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Cultural competence education for health professionals from pre-graduation to licensure delivered using facebook: Twelve-month follow-up on a randomized control trial

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ABSTRACT

Background: Cultural competence (CC) training is widely recognized as a crucial component of the professional development of healthcare providers. There is no study on the effect of Facebook (FB) as a strategy to promote continual learning to enhance CC among students in health professions.
Objectives: To test the effects of cultural competence education using FB as a delivery platform on knowledge, awareness, self-efficacy, and skill related to CC in health students from pre-graduation to licensed professional stages.
Design: A randomized controlled trial.
Participants: We recruited students from professional nursing, pharmacy, and nutrition programs at six medical universities and randomly assigned them to study groups.
Methods: Between T1 and T2 (months 1–3), the intervention group (IG) received pre-graduation education in CC while the control group (CG) received their regular educational program. Between T2 and T3 (months 6–9), IG received on-the-job education in CC while CG received the regular program. An online self-report questionnaire assessing CC knowledge, awareness, self-efficacy, and skill was analyzed at baseline, 6 months, and 12 months.
Results: Of 180 participants who completed the pretest, 120 (65 IG and 55 CG) completed both follow-ups. Changes over time were mixed; the only statistical difference between groups was an improvement in awareness in IG but not in CG. At 12 months, intervention and control participants had different levels of awareness of CC ($\beta = 2.56$, $p < 0.001$), but other outcomes did not differ between groups.
Conclusion: Health profession educators can adopt Facebook as an education delivery platform to offer personalized, social learning incorporating cultural competency curricula into ongoing education and training in rising awareness on CC.

1. Background

With increasing ethnic diversity of the population and strong evidence of disparities along ethnic lines in healthcare, it has been noted that it is becoming increasingly important for healthcare professionals to be specifically educated on how their own and their patients' cultural (e.g., language, religion) factors influence healthcare delivery and health-related issues (Roundtable on Health et al., 2016).

Cultural competence training is widely recognized as a crucial component of the training and professional development of healthcare providers—a strategy to improve their cultural competence and address health disparities thereby (Horvat et al., 2014). Previous studies have demonstrated that relevant education and training can improve cultural competency and knowledge of health disparities across cultures (Horvat et al., 2014; Okoro et al., 2012). In particular, as health professionals engage in cultural competence education, their levels of awareness of the unique characteristics of and differences among ethnic and racial minorities increases (Hall et al., 2013), which can also foster enhanced communication skills in relation to minority patients and thus improve the quality of healthcare provided to them (Sequist et al., 2010).

Cultural competence is learned over time through a process of inner reflection and awareness (Young and Guo, 2016). A systemic review of

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cultural competence education for healthcare providers has revealed that of seven studies meeting inclusion criteria, three involved physicians, two involved mental health professionals, and two involved multiple health professionals and students (Lie et al., 2011). Jeffreys describes her model of cultural competence and confidence as based on the interrelating of concepts that influence or predict the learning of cultural competence. She identifies the construct of *transcultural self-efficacy* as a leading factor (TSE) (Jeffreys, 2007). Hunter (2008) developed a two-semester cultural competence curriculum for 76 nursing students and evaluated it using the Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals—Revised (IAPCC-R), finding significant improvement (Hunter, 2008). Moreover, traditional learning activities such as classroom lectures (Lin et al., 2015), multimedia presentations (Ge, 2015), web-based learning (Palmer et al., 2011), and cultural simulation (Tuck et al., 2010) have also been adopted in previous studies on cultural competence education. Simultaneously, innovative methods of cultural competence education required to facilitate engagement in curricula and achieve the goal of life-long learning in clinical settings have also been frequently discussed in previous studies (Young and Guo, 2016).

Facebook (FB) is being widely employed as one such educational tool because of its demonstrated beneficial qualities and benefits, such as peer feedback, easy fit with the social context, and compatibility with several interaction tools, making it one of the most commonly used social media platforms among college students (Mazman and Usluel, 2010). Similar to other students, health profession students prefer online media as one of their main sources of educational information. Online media has already been shown to play a major role in their learning, in facilitating connections among them, and in researching health information during all stages of their academic careers (Usher et al., 2014). Thus, FB has great potential as an auxiliary education source for medical education or as the delivery vehicle for formal curricula in schools (Weber and Vincent, 2014). Indeed, previous studies have demonstrated the effectiveness of using FB as a platform to deliver curriculum, such as cultivating attitude toward and engagement in resident training (Galiatsatos et al., 2016) and promoting awareness about the correct and safe use of medicines in Australia (Benetoli et al., 2015).

Montiel-Overall provided the underlying assumption of the proposed framework that understanding cultural differences and learning to appreciate them is, in part, a “learning process” involving cognitive, interpersonal, and environmental contexts of human life. In the cognitive domain, cultural self-awareness and cultural knowledge are developed; in the interpersonal domain, cultural appreciation and an ethic of caring are developed; in the environmental domain, language, conditions, space, policies, rules, and regulations are considered. The backdrop for the framework is the culture of a community, which provides a rich source of information about the values, customs, daily practices, religion, and other cultural aspects of the community (Montiel-Overall, 2010).

To date, longitudinal studies on the effects of cultural competence training have mainly focused on students (Ho et al., 2010). The results of a generalized estimating equation (GEE) analysis indicated that the cultural competence of nursing student participants in one study had improved at the posttest assessment, with the experimental group showing significantly better improvement than the control group. The overall effectiveness of the training diminished with time (Lin et al., 2015); however, no follow-up delayed post-test beyond the immediate post-experience was conducted. Longitudinal studies to evaluate the long-term impact of cultural competence education from pre-graduation to post-licensure have been highly recommended, but have not been conducted so far (Harkess and Kaddoura, 2016).

While the studies cited above highlight the benefits of didactic learning and the importance of ongoing learning involving cognitive, interpersonal, and environmental contexts of human life for cultural competence, adopting FB as a strategy to promote a mindset of and process for continual learning to enhance cultural competence among students in health professions is a novel approach adopted for the first time here.

We had three goals in this study: (1) to develop and implement courses and teaching materials related to cultural competence using FB as a delivery platform for undergraduate students in health professions; (2) to follow changes in cultural competence in these students from the last semester to 9 months after graduation; and (3) to look for immediate and long-term effects of our two-phase cultural competence curriculum on CC knowledge, awareness, self-efficacy, and skills from pre-graduation to post-licensure.

2. Methods

2.1. Design, Setting, and Sample

The study used a prospective randomized controlled design. We recruited students from professional nursing, pharmacy, and nutrition programs at six medical universities between December 2014 and January 2015. Inclusion criteria were no absence of credits in the last semester and on track to graduate successfully, and enrolled full-time. Exclusion criteria were requirement to undergo mandatory military service after graduation and non-user of the FB app. Personal mailings were sent to 1200 students' home addresses, forwarded by school officers or teachers. Additionally, we posted recruiting information on FB and the student department website and maintained a blog to invite students to participate in our curriculum. After signing up for the study, students were sent a link to an online baseline questionnaire via e-mail. The questionnaire first assessed the eligibility of students based on the inclusion and exclusion criteria. Students who met the criteria were asked to provide informed consent online before they could continue with the questionnaire. Additionally, a written informed consent form was sent via mail or e-mail; only people who signed and returned this form had their data included in the study.

Sample size estimation was based on an effect size of 0.25 for the outcome of expected improvement, an alpha set at 0.05, and a power of 0.80; thus, each group required 34 participants (Cohen, 1988). We recruited 90 participants in each group to compensate for a 20–30% loss at follow-up.

2.2. Framework of the Cultural Competence Module

According to a web-based instruction framework to develop the potential of online communities of learners by Montiel-Overall (2010), a cultural competence model including cognitive, interpersonal, and environmental domains provides the framework for designing and implementing FB-based CC instruction (CC-FB).

We adopted this social networking platform as a strategy to deliver educational content that could foster cultural competence through interpersonal interactions and educational materials to achieve the curriculum objectives. The curriculum included four objectives: CC knowledge, awareness, self-efficacy, and skills. The curriculum lasted from pre-graduation to the on-the-job phase for health students (and later health professionals) in their last semester (see Fig. 1). Learning activities in the pre-graduation phase focused on learning materials on cultural sensitivity posted on Facebook. In the on-the-job phase, the learning materials and activities were focused on care experience sharing to encourage responses and discussion among participants.

2.3. Educational Objectives, Activities, and Materials for CC-FB

We invited experts including nursing educators, family physicians, medical educators, community health nurses, and foreign labor translators to form a committee to develop the curriculum framework. The curriculum development process consisted of three phases. (1) Analyzing the distribution of baseline scores for all items—we sorted all