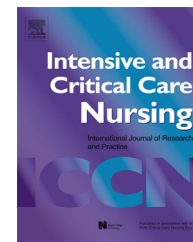




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ORIGINAL ARTICLE

Effects of technology on nursing care and caring attributes of a sample of Iranian critical care nurses

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KEYWORDS

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Influences of
technology

Summary

Purpose: To examine the association between attitudes of critical care nurses about influences of technology and their caring attributes.

Study design and methodology: In a cross-sectional study, firstly the psychometric properties of caring attributes questionnaire, which was developed to examine caring attributes of a sample of international nurses, was refined in a sample of 200 critical care nurses working in educational hospitals of a city in the southwest of Iran. Results of factor analysis with Varimax rotation decreased 60 items of caring attributes to 47 items which loaded under five subscales of caring negation, caring compassionate, caring advocacy, caring essence and caring communication. Secondly, attitudes of these nurses toward influences of technology on nursing care were assessed using a 22-item questionnaire, developed by the study researchers. Finally, the association between scores of caring attributes and attitudes toward influences of technology of this sample was determined.

Results: There was a positive association between caring attributes and influences of technology among our study nurses. Caring attributes scores were higher in female single nurses. Although caring attributes' scores had decreased along with age and work experience, caring commitment was higher in older more experienced nurses. Furthermore, female nurses had a better attitude toward influences of technology on their care. In contrast, younger and less experienced nurses had negative views on the effects of technology on nursing care.

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Conclusion: Continuing education and life-long learning on application of new technological equipment in nursing care and harmonising their use with caring values are necessary for nursing students and registered nurses to ensure delivering a patient-centred care, in a technologically driven environment.

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Implications for Clinical Practice

- Caring attributes scores increase along with more positive attitudes of Iranian nurses regarding influences of technology on nursing care.
- With better education and enhancement of nurses' knowledge and views about their role and responsibilities as a nurse, it could be expected that technology has less negative effects on nursing actions and behaviours.
- The similarity of caring attributes of our study participants with those of international and Korean nurses might suggest that, caring attributes of someone who enters a caring profession, are the same all over the world.

Introduction

The recent burgeoning of technological advances in health-care systems has contributed to development in diagnosis, treatment and caring in hospitals (Price, 2013). Several technology commentators have asserted that the nursing profession has been influenced by this influx of technology (Almerud-Osterberg, 2010; Almerud et al., 2008a; Barnard, 1996; Loscin, 2013). It has been reported that technology and nursing have been inevitably linked (McGrath, 2008). This strong link between nursing and technology has influenced the caring values and practice of modern nursing (Almerud-Osterberg, 2010; Barnard, 1996; Loscin, 2013; McGrath, 2008). A number of researchers believe that technology can facilitate and improve nursing care. According to these researchers, technology has increased safety of the care delivered to patients, reduced nurses' workload allowing nurses more time with their patients to alleviate anxiety and address their concerns (Price, 2013; Tunlind et al., 2015). In its early years, technology was regarded as an opportunity for nurses to get closer to patients (Bernardo, 1998). Other reports indicate that a highly technological work environment could create a stressful atmosphere for nurses, making them more susceptible to making mistakes (Pillar et al., 1990). More recently it has been stated that technology, in spite of its advantages, can never replace the compassionate care provided by a nurse (Almerud et al., 2008b). It was argued that technology can act as a physical barrier between a nurse and patient, thus having a disruptive effect on communication (Price, 2013; Wikstrom et al., 2007) and depersonalised delivery of care (Pillar et al., 1990; Rinard, 1996). Moreover, technological devices attract nurses' attention and can detach a nurse from a patient (Morse et al., 1990; Rinard, 1996; Sandelowski, 1997). It has also been reported that technology can provide unreliable biological data (Almerud, 2007a,b).

Despite the pros and cons of technology, it does create a particular culture with its own specific values that may impact on the caring aspect of nursing (Barnard, 1996). Barnard (2000) believed that technology is separate to nurs-

ing care but has entered the service intentionally and with the aim of improving the quality of nursing care (Barnard & Sandelowski, 2001). Several reports on nursing have claimed that technology and nursing care are two distinct and probably irreconcilable entities, yet there is some consistency and compatibility between them (Cooper, 1993; Crocker & Timmons, 2009; Dean, 1998; Price, 2013; Sandelowski, 1999; Walters, 1995). The debate on the risks and benefits and use of technology in nursing care continue to this day and recent research has shown that most critical care nurses are not familiar with negative effects of using technology in nursing care (Adel et al., 2014; Kanjakaya, 2014; Kiekkas et al., 2006; Laila et al., 2011). It seems that an appropriate method to improve understanding of the effects of technology on critical care nursing care in Iran, would be to begin by examining the attitudes of nurses to their role and responsibilities and then to explore the influence of technology on their attitudes.

Several researchers have explored the interaction between technology and nursing care using qualitative methods and open, in-depth interviews. In 1999, Arthur et al. (1999) developed an instrument for quantitative measurement of the effect of technology on caring attributes. The instrument has been used to measure the effects of technology on psychiatric nursing care (Arthur et al., 2004) and general ward nurses (Arthur et al., 2001; Noh et al., 2002). However, considering that an intensive care unit is almost a fully technological environment, it could be expected that technology might have different or have more serious effects on caring attributes of nurses in such environments.

Our review of the literature related to technology and nursing yielded no standard Persian instrument for measuring caring attributes; and there was no evidence for effects of technology on caring attributes among Iranian nurses. The aim of this study was to examine attitudes of critical care nurses in Iran, in terms of caring attributes and then to assess the influences of technology on these attributes.

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