



Experience of nursing students with standardized patients in simulation-based learning: Q-methodology study

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ABSTRACT

Background: Standardized patients (SPs) boost self-confidence, improve problem solving, enhance critical thinking, and advance clinical judgment of nursing students.

Objective: The aim of this study was to examine nursing students' experience with SPs in simulation-based learning.

Design: Q-methodology was used.

Setting: Department of nursing in Seoul, South Korea.

Participants: Fourth-year undergraduate nursing students (n = 47).

Methods: A total of 47 fourth-year undergraduate nursing students ranked 42 Q statements about experiences with SPs into a normal distribution grid.

Results: The following three viewpoints were obtained: 1) SPs are helpful for patient care (patient-centered view), 2) SPs roles are important for nursing student learning (SPs roles-centered view), and 3) SPs can promote competency of nursing students (student-centered view).

Conclusion: These results indicate that SPs may improve nursing students' confidence and nursing competency. Professors should reflect these three viewpoints in simulation-based learning to effectively engage SPs.

1. Introduction

First introduced as “programmed patients” by Barrows and Abrahamson in the early 1960s (Kowitlawakul et al., 2015; Shankar and Dwivedi, 2016), standardized patients (SPs) were officially used in the United States Medical Licensure Examination in the early 1990s (Wallace, 2007). Since then, the use of SPs has been increased steadily in nursing and medical classes (Webster et al., 2012).

SPs are defined as individuals trained to present an illness in a standardized manner in simulated scenarios (Becker et al., 2006; Churchouse and McCafferty, 2012; Koo et al., 2014; Schram and Mudd, 2015; Suh, 2012). Well trained SPs are trained by professionals based on SPs guidelines. Well trained SPs boost self-confidence, improve problem solving, enhance critical thinking, and advance clinical judgment of nursing students. In addition, they can provide good feedback to students (Becker et al., 2006; Churchouse and McCafferty, 2012; Kameg et al., 2014; Koo et al., 2014; Schram and Mudd, 2015). Using SPs in simulation-based learning is one pedagogical strategy for improving these technical and non-technical skills of nursing students (McWilliam and Botwinski, 2010; Oh et al., 2015).

The training of SPs in nursing schools in South Korea is not generally done due to universities' financial problems and the lack of

professionals for SP training. SPs belonging to nursing schools are also rare. SP training by professionals remains an important issue in nursing schools in South Korea.

Understanding Nursing students' feelings, attitudes, and experiences regarding SPs might be helpful in hiring and training SPs. However, such experiences, feelings, and attitudes regarding SPs might not be the same for all nursing students. Understanding nursing students' experiences, feelings, and attitudes regarding SPs in simulation-based learning can help students achieve good learning outcomes (Eom et al., 2010; Ha, 2016).

Q-methodology is a unique research method that utilizes both qualitative and quantitative methods to converts subjective points of view into an objective outcome (Brown, 1980; Dziopa and Ahern, 2011; Simons, 2013). However, no study has used Q-methodology in reporting on nursing students' experiences, feelings, or attitudes regarding SPs. Understanding nursing students' personal subjectivity toward SPs can be essential in preparing the next simulation. It might also help train SPs. Therefore, the objective of this study was to explore feelings and attitudes of nursing students toward SPs using Q-methodology.

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2. Literature Review

Studies on the effects of SPs have accentuated the idea that SPs are important individuals who can promote learning outcomes for nursing students, including those regarding knowledge, psychomotor skills, and attitudes (Hyun et al., 2009; Kim and Kang, 2013; Oh et al., 2015). They also allow nursing professors to introduce different learning strategies (Webster et al., 2012).

Eom et al. (2010) have surveyed 62 fourth-year nursing students in two groups (with or without utilizing SPs) and found that levels of competency in subcutaneous injection, self-directed learning readiness, and problem solving ability were significantly higher in the group with utilization of SPs than those in the other group (no SPs).

The use of SPs is closely correlated with self-efficacy, learning satisfaction, and professional nursing values among students (Hyun and Jeong, 2010). The use of SPs is also correlated with critical thinking ability (Joo et al., 2015), and coping skills (Kim and Kang, 2013). SPs can boost inter-professional and inter-personal collaboration, thus enabling multidisciplinary team nursing (Koo et al., 2014; Lin et al., 2013). SPs can also help to create a realistic and challenging learning environment, thus helping nursing students realize the best method for therapeutic communication (Ryan et al., 2010; Webster et al., 2012). These skills can foster better relations with people in a multicultural society due to their positive impacts on students' cultural competency and self-confidence. In addition, they can reinforce patient-centered care (Anders et al., 2016; Ndiwane et al., 2014; Webster, 2014).

Selecting appropriate people as SPs, followed by educating, training, and retention, is also important to desirable learning outcomes. Lin et al. (2013) and McWilliam and Botwinski (2010) have suggested that nurses and nursing students can be used as alternatives when fully trained SPs are unavailable. Webster (2014) has recommended that retired nurses, local acting groups, and those who have studied theater and communications can be recruited as SP candidates. Web-based virtual patients or remote SPs are also options to ensure authenticity of the experience during a simulation (Hurst and Marks-Maran, 2011; Langenau et al., 2014). The numerous advantages of SPs notwithstanding, they have limitations in presenting certain injuries or illnesses requiring invasive procedures such as inserting tubes or lines (Cowperthwait et al., 2015; Kowitlawakul et al., 2015; Suh, 2012). A shortage of well trained professional SPs, coupled with the high cost and considerable time required to train them are also be limitations to the use of SPs in the learning process of nursing students (Hyun et al., 2009).

3. Methods

Q-methodology combines qualitative and quantitative methods to clarify an individual's subjective viewpoints on certain issues, interests, and feelings (Cai et al., 2016). It is particularly useful for understanding health-related thoughts and behaviors of students or their experience and attitudes regarding teaching-learning methods in the nursing field (Akhtar-Danesh et al., 2008; Ha, 2016). This methodology also enables the exteriorization of an individual's inner world. Q-methodology is also a method that converts subjective points of view into an objective outcome (Brown, 1980; Dziopa and Ahern, 2011; Simons, 2013). Q-methodology generally proceeds in five steps (Fig. 1).

3.1. Research Procedure

The research procedure in five steps is shown in Fig. 1. Definitions of terms used in each step are summarized in Table 1 (Ha, 2015).

3.1.1. Step 1: Q Population, a Process of Creating the Q Sample

To create the Q sample for this study, previous studies on simulations and SPs were reviewed first. All fourth year undergraduate nursing students in C University and those who had two years of experience

in simulations involving SPs were asked to answer six questions to obtain written narratives.

A total of 320 nursing students voluntarily answered these six questions and handed in their answers into the researcher's mailbox anonymously. These students were also asked to participate in further discussion (in-depth interview) about their thoughts and opinions regarding SPs. Fifteen of those students acceded to participate in the discussion. They were interviewed individually to obtain more information about their experiences with SPs. All interviews were recorded by the researcher.

A total of 158 statements were initially derived from these processes. After eliminating duplicate and ambiguous statements, a total of 98 unique statements were obtained.

3.1.2. Step 2: Q Sample (Q set), a Process of Developing Q Sample Statements

Q set is the finalized list of statements obtained from the Q population. The number of statements can range from 20 to 100 or no more than 50 (Akhtar-Danesh et al., 2008; Brown, 1980). The list of 98 statements obtained in Step 1 was reviewed by an expert group, comprising one methodologist and three nursing professors who were simulation experts, to identify redundancies and similarities in these students' viewpoints. Through this process, a final Q set consisting of 42 statements was developed. Lastly, a pilot test was performed using five nursing students to clarify the performance of these 42 statements before Q sorting (Step 4) (Table 2).

3.1.3. Step 3: P Sample (P set), a Process of Recruiting Study Participants

P sample is the group of participants who has established the finalized Q sample known as the Q set on the Q sort table (Akhtar-Danesh et al., 2008). Brown (1980) has indicated that 40–60 participants may be adequate as a P sample. Cai et al. (2016) have suggested a total number of participants less than that of the Q sample, with small, non-randomly-selected convenience sampling, might be appropriate. For this study, a convenient P sample of 47 fourth-year undergraduate nursing students in Seoul, South Korea who participated in Step 1 were invited to complete Q sorting (Step 4).

3.1.4. Step 4: Q Sorting, a Process of Ranking Q Samples by P Sample (47 Participants)

Q sorting is used to rank the order of Q samples by using a Q sort table in a grid. A Q sort table has a quasi-normal distribution. This is a highly recommended format (Akhtar-Danesh et al., 2008). Participants were asked to carefully read Q statement cards ($n = 42$) and briefly sort them into three domains (strongly agree, +4; neutral, 0; strongly disagree, -4). Next, each participant formulated a Q sort table with Q statement cards ($n = 42$) (Fig. 2).

3.1.5. Step 5: Factor Extraction (Data Analysis)

After Q sorting was completed, Q statement numbers in the Q sort table were converted into scores ranging from 1 to 9 before data were entered into a software program. The pc-QUANL program developed by Van Tubergen (1975), was used in this study. All converted scores were inputted into the pc-QUANL program, and a principal component method was established for factor extraction. When the percentage of variance and eigenvalues of a factor are higher than those of other factors, it means that factor can explain study issues or topics better than other factors.

3.2. Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of C University. All participants were informed of the study purpose, and their participation was voluntary. Participants were assured that they could refuse to participate or withdraw from the study without penalties. Participants were also informed that their

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