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The Use of an Online Module to Increase Occupational Therapy Practitioners' Evidence-based Practice Knowledge and Skills

Purpose: To evaluate the effectiveness of an optional, self-paced, online module to increase occupational therapy practitioners' knowledge and skills related to evidence-based practice (EBP). **Method:** Participants' EBP knowledge and skills were evaluated using the Adapted Fresno Test (AFT) after they completed the online module. **Results:** Twenty-nine occupational therapy practitioners (25 OTR/L, 4 COTA/L) completed the entire 17-month initiative. Nineteen practitioners (65.5%) used the supplemental online module and 10 (34.5%) did not. Analyses of AFT scores revealed a mean test score of 83.00 ($n = 19$, $SD + 31.11$) for participants who utilized the online EBP module and a mean test score of 56.20 ($n = 10$, $SD + 36.67$) for participants who did not use the module. An independent sample t test (equal variances assumed) revealed that participants who used the online module achieved statistically significantly higher scores ($p = 0.048$, < 0.05) on the AFT. **Discussion:** The findings from this study suggest that the online EBP module was a useful support in significantly improving occupational therapy practitioners' knowledge and skills related to evidence-based practice. **Conclusions:** Online modules may be an effective tool to teach practitioners about EBP. More research is needed to identify particular features of online learning modules that are the most effective in increasing practitioners' EBP knowledge and skills.

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ABSTRACT

Purpose: To evaluate the effectiveness of an optional, self-paced, online module to increase occupational therapy practitioners' knowledge and skills related to evidence-based practice (EBP). **Method:** Participants' EBP knowledge and skills were evaluated using the Adapted Fresno Test (AFT) after they completed the online module. **Results:** Twenty-nine occupational therapy practitioners (25 OTR/L, 4 COTA/L) completed the entire 17-month initiative. Nineteen practitioners (65.5%) used the supplemental online module and 10 (34.5%) did not. Analyses of AFT scores revealed a mean test score of 83.00 ($n = 19$, $SD \pm 31.11$) for participants who utilized the online EBP module and a mean test score of 56.20 ($n = 10$, $SD \pm 36.67$) for participants who did not use the module. An independent sample t test (equal variances assumed) revealed that participants who used the online module achieved statistically significantly higher scores ($p = 0.048$, < 0.05) on the AFT. **Discussion:** The findings from this study suggest that the online EBP module was a useful support in significantly improving occupational therapy practitioners' knowledge and skills related to evidence-based practice. **Conclusions:** Online modules may be an effective tool to teach practitioners about EBP. More research is needed to identify particular features of online learning modules that are the most effective in increasing practitioners' EBP knowledge and skills. Endeavors

INTRODUCTION

Occupational therapy (OT) practitioners have accepted evidence-based practice (EBP) as a professional responsibility and as a useful framework for making clinical decisions, establishing the effectiveness of OT interventions, and achieving best care.¹⁻³ Nonetheless, there continues to be a significant gap in occupational therapy practitioners' actual use of evidence and EBP skills in practice.⁴ In fact, after surveying over 900 occupational therapists, Salls et al determined that only 25% of clinicians were routinely (i.e., at least once per month) using evidence and research to inform their practice.³

The divide between actual occupational therapy practice and EBP has been linked to several barriers. Lack of time and administrative support are typically noted as the most significant challenges to incorporating evidence into practice.^{2,5,6,7} Additionally, studies have also identified practitioners' limited understanding of statistical analyses and research designs, a lack of resources, limited access to journals and databases, and inadequate training in appraising evidence as possible reasons for the discrepancy between clinicians' attitudes towards EBP and actual self-reported EBP behaviors.^{1,2,7,8}

Although the topic of EBP among occupational therapy practitioners has been researched, there continues to be limited evidence of the effectiveness of educational interventions focused on supporting or improving evidence-based practice knowledge, skills, and behaviors.^{1,9,10,11} Perhaps this gap can be attributed to the fact that an overwhelming majority of instruments and assessments designed to measure the impact of EBP education were designed for physicians and medical students, do not include clinical scenarios that would be applicable to occupational therapy practitioners, and rely almost exclusively on self-report measures of

EBP confidence and/or ability.^{5,7} One exception to these measures is the Adapted Fresno Test (AFT), a tool developed by McClusky and Lovarini, that was modeled after the Fresno test of competence in evidence-based medicine (EBM).¹⁰ The AFT is unique in that it uses occupational therapy scenarios.^{10,12}

The AFT requires participants to select one of two occupational therapy clinical scenarios and examines their ability to construct a relevant PICO (population, intervention, comparison, and outcome) question, determine an effective search strategy and list of key terms, identify effective research designs related to their PICO, and describe strategies to maximize validity, reliability, and levels of clinical and statistical significance.^{5,10} Scores on the AFT range from a low EBP knowledge and skills score of zero to a high score of 156.¹⁰ Studies have shown that the AFT has good content and construct validity, internal consistency, and a sufficient level of sensitivity to measure change in EBP knowledge and skills.^{5,9,10}

Presently there is no agreed upon best educational intervention for increasing practitioners' EBP knowledge, skills, and behaviors. Continuing professional education, journal clubs, and returning for advanced degrees and certifications have been frequently cited as viable strategies, especially for clinicians who entered practice before didactic training in EBP became a curricular focus.^{3,7} In addition, web-based resources and online modules have been noted as practical instructional approaches in providing busy occupational therapy clinicians with didactic EBP training, opportunities to work through content conveniently and at their own pace, and ongoing and supported practice.^{2,3,7}

There is a growing interest in developing Internet-based training opportunities. Online modules have been shown to be useful educational interventions among health care clinicians. Recent studies have linked online modules to a reduction in insulin dosing and administration errors among pediatric nurses, improved comfort with client-practitioner interaction skills, and as a useful instructional strategy for supporting manual blood pressure reading competencies.¹³⁻¹⁵ However, only two studies were found that focused primarily on using online interventions to support the development of EBP knowledge and skills and none were specific to occupational therapy practitioners. Mollon et al used a pre-test/post-test design to explore the impact of an online EBP intervention on EBP practice, attitudes, and knowledge/skills of 327 allied health practitioners.¹⁶ Although changes in practice related to the use of EBP, attitudes toward EBP, and knowledge and skills associated with EBP were not statistically significant, analyses suggested that the online intervention was modestly helpful in increasing EBP knowledge and skills.¹⁶ Finally, Rohwer et al investigated the impact of using a 12-week online EBP module with first year physicians in family medicine.¹⁷ Findings based on a questionnaire distributed to students enrolled in the online module and their respective mentors suggested that the module was also effective in increasing EBP knowledge and skills.¹⁷

PURPOSE

The primary aim of this study was to evaluate the effect of an optional, self-paced online module to increase occupational therapy practitioners' knowledge and skills related to evidence-based practice.

METHODS

Educational Intervention

Occupational therapy practitioners who participated in this study were asked to do so as part of a 17-month long initiative at their workplace. An online self-study module that focused on increasing practitioners' EBP knowledge and skills was created by the first author and revised according to feedback from the second and third authors. The online module was offered on Survey Monkey, an online survey development tool that participants were already familiar with. Practitioners were also provided with a URL link so that they could access the learning module as often as they wished during the course of the study. In addition, the content of the module was also provided to participants in a PowerPoint presentation file so that they could continue to use it as a learning resource after the study concluded.

The intent of the online module was to provide the practitioners with a review of the content that was covered during three face-to-face professional development workshops and to offer participants an opportunity to practice their EBP skills. The development of content for the online EBP module was informed by the evidence-based process framework described by Bennett and Bennett.¹⁸ Additionally, the authors reflected on questions asked by the participants during didactic face-to-face EBP trainings and field notes during small group discussions as a strategy for determining and prioritizing content for the online learning module.

Initial information and the first three questions focused on using the PICO formula to identify parts of a clinical question, review clinical questions for missing parts, and draft an original clinical question based on a given scenario. This addressed the *Asking Clinical Questions* aspects of the EBP process.¹⁸ The next step focused on *Literature Search* and provided learning and practice opportunities around identifying and accessing different sources of information, hierarchies of evidence, search terms and key words, and strategies for narrowing a search.¹⁸ The third component of the online module focused on *Critical Appraisal*.¹⁸ Learners

were provided with findings from a literature search and asked to consider to what extent the findings were valid and clinically important. A review of factors that impact a study's validity and basic statistics and measures (e.g., p values, effect sizes) was included in the content. Lastly, the module addresses *Use of Research Evidence* by requiring learners to consider how the information may be applied given the client's context and the context of therapy.¹⁸ The module included a checklist of five questions that encouraged users to consider to what extent findings were congruent with the client's issue(s), preferences, beliefs, and values and with the practice setting and available clinical resources. The online module also utilized several instructional strategies including a quiz, an answer key, immediate feedback, and tailored prompts based on their responses, techniques which have been considered to be effective design strategies for online modules.^{13, 19, 20}

Research Design and Measures

A non-randomized post-test only control group design was used to compare AFT scores between practitioners who utilized the online module during the professional development initiative and practitioners who did not. The practitioners' use of the module was tracked according to an identification number that was assigned to them by the third author and remained unknown to the rest of the researchers. Use of the online module was completely voluntary. Only participants who participated in the entire 17-month initiative were included in this study. Ethics approval was obtained for this study through the university's institutional review board where the first, second, and forth authors are employed.

Analysis

AFT responses were assigned scores based on the rubric validated by McClusky and Bishop.⁵ Three of the four authors independently scored each participant's AFT responses and then reconciled any differences or questions until there was unanimous agreement on all AFT items.²¹ AFT scores were compared using a two-tailed t-test with a significance level set at .05. All analyses were performed using SPSS version 19.0.

RESULTS

Participants

A total of 29 occupational therapy practitioners completed the entire 17-month initiative and the AFT. Nineteen practitioners (65.5%) used the supplemental online module and 10 (34.5%) did not. All of the practitioners were directly employed by or contracted to a special education cooperative; all participants worked primarily in a school-based setting. Additional demographic information about the practitioners can be found in Table 1.

Table 1. Demographic Information

Demographic Variable	n (%)
Credential	
OTR/L	25 (86.2)
COTA/L	4 (13.8)
Education Level	
Associate's	4 (13.8)
Bachelor's	6 (20.7)
Master's	18 (62.1)
Doctorate	1 (3.4)
Years in Practice	
0-3	4 (13.8)
4-7	2 (6.9)
8-15	13 (44.8)
16+	10 (34.5)

Adapted Fresno Test Results

Analyses of AFT scores revealed a mean test score of 83.00 ($n = 19$, $SD \pm 31.11$) for participants who utilized the online EBP module and a mean test score of 56.20 ($n = 10$, $SD \pm 36.67$) for participants who did not use the module. An independent sample t-test (equal variances assumed) revealed that participants who used the online module achieved statistically significantly higher scores ($p = 0.048$, < 0.05) on the AFT.

Table 2

AFT Scores					
	Online Module	N	Mean	Std. Deviation	Std. Error Mean
Post-test only AFT	Users	19	83.0000	31.11270	7.13774
	Non-Users	10	56.2000	36.66606	11.59483

DISCUSSION

An optional, online EBP module was included as one embedded component of a 17-month EBP initiative for school-based occupational therapy practitioners. The module was designed to address the unique needs of the participants in this study and to provide ongoing support in narrowing the evidence-to-practice gap. The findings of this study suggest that the online EBP module was a useful support in significantly improving occupational therapy practitioners' knowledge and skills related to evidence-based practice. The results of this study also support previous studies which have demonstrated an increase in EBP knowledge and skills after online training modules.^{16,17} The flexible format and design of the learning module may also account for the positive findings because most participants in the study were employed full-time and carried large caseloads across multiple schools.

It is important to note that the online module in this study was only one component of a much larger, time-intensive EBP training initiative. As such, it is possible that the identified increase in EBP knowledge and skills may not be a direct result of the learning module but the effect of a variety of instructional strategies and opportunities. Additionally, these findings suggest that longer EBP training programs may be more effective than programs of shorter duration.

More research needs to be conducted in future studies to investigate to what extent particular features of online learning modules are most effective in increasing EBP knowledge and skills. In future studies, it may also be valuable to evaluate practitioners' perceptions about the usefulness of the learning module, as well as elicit their perceptions related to their experiences using the learning module.

STUDY LIMITATIONS

Limitations of this study include the inherent weaknesses of the post-test only design and lack of follow-up with participants regarding their experiences with using the online module. Although a post-test only design was selected because the online module was designed after the larger EBP initiative was almost completed, future studies may benefit from pre-test measures and measures of comparison among participants between groups. This study is further limited because the analysis cannot account for differences between the intervention group and the control group that could have contributed to higher AFT scores (i.e., previous training or exposure to EBP, highest degree earned, years of practice).

CONCLUSION

Occupational therapy practitioners view EBP as an ethical obligation associated with providing high quality and effective care. However, many practitioners are unfamiliar with the requisite skills needed to effectively narrow the evidence-to-practice gap and incorporate clinical findings into their practice. The findings from this study suggest that the use of an online module may be effective in increasing practitioners' EBP knowledge and skills.

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