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Original Article

The Feasibility and Effectiveness of Online Guided Imagery Training for Health Professionals

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Abstract

This study evaluated the feasibility and impact of brief online guided imagery training (up to 3 hours) for health professionals. Paired *t* tests were used to measure pre-to-post-training changes in stress (Perceived Stress Scale,), anxiety (Patient Reported Outcomes Measurement Information System–Anxiety Scale), empathy (Empathic Concern Scale, and Perspective-taking Scale), and self-efficacy (Self-Efficacy in providing Non-Drug Therapies Scale). Online guided imagery training attracted diverse health professionals and trainees (n = 273; 14% trainees; 34% registered nurses, 20% physicians, 14% social workers, 5% registered dititians, and 27% others). Participants reported small but significant pre-to-post-module improvements in stress (17.8 to 13.5), anxiety (*T*-scores 56.4 to 54.3), empathy (both empathic concern, 29.8 to 30.7, and perspective taking, 28.0 to 29.4), and self-efficacy in providing nondrug therapies for common symptoms (58.5 to 77.0) ($P < .001$ for all). Future studies will need to examine the clinical impact of online guided imagery training for health professionals.

Keywords

hypnosis; online training; guided imagery; stress; empathy

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Guided imagery, often interchangeable with clinical hypnosis, is a mind-body approach that improves patient outcomes in clinical settings.[1,2] Guided imagery focuses attention on visual, auditory, or other sensory images for therapeutic purposes. Clinical uses include safely reducing acute and chronic pain,[3-5] reducing preoperative and preprocedural anxiety,[6,7] soothing pain and anxiety in emergency settings,[8] facilitating postoperative recovery,[9] promoting relaxation during childbirth,[10] and promoting behavioral change for children with enuresis and adults attempting to quit smoking or change other problematic behaviors or habits.[11,12] Over the past 20 years, guided imagery training has become available through numerous national and regional societies for clinical hypnosis (eg, the American Society for Clinical Hypnosis, the Society for Clinical and Experimental Hypnosis, and the National Pediatric Hypnosis Training Institute) as well as on CDs and applications for smartphones and tablets.[13] One of the major barriers to widespread use of guided imagery in health care is the lack of professionals trained in this approach.[14]

Professional training in guided imagery could benefit health practitioners as well as their patients. Stress is common among health professionals, and guided imagery could reduce work-related anxiety during transitions into new roles and work places (eg, from trainee to practitioner).[15,16] Training may also provide additional therapeutic options and increase clinicians' self-efficacy in utilizing guided imagery techniques, facilitating more widespread use of guided imagery in clinical practice.[17,18] Perspective taking and the ability to imagine oneself in a patient's position are two important components of empathy among health professionals.[19] Because guided imagery requires professionals to guide patients in imagery personally relevant to the patient, training could also increase professional empathy. Few studies have assessed the impact of guided imagery training on health professionals' stress, anxiety, empathy, or self-efficacy.

Because our previous research suggested that online interprofessional training in mind-body skills is feasible,[20] we conducted this study to describe the feasibility and effectiveness of training in guided imagery, specifically. For this project, feasibility was defined as recruiting a variety of health professionals and trainees; effectiveness was defined with pre-to-post-training changes in participants' stress, anxiety, empathy, and self-efficacy. Our hypothesis was that brief, online training in guided imagery would be feasible and would improve

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outcomes among a university-based sample of health professionals.

Methods

Study Design

Data were collected from May 2014 to October 2015 as part of an online interprofessional training program. The online training included 3 modules on guided imagery. The program was an elective freely available to students, faculty, and staff at our university and available to non-university health professionals for a nominal fee. Continuing Education credit was available. Eligibility was restricted to participants who completed all items on the pre- and post–self-reflection exercises in one or more guided imagery module.

Module Content

The 3 guided imagery modules or units included (1) Autogenic Training (Guided Imagery for Relaxation and Stress Relief); (2) Guided Imagery for Pain, Insomnia, and Behavioral Issues; and (3) Guided Imagery and Hypnosis for Pregnancy, Procedures, and Preparing for Surgery. Each of the 3 units contained cases, summaries of research supporting the benefit of guided imagery practices, links to PubMed abstracts on the risks and benefits of guided imagery, and instructions for practice. The core of each unit contained links to MP3 recordings and YouTube videos of guided imagery practices to allow for experiential learning. Each unit concluded with resources and tips regarding how to introduce the practices to patients or clients. Each unit also contained self-reflection exercises using validated instruments to measure participants' stress, anxiety, empathy, and/or self-efficacy before and after unit completion. Results were provided immediately to participants who completed all items of the standard, self-reflection instruments.

Measures

The "Autogenic Training" unit recorded participant stress and anxiety with the 10-item Perceived Stress Scale and the 8-item Patient Reported Outcome Measurement Information System anxiety scale.[21-24] The "Guided Imagery for Pain, Insomnia, and Behavioral Issues" unit assessed participant empathy using two 7-item subscales of the Interpersonal Reactivity Index, the empathic concern and perspective taking subscales, that have been used in other studies of health professionals.[25,26] The "Guided Imagery and Hypnosis for Pregnancy, Procedures, and Preparing for Surgery" unit assessed participant self-efficacy using the Self-Efficacy in using Non-Drug Therapies to Relieve Common Symptoms (SEND) scale, which has 10 items scored on a Likert-type scale from 0 to 10 and an internal reliability of .95.[27] Participant information—gender, trainee status, and health profession—was collected at registration.

Statistical Analysis

Simple descriptive statistics were used to characterize participants by gender, trainee status, profession, and institutional affiliation. Participants' pre and post unit responses were compared using 2-tailed paired *t* tests ($\alpha < .05$). All analyses were conducted in Microsoft Excel (Office 365, Version 15.0.4753.1003) and R (Version 3.2.2; The R Foundation for Statistical Computing).

Table 1. Participant Characteristics.

	Participants Who Completed One or More Guided Imagery Modules	
Professional Group	n	%
No. of enrollees	273	100
Gender, Female	228	84
Ohio State University staff or students	235	86
Trainees	39	14
Profession		
Acupuncturist, chiropractor, massage therapist	8	3
Dietitian	8	3
Nurse	93	34
Physician	55	20
Social worker, psychologists, or licensed counselor	37	14
Researcher	8	3
Other, including administrators, technicians, volunteers, human resources, staff, and others	54	20

Results

The 273 participants who completed pre and post self-reflection exercises for one or more guided imagery module were largely female (84%) and from our institution (86%). Fourteen percent were trainees. Overall, the group was professionally diverse and included nurses (34%), physicians (20%), and social workers, psychologists, or licensed counselors (14%); the other 27% of participants included acupuncturists, chiropractors, dietitians, massage therapists, occupational and physical therapists, pharmacists, radiology and laboratory technicians, and unit clerks and administrators (Table 1).

Before completing the "Autogenic Training" unit, participants (n = 251) reported stress (17.8 $\pm$ 5.0) and anxiety (*T*-score 56.4) levels substantially above US population averages (12-15 and 50, respectively).[22,24] Following module completion, participants reported significantly reduced stress (13.5 $\pm$ 6.1) and anxiety (*T*-score 54.3) levels ($P < .001$ for both) (Table 2).

On the other hand, prior to completing the "Guided Imagery for Pain, Insomnia, and Behavioral Issues" module, participants (n = 160) reported empathy scores (empathic concern [29.8 $\pm$ 3.6] and perspective taking [28.0 $\pm$ 4.5]) higher than previously described averages in large samples of US adults (28.4 and 26.5, respectively) (Table 2).[28] Even so, empathy scores increased on both subscales after completing the module (empathic concern [30.7 $\pm$ 3.9], perspective taking [29.4 $\pm$ 4.5], $P < .001$ for both) (Table 2).

There are no national normative data for self-efficacy using the SEND scale. Participants in the "Guided Imagery and Hypnosis for Pregnancy, Procedures, and Preparing for Surgery" unit (n = 153) reported significant increases in self-efficacy in providing nondrug therapies for common symptoms (58.5 $\pm$ 23.7 to 77.0 $\pm$ 17.5, $P < .001$) (Table 2).

Table 2. Pre-to-Post-Training Changes in Stress, Anxiety, Empathy, and Self-Efficacy.

Module/Scale	Beginning (Mean ± SD) (*T*-Score if Relevant)	Ending (Mean ± SD) (*T*-Score if Relevant)	*P* Value
Autogenic training (guided imagery)			
Perceived Stress Scale, maximum 40 (stress)	17.8 ± 5.0	13.5 ± 6.1	<.001
PROMIS Scale for Anxiety, maximum 40 (stress)	18.1 ± 5.6 (56.4)	16.7 ± 5.5 (54.3)	<.001
Guided imagery for pain, insomnia, and behavioral issues			
Empathy Concern Scale, maximum 35 (empathy)	29.8 ± 3.6	30.7 ± 3.9	<.001
Perspective taking, maximum 35 (empathy)	28.0 ± 4.5	29.4 ± 4.5	<.001
Guided imagery and hypnosis for pregnancy, procedures, and preparing for surgery			
SEND, maximum 100 (self-efficacy)	58.5 ± 23.7	77.0 ± 17.5	<.001

Abbreviations: PROMIS, Patient Reported Outcomes Measurement Information System; SEND, Self-Efficacy in providing Non-Drug Therapies for Common Symptoms.

Discussion

This is the largest study to date on the impact of online training in guided imagery for health professionals. These results suggest that online training in guided imagery is both feasible in attracting diverse practitioners and trainees and impactful in improving clinician stress, anxiety, empathy, and self-efficacy. This study was not designed to determine whether the online training in guided imagery led to better patient care; however, this analysis has implications for clinician well-being.

Our results reinforce previous findings that online mind-body skills training is feasible and impactful.[20,29,30] In general, compared with in-person trainings, online training is less expensive and more convenient.[31,32] Additional research is needed to better delineate the relative costs and effectiveness of online versus in-person mind-body skills training programs for health professionals. One of the implications of our study is that health professionals that complete online training in guided imagery may be more capable of using these techniques with their patients. However, further studies will first need to examine whether individuals who have received unsupervised training can safely and correctly utilize guided imagery practices with others.

Health professionals in our sample reported higher levels of stress and anxiety than the general population of the United States.[22,24,28] Our results are consistent with previous findings that stress and anxiety are prevalent among health professionals.[33-36] Clinician stress and anxiety are associated with burnout, and burnout has been linked to poor quality of care.[33,37-39] Training programs that target clinician stress and anxiety could thus lead to better patient care. Additional studies will need to examine the impact of online training in guided imagery on the quality of patient care. This study also reinforced existing findings that focused training in specific mind-body skills can improve clinicians' confidence in using mind body skills in clinical practice.[17,18] Additional studies will need to examine in general, the clinical meaning and impact of high scores in self-efficacy on the SEND scale[26] and more specifically whether clinicians' enhanced self-efficacy in using guided imagery therapies leads to greater use of guided imagery in clinical practice.

This study was limited by the sample being largely from one academic institution. Additional research is needed in other settings, including community health centers. Our sample included diverse practicing health professionals, most of whom (eg, nurses, dietitians, and social workers) were women and/or practitioners. Given women's disproportionate use of complementary therapies compared with men,[40] women may have also been more likely to enroll in trainings teaching complementary approaches. Future studies need to evaluate whether online training is as effective for men and trainees as for women and practitioners. In addition, because modules were offered on an elective basis, we cannot comment on whether the impact would be the same if training was mandatory. Individuals who participated in online guided imagery training may have been actively looking for ways to reduce their anxiety and stress and may have experienced greater benefit from the anxiety- and stress-reduction techniques offered in this training as a result. In contrast, health professionals *required* to complete this training may not benefit in the same way given that they may not be seeking anxiety- and stress-reduction techniques. Our participants also reported baseline levels of stress and anxiety higher than the US population average. Online guided imagery training may not be as effective in improving stress, anxiety, empathy, and self-efficacy metrics among participants with low or normal baseline stress and anxiety levels.

Our study suggests that online training in guided imagery for health professionals is feasible and effective—attracting practitioners from many disciplines, producing measurable improvements in qualities associated with burnout, and increasing participant self-efficacy in using guided imagery therapies in clinical practice. Further studies will need to investigate the feasibility and effectiveness of online guided imagery training on more diverse and gender-representative samples, including participants from nonacademic health facilities and participants with low or normal baseline stress levels. Finally, and perhaps most important, more data are needed to assess the short- and long-term clinical impact of brief, online training in guided imagery—data regarding the effect of this training on the quality of patient care and clinician use of guided imagery practices.

Authors' Note

Data collection for this project occurred at the Ohio State University, and data analysis was conducted at the Center for Integrative Health and Wellness at the Ohio State University.

Author Contributions

NR conducted data analysis, wrote the first draft of the manuscript, and approved the final manuscript. KJK supervised data collection, conceptualized the analysis, revised the manuscript, provided mentorship for project completion, and approved the final manuscript.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethical Approval

This project was approved by the Ohio State University Office of Research Institutional Review Board (approval number 2013 B0611).

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