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Featured Article

Exploring the Impact of a 3D Simulation on Nursing Students' Intention to Provide Culturally Competent Care

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KEYWORDS
cultural competence;
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theory of planned behaviour

Abstract

Background: Culturally competent health care professionals have a positive influence on patient care. This article profiles a study that evaluated the impact of a cultural empathy simulation on nursing students' intention to practice in culturally competent manner.

Method: We designed the Theory of Planned Behaviour: Cultural Competence Questionnaire and used it to measure differences in behavioural intentions, attitudes, subjective norms, and perceived behavioural between a control and an experimental group.

Results: Participants in the experimental group (n = 241) had higher attitude and behavioural intention scores than those in the control group (n = 219). However, differences between groups for perceived behavioural control and social norm scores were not significant.

Conclusions: As the Theory of Planned Behaviour posits that intention scores provide a proxy for actual behaviour, and that attitude is the strongest predictor of intention, these results are encouraging. However, further research is required to examine factors that influence these variables.

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The ability to practice in a culturally competent manner is an expectation of all health care professionals. As a result, a number of cultural competence training programs have been implemented, but often with limited or contradictory evidence of effectiveness (Truong, Paradies, & Priest, 2014). Over the last decade, training programs

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incorporating the use of cultural simulations have emerged with some promising results (Everson et al., 2018; Phillips, Grant, Milligan, & Moss, 2012; Spinner-Gelfars, 2013). However, to date, most studies have examined the impact of cultural simulations on perceptions, confidence, and cultural awareness, with few focusing on participants' intentions to practice in a culturally competent manner (Truong et al., 2014).

Key Points

- Cultural competence is integral to quality care.
- Cultural empathy simulations can have a significant impact on learners' attitudes and behavioural intentions.
- The Theory of Planned Behaviour: Cultural Competence Questionnaire shows promise as useful instrument for measuring behavioural intentions, attitudes, subjective norms, and perceived behavioural control.

In this article, we outline the importance of cultural competence and discuss the effectiveness of related training programs. We then describe a study in which we (1) designed and tested an instrument titled the Theory of Planned Behaviour: Cultural Competence Questionnaire (TPB:CCQ) and (2) evaluated the impact of a three-dimensional (3D) cultural empathy simulation on nursing students' behavioural intentions using this instrument.

Background

Ethnicity and Health Inequalities

The World Health Organization describes health inequality as a social injustice "killing people on a grand scale" (2019, p. 26), calling for increased efforts to address significant between-country and within-country health disparities. Ethnicity, which is one element of culture, has been identified as an important determinant of health and a key predictor of inequality (Lapkin & Fernandez, 2018). In all regions of the world and in both high- and low-income countries, ethnic minorities and indigenous peoples experience poorer health relative to majority populations (Commission on Social Determinants of Health, 2008). For example, a recent large-scale international study comparing health disparities reported a significant gap in life expectancy between indigenous and nonindigenous people for 15 of 18 indigenous populations (Anderson et al., 2016). Examples of within-country health disparities include maternal mortality rates for ethnic minorities in Vietnam, which are four times higher than for the majority Kinh population (Målqvist, Hoa, Liem, Thorson, & Thomsen, 2013), and babies born to African American parents in the United States being twice as likely to die at birth than those born to white American parents (World Health Organization, 2019).

A number of studies have sought to understand if and how the health disparities of people from different ethnic backgrounds influence and are influenced by the quality of health care they receive. In Australia, for example, Aboriginal and Torres Strait Islander peoples with cardiovascular conditions have been reported to have 40% less coronary procedures performed compared with non-Indigenous Australians (Tavella et al., 2016). Similar disparities have been reported for Maori people in New Zealand (Rumball-Smith, 2009), and in the United States, studies have identified racial differences in rates of diagnostic testing and prescribing (Gerber et al., 2013; Graham, 2016). Limited English proficiency also contributes to health care inequality and higher rates of adverse events, as demonstrated by studies from New Zealand (Rumball-Smith, 2009) and the United States (Karliner, Jacobs, Chen, & Mutha, 2007). Although there is no single cause of the inequalities in health care experienced by people from culturally and linguistically diverse (CALD) backgrounds, research has identified that clinical encounters which do not acknowledge and address cultural factors contribute significantly to adverse patient outcomes (Johnstone & Kanitsaki, 2006).

Cultural Competence

Cultural competence is a broad concept used to describe a variety of interventions that aim to improve the accessibility and effectiveness of health care services for people from different ethnic groups and cultural backgrounds (Truong et al., 2014). For health care professionals, cultural competence refers to the ability to challenge one's own cultural assumptions, values, and beliefs; the willingness to adapt practice to meet the needs of people from diverse cultures; and the ability to interact with people from cultures and/or belief systems different to one's own National Health and Medical Research Council (2005). Importantly, cultural competence is about developing empathy … and the ability to see the world through another's eyes, or at the very least, to recognise that others may view the world through different cultural lenses' (Fitzgerald, 2006, p.184).

Cultural competence is integral to quality care, and a body of evidence has identified that culturally competent health care professionals have a positive impact on patient satisfaction, adherence to treatment regimens (Jongen, McCalman, Bainbridge, & Clifford, 2018), and patient outcomes (Truong et al., 2014).

The Impact of Educational Interventions Designed to Improve Cultural Competence

Interventions designed to improve cultural competence have primarily used online or face-to-face training and

cultural immersion programs. A body of research has sought to explore the impact of these educational initiatives with variable outcomes and often contradictory results reported (Jongen et al., 2018). One recent systematic review indicated that some observational studies have demonstrated a positive impact of education programs on health care professionals' knowledge and attitudes, although randomised controlled trials have failed to show changes in knowledge levels (Butler, 2016), and mixed effects on patients' perceptions of care (Truong et al., 2014). Similarly, a meta-analysis of nursing studies found significant increases in cultural competence in some pretest posttest studies evaluating didactic and immersive training programs (Gallagher & Polanin, 2015). However, a review by Allen et al. (2010) reported that cultural competence education has had little impact on the discriminatory attitudes. It is noteworthy that none of these studies addressed behavioural intention to practice in a culturally competent manner.

Cultural Simulations

Over the last decade, a number of simulations have been designed to improve health care students' cultural competence. For example, a manikin-based simulation experience in which nursing students interacted with culturally diverse "patients" resulted in increased cultural awareness but a decreased sense of competence on the Cultural Competence Assessment Scale (Merrill & Hummel, 2010). Another manikin-based simulation focusing on communicating with culturally diverse "clients" with a mental illness identified a positive impact on cross-cultural communication skills (Spinner-Gelfars, 2013). Phillips et al. (2012) designed a simulated home environment with low-fidelity manikins to expose nursing students to the social factors that influence the health of Hispanic Americans, with qualitative findings indicating that the simulation helped students develop cultural assessment skills and decreased their level of anxiety.

Some studies using standardised patients and actors have also been developed to enhance health care students' cultural competence. Garrido et al.'s (2014) role-play simulation reported some positive results using the Cultural Awareness Scale. A similar simulation designed to teach cultural assessment skills found that Transcultural Self-Efficacy Scale scores increased in an American student group and in some domains in a Norwegian student group (Grossman, Mager, Opheim, & Torbjornsen, 2012). Another study using culturally diverse simulated patients in Objective Structured Clinical Examination assessments demonstrated increases in participants' knowledge but no change in attitudes, as measured by the Cultural Assessment Survey (Ndiwane, Koul, & Theroux, 2014). Although these results are somewhat encouraging, the extent to which these types of cultural simulations influence nursing students' clinical practice is less clear. The study described in this article therefore sought to address this gap by using the TPB:CCQ to measure behavioural intentions as a proxy for actual clinical behaviours.

Theoretical Framework

The TPB has emerged as a robust theoretical model premised on the understanding that intentions are the precursor to and proxy for actual behaviours (Hoffmann, Bennett, & Del Mar, 2013). It is further suggested that attitudes, subjective norms, and perceived behavioural control are the strongest predictors of intentions and subsequent behaviours (Ajzen, 1991). Attitude is described as a person's disposition toward performing a particular behaviour; subjective norms are one's beliefs about how they would be judged by other people for undertaking a specific behaviour; and perceived behavioural control describes a person's confidence, capability, and opportunity to perform a desired behaviour (Armitage & Conner, 2001). The TPB advocates that combined these variables provide a valid indication of behavioural intentions.

TPB-based questionnaires use behavioural belief items to elicit attitudes, normative belief items to elicit subjective norms, and control belief items to elicit perceived behaviour control (or self-efficacy). Higher combined scores for these constructs indicate a stronger behavioural intention and a greater likelihood of a person carrying out their intentions should the opportunity arise (Ajzen, 1991).

Methods

Aim

The aim of this study was to evaluate the impact of a 3D cultural empathy simulation on second year nursing students' attitudes, subjective norms, perceived behavioural control, and behavioural intentions. We hypothesized that participants who were exposed to the intervention (simulation) would have higher behavioural intention scores than those in a control group. The results profiled in this article form one component of a multistage study; other results, including participant satisfaction and changes in empathy scores, have been reported elsewhere (Courtney-Pratt et al., 2015; Everson et al., 2018).

Ethical Considerations

Before participant recruitment, approval for the study was obtained from the university ethics committee. Only students who provided informed consent were included in the study. Data were collected in 2015, and confidentiality and anonymity of data were maintained.

Participant Recruitment

An advertisement was uploaded to Blackboard™, the university's learning management system, and students were also emailed an information statement and invited to contact the researchers if they wished to participate in the study.

Setting

The study was undertaken in a regional university in New South Wales, Australia.

Intervention—Cultural Empathy Simulation

The cultural empathy simulation we developed was informed by the TPB (previously described) and the ''Quality Indicators for Simulation'' (Arthur, Kable, & Levett-Jones, 2013), which refers to the importance of adhering to recognised pedagogical principles, maintaining simulation fidelity, ensuring students are appropriately briefed and debriefed, and the need for trained staff. To ensure fidelity and cultural authenticity, staff and clients from the local migrant and refugee centre worked with the authors in designing and filming the 3D video-based simulation.

The simulation briefing was conducted by an experienced educator. Students were instructed to imagine they had been visiting a developing country where they had become unwell and, as a result, had been admitted to hospital. They then viewed the 3D video while lying on a bed in the simulation unit and wearing headphones and 3D glasses. In the role of ''patient,'' students were exposed to an unfamiliar cultural and clinical environment where the health care staff did not speak English. In the structured group debrief that followed the cultural simulation, students were asked to reflect on how it felt to be ''the other'' and to consider how people from CALD backgrounds might feel when seeking health care in an unfamiliar Australian hospital. The intervention was 60 minutes in duration.

Development and Testing of the Theory of Planned Behaviour: Cultural Competence Questionnaire

The construction of the TPB:CCQ was based on the criteria of Francis et al. (2004) for the development of these types of questionnaires. Although there are different ways of examining behavioural intentions (Francis et al., 2004), the most appropriate approach for health care students is the simulation method (Stacey et al., 2014). This approach uses a set of authentic clinical scenarios which are each followed by a number of behavioural, normative, control belief, and intention response items (Francis et al., 2004). Thus, the TPB:CCQ consists of three clinical scenarios focused on the use of interpreters, adapting practice to meet cultural needs, and conducting cultural assessments, practices that have been identified as critical to culturally competent practice (National Health and Medical Research Council, 2005). As well as participants' behavioural intentions in relation to culturally competent practice, the TPB:CCQ items examined the key constructs of the TPB, including:

- Behavioural intentions—in relation to culturally competent practice,
- Attitudes—with reference to the advantages and disadvantages of practicing in a culturally competent manner;
- Subjective norms—key people who may influence whether cultural competence is practiced; and
- Perceived behavioural control—the potential barriers and facilitators to culturally competent practice.

The three TPB:CCQ intention items were scored using yes or no (binary response) options, and the attitudes, subjective norms, and perceived behavioural control items were scored using a Likert scale with one indicating strongly disagree to seven indicating strongly agree; higher scores indicated a stronger likelihood of practicing in culturally competent manner.

The TPB:CCQ was reviewed by an expert panel of nine academics with expertise in cultural competence, instrument development, or clinical simulation. They were asked to review items for repetition, relevance, clarity, conciseness, and comprehensiveness. This approach was undertaken to enhance content and construct validity. Minor changes were then made to the TPB:CCQ based on reviewer feedback. The final instrument consisted of 30 items with 12 related to attitudes, nine to perceived behavioural control, six to subjective norms, and three to behavioural intentions. Eleven items were negatively worded to protect against response bias and acquiescence bias.

Data Collection

A quasiexperimental design was used to enable comparison between a control and an experimental group. The participants were randomly allocated into the two groups before the simulation. The experimental group completed the TPB:CCQ after participating in the simulation, and the control group completed the survey and then had the opportunity to attend the cultural simulation. This design was selected for its practicality, as it facilitated easier implementation and evaluation in the context of a curriculum-embedded cultural empathy simulation experience that was delivered to a large cohort of nursing students. In addition, this approach ensured that all students had the opportunity to participate in the simulation and no student was disadvantaged by being in the control group.

Table TPB Scores

Variable	Control (n = 219) (mean ± SD)	Experimental (n = 241) (mean ± SD)	Effect Size (Cohen's d)	*t*-Test for Equality of Means		
				t	df	Sig.(Two-tailed)
Intention	6.05 ± 0.80	6.32 ± 0.72	0.35	3.81	458	0.001
Attitude	5.23 ± 0.85	5.46 ± 0.79	0.28	2.939	458	0.003
Perceived behavioural control	4.35 ± 0.71	4.42 ± 0.68	0.01	1.002	458	0.317
Subjective norm	5.65 ± 0.77	5.57 ± 0.79	0.10	−1.007	458	0.315

Data Analysis

Statistical analysis was conducted using SPSS (Statistical Package for the Social Sciences) statistical software package version 22.0 (IBM Corp, 2013). Missing data were minimal (1.1%) and replaced with means (Fox-Wasylyshyn & El-Masri, 2005), and no outliers were identified. Descriptive statistics, means, and standard deviations were calculated for all relevant measures. Aggregated results for attitude, subjective norms, and perceived behavioural control scores were calculated using the mean scores for individual items. The total number of "yes" answers was used to obtain the intention scores. Independent *t*-tests were used to compare differences between the control and experimental groups with a *p*-value of less than .05 being considered statistically significant.

Results

Demographic Characteristics of Participants

From a population of 530 second year nursing students, 460 participated, giving a response rate of 87%. There were 241 participants in the experimental group and 219 in the control group. The participants were aged 18 to 60 years (mean for the control group - 27 years, SD = 8.24; and mean for the experimental group 28 years, SD = 8.89). Most participants in each group were female (experimental group = 91%; control group = 84%). Chi-square analysis of differences between the experimental and control group showed no statistically significant differences in gender ($p = .815$), age ($p = .228$), highest qualification ($p = .795$), current employment in health care ($p = .199$), or country of birth ($p = .405$).

Reliability Analysis

A Cronbach's alpha coefficient was calculated using the entire sample. The results indicated that the TPB:CCQ had an internal consistency Cronbach's alpha value of 0.63, and there was no significant increase in the Cronbach's alpha when any items were removed. This result suggests that the reliability of the TPB:CCQ may not be satisfactory because values greater than 0.70 are recommended as indicative of good internal consistency reliability (De Vellis, 2003).

Effect of Cultural Empathy Simulation on TPB:CCQ Variables

As shown in Table, the behavioural intention scores in relation to culturally competent practice and the attitude mean scores were significantly higher in the experimental group than in the control group. Furthermore, in terms of effect sizes, the results suggest that the cultural empathy simulation had a small-to-medium effect on participants' behavioural intentions and attitudes (Cohen, 1988). An effect size of 0.3 or greater suggests a meaningful difference that is not just a function of sample size. Because the effect size in this study is 0.35, the difference in behavioural intention mean scores between the control and experimental groups was considered to be clinically significant or meaningful from an educational perspective. Although the perceived behavioural control scores were higher in the experimental group than in the control group, the difference was not significant. Finally, the subjective norm scores were lower for participants in the experimental group than in the control group; but the difference was not significant.

Discussion

Previous studies exploring the impact of cultural simulations have had variable results. Thus, the 3D cultural simulation was designed to provide a firsthand experience of being a patient from a CALD background, along with some of the difficulties they may encounter in culturally and clinically unfamiliar health care settings. By taking a different approach and allowing learners to "walk in the patient's shoes," we sought to facilitate unique insights into the lived experience of being "the other," if only for a short period of time. The debrief that followed the simulation gave students the opportunity to reflect on and discuss their experiences with the guidance of a skilled educator.

By using this approach, we aimed to promote the development of a personal conviction with regard to the

importance of cultural competence, and we hypothesized that participants who were exposed to the intervention (simulation) would have higher behavioural intention scores than those in a control group.

The TPB:CCQ results indicate that students in the experimental group had significantly higher intention scores than those in the control group. As the TPB posits that intention scores provide a proxy for actual behaviour, these results are encouraging and suggest that the cultural simulation has the potential to enhance culturally competent practice. This assertion is supported by a meta-analysis of 185 studies that concluded that behavioural intentions are a significant predictor of actual behaviours (Armitage & Conner, 2001).

The results also demonstrated that the experimental group had higher attitude scores than those in the control group. As attitude is the strongest predictor of intention (Tonglet, Phillips, & Read, 2004), this result indicates the potential for the cultural simulation to enhance nursing students' recognition of the value of cultural competence. This result also suggests that because attitude is a critical factor for influencing participants' behavioural intentions, it should be included as an important construct in future cultural competence training studies.

Although perceived behavioural control scores were higher in the experimental group than in the control group, this result was not significant. Perceived behavioural control represents the degree of autonomy, self-efficacy, confidence, and competence that the person feels that they have in undertaking a particular behaviour. Therefore, it is not surprising that, despite exposure to the cultural simulation, second year nursing students, most of whom have had limited clinical experience, would have relatively low levels of self-efficacy and perceived control over the provision of culturally competent practice in health care settings. Irrespective, this result indicates that future initiatives should focus on equipping students with not just skills and knowledge but also the confidence to practice in a culturally competent manner.

There is an assumption that people tend to behave in ways that are sanctioned by those within their circle of influence (Hagger, Chatzisarantis, & Biddle, 2002). The subjective norm scores in this study provided an indication of students' perceptions of the opinions of health care professionals, patients, and family members, in relation to culturally competent practice. The results suggest that peer pressure may have had limited influence over the participants' intentions and that the cultural simulation resulted in a determination to practice in a culturally competent manner, regardless of social pressure from key referents (e.g., patients, nursing colleagues, family members, medical or allied health staff). However, it is possible that social norms may exert a stronger influence after exposure to future clinical experiences and when students develop a greater understanding of peer opinions and expectations (McKenna & Newton, 2008).

Limitations

An overarching drawback of the quasiexperimental design with post-test only used in this study is that pre-existing differences between the experimental and control groups could be erroneously attributed to the cultural empathy simulation. Although the chi-square analysis showed no significant differences in demographic characteristics between the two groups, the study results should nevertheless be interpreted with caution. We also recommend that to improve internal validity and minimise confounders, future studies could consider the use of pre-post quasiexperimental designs with participants serving as their own controls or randomised controlled trials.

This study also primarily focused on the motivational aspects of culturally competent practice and thus, the TPB:CCQ only measured behavioural intentions with regard to a limited number of cross-cultural skills. It is not known whether these behavioural intentions would extend to and influence other behaviours required for culturally competence practice. In addition, this study was undertaken at only one university and used three specific clinical scenarios focused on the use of interpreters, adapting practice to meet cultural needs, and conducting cultural assessments. It is possible that exploring other variables external to the TPB using alternative scenarios and samples from other universities or disciplines may have elicited different results. Furthermore, the long-term impact and transferability to practice of the attitudes and intentions in relation to cultural competence acquired through this study cannot be determined.

Finally, we acknowledge that instrument development is an iterative process and that, because of the relatively low level of internal consistency, the TPB:CCQ would benefit from further psychometric testing using other forms of reliability and validity testing such as test–retest and convergent and external correlates.

Conclusion

This study examined the impact of a 3D cultural empathy simulation on second year nursing students' attitudes, subjective norms, perceived behavioural control, and behavioural intentions with regard to practicing in culturally competent manner. As the TPB and a previous meta-analysis by Armitage and Conner (2001) posit that intention scores provide a proxy for actual behaviour, and that attitude is the strongest predictor of intention, the results from this study are encouraging. However, because subjective norm scores represent how strongly the person's willingness to undertake a behaviour is influenced by others, and perceived behavioural control represents the degree of self-efficacy the person feels with regard to undertaking the behaviour, further research with stronger experimental designs is required to examine factors that may impact on

these variables over time. Finally, as instrument development is an iterative process, further use of the TPB:CCQ with different cohorts and in different contexts would be useful to progress this work.

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