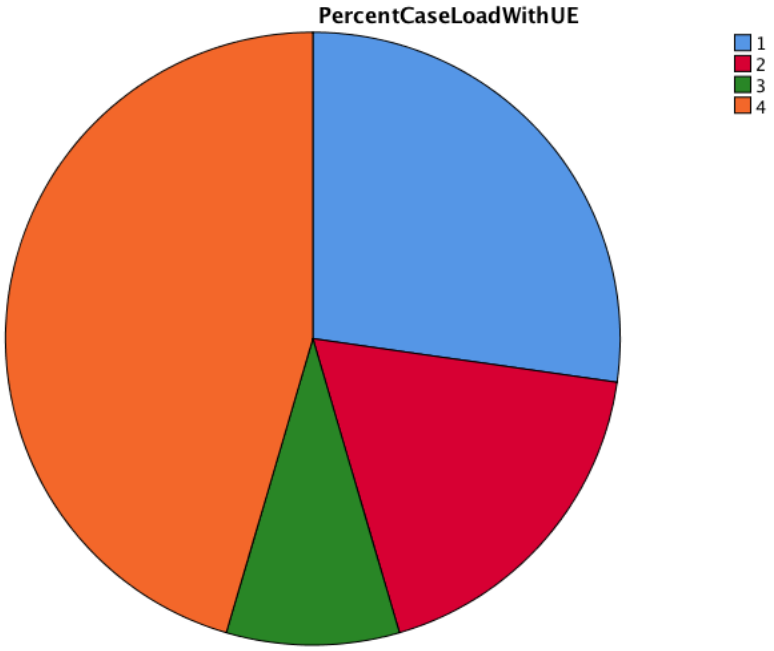


Table C Past Usage of GI

PastUseofGI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	18	81.8	81.8	81.8
	2.00	4	18.2	18.2	100.0
	Total	22	100.0	100.0	

Figure C Past Usage of GI

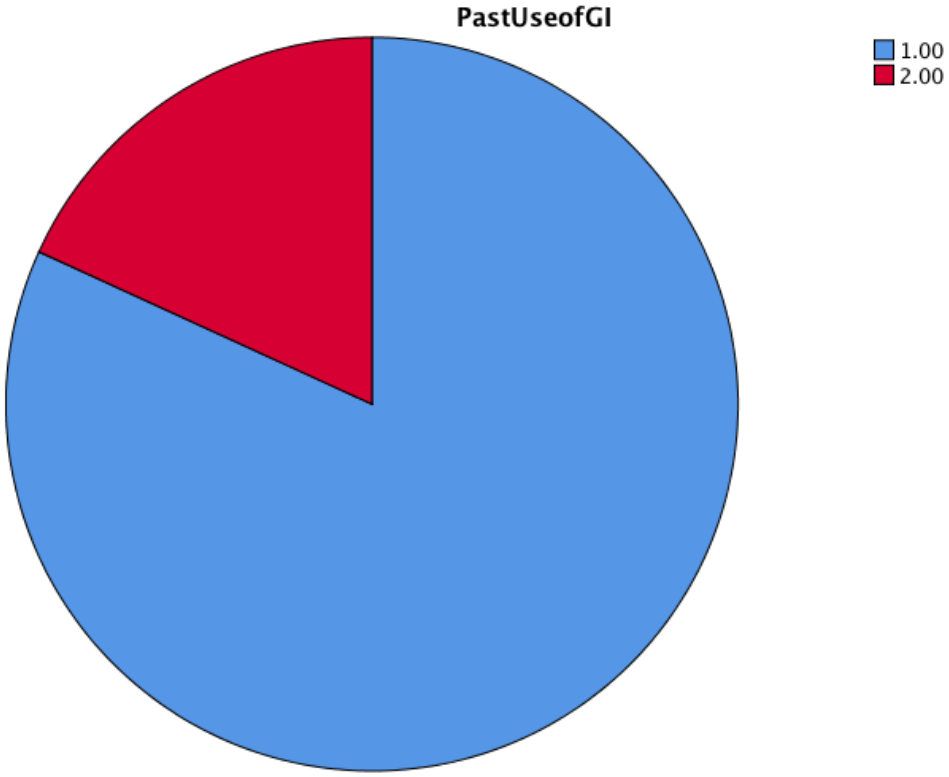


Table D Current Knowledge of GI

CurrentKnowlegeOfGI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	11	50.0	50.0	50.0
	2.00	9	40.9	40.9	90.9
	3.00	2	9.1	9.1	100.0
	Total	22	100.0	100.0	

Figure D Current Knowledge of GI

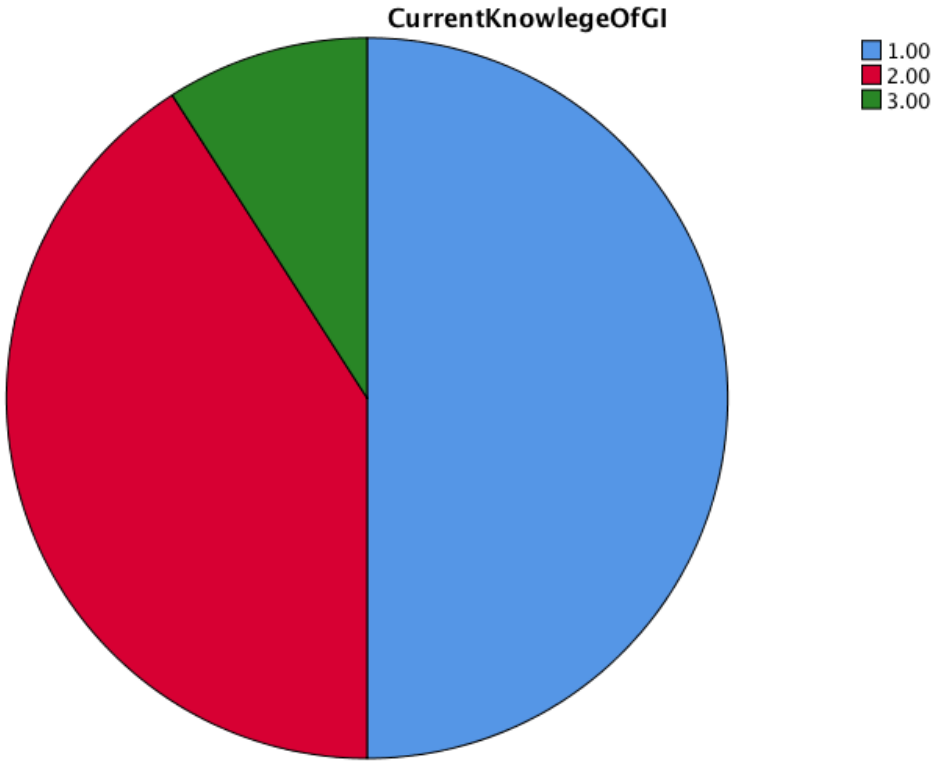


Table E Percentage of Current Usage of GI

PercentageOfUsingGI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	15	68.2	78.9	78.9
	2.00	4	18.2	21.1	100.0
	Total	19	86.4	100.0	
Missing	System	3	13.6		
Total		22	100.0		

Figure E Percentage of Current Usage of GI

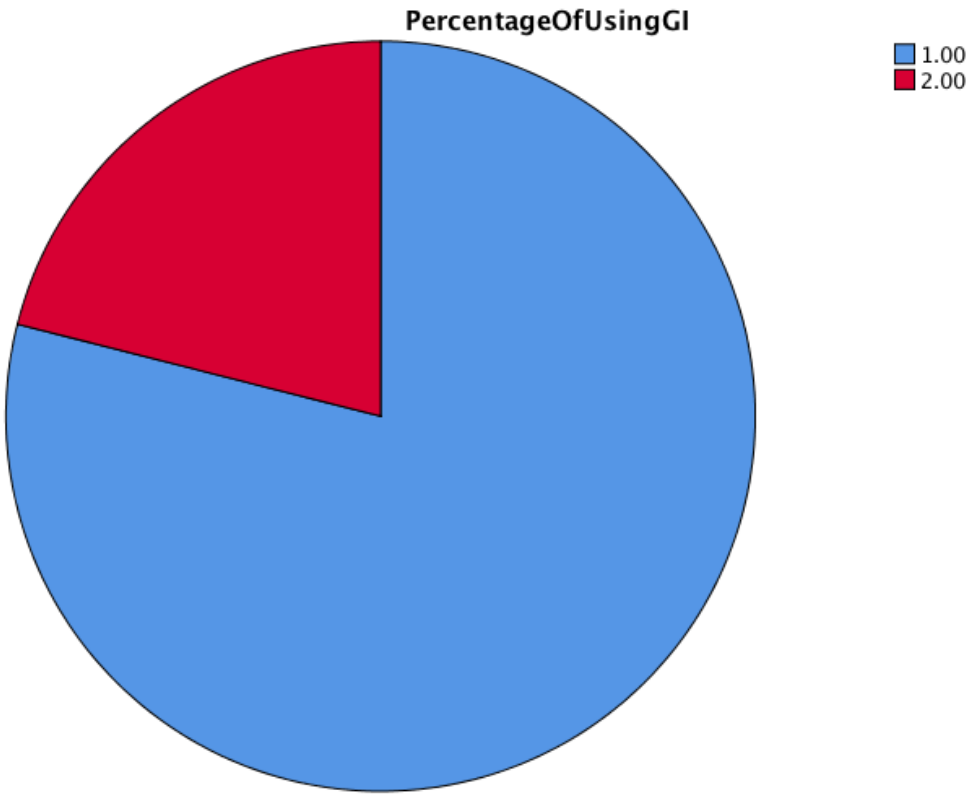


Table F Interest in Using GI with a Manual

LikelyToUseGIManual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	14	63.6	100.0	100.0
Missing	System	8	36.4		
Total		22	100.0		

Figure F Interest in Using GI with a Manual

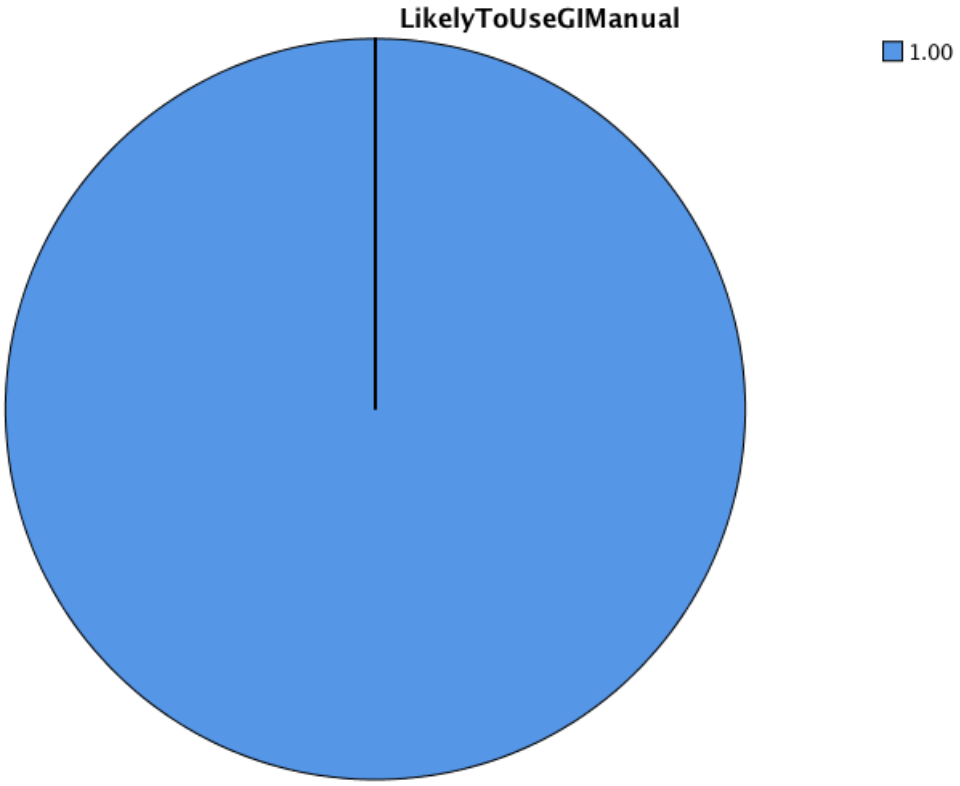


Table G Desired Outcomes for

GI

DesiredOutcomeforGI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	22.7	22.7	22.7
	4.00	17	77.3	77.3	100.0
	Total	22	100.0	100.0	

Figure G Desired Outcomes for GI

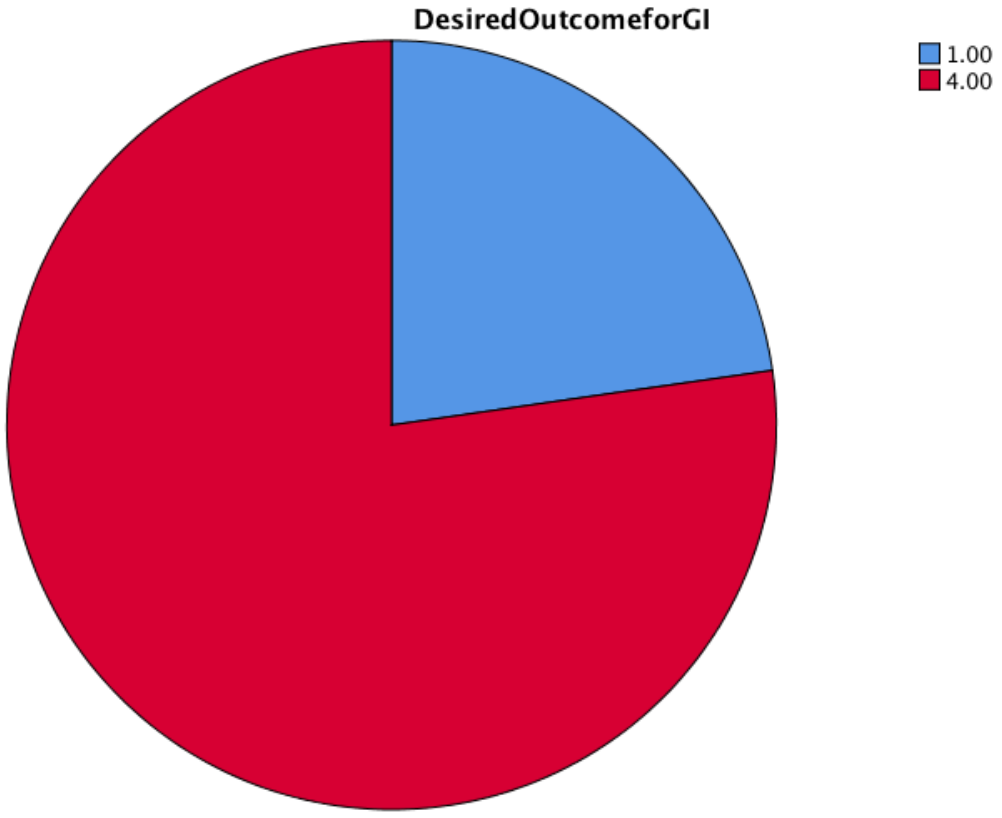
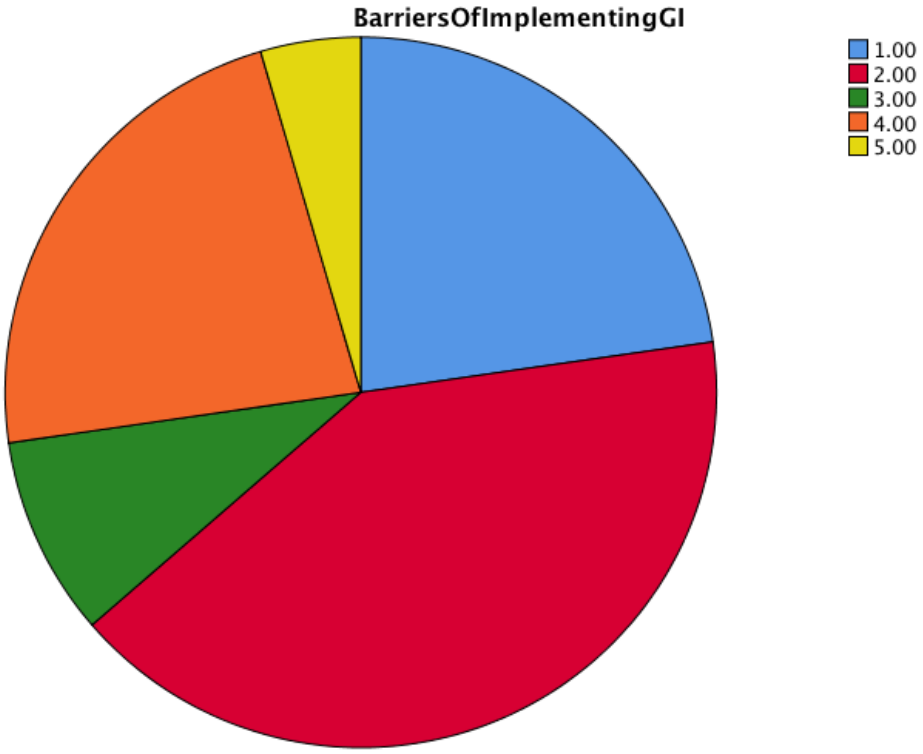


Table H Perceived Barriers of Implementing GI

BarriersOfImplementingGI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	22.7	22.7	22.7
	2.00	9	40.9	40.9	63.6
	3.00	2	9.1	9.1	72.7
	4.00	5	22.7	22.7	95.5
	5.00	1	4.5	4.5	100.0
	Total	22	100.0	100.0	

Figure H Perceived Barriers of Implementing GI



Institutional Review Board Approval

My signature below indicates that the information provided in this application is complete and accurate. I agree to comply with all IRB policies and procedures as well as all relevant local, state, and federal regulations regarding the use of human Participant(s) in research. I am familiar with and agree to adhere to the ethical principles in the conduct of research with human participants as set forth by the Stanbridge University IRBPHS manual.

Name of applicant:	**Signature of Applicant:**	**Date:**
Amanda Brinkman	Amanda Brinkman	**07/09/2019**
Catherine Ninh	Catherine Ninh	**07/09/2019**
Angelina Nacionales	Angelina Nacionales	**07/09/2019**
Zoe Matson	Zoe Matson	**07/09/2019**

Signature of Faculty Advisor*:	**Name of Faculty Advisor:**	**Date:**
Dr. Tracy Chism-Balangue	Dr. Tracy Chism-Balangue	7/19/19

**Your signature indicates that you accept responsibility for the research described, including work by students under your supervision. It further attests that you are fully aware of all procedures to be followed, will monitor the research, and will notify the IRBPHS of any significant problems or changes.*

Institutional Review Board Approval of Modification Letter

Dr. Tracy Chism-Balangue

Fwd: Notice of IRB Approval of Modification for #01942

To: Amanda Lynelle Brinkman, Zoe Matson, catherine ninh, Angelina Nacionales

FYI...

Begin forwarded message:

From: "Dr. Dominique Wascher" <dwascher@stanbridge.edu>
Date: April 27, 2020 at 10:41:26 AM PDT
To: "Dr. Tracy Chism-Balangue" <Tcchism@gmail.com>
Subject: Notice of IRB Approval of Modification for #01942

Dear Dr. Chism-Balangue,

The IRB has reviewed and approved your modification request for #01942.

IRB Application Number	01942
Date	04/27/2020
Level of Review	Exempt
Application Approved	X
Conditional Approval	
Disapproved	
Modification	X (Recruitment material and survey submitted to IRB)
Signature of IRB Chair	

Sincerely,

Dominique Nguyen Wascher, Ph.D.
IRB Chair