Time Pressure, Nurse Conscientiousness, and Patient Safety

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Abstract

Purpose: Globally, nurses faced strong time pressure in their work. Previous studies have ignored the interactive influences of time pressure and conscientiousness, but conscientiousness may buffer the negative impacts of time pressure. This study thus investigates the interactive influences of time pressure and nurse conscientiousness on patient safety.

Methods: A cross-sectional design and questionnaires were used. The sample comprised 411 nurses working in two Taiwanese hospitals from May to July 2008. Median split was used for categorizing participants into high and low time pressure groups and high and low conscientiousness group. Analysis of variance (ANOVA) and t tests were used for analysis. Scales came from Putrevu and Ratchford (1987) and Teng et al. (2007, 2009).

Results: The interaction of time pressure and nurse conscientiousness revealed the trend to impact patient safety (F(1, 376) = 1.92, p = .17), supporting the subsequent analyses. For nurses with high conscientiousness (n = 223), time pressure was not significantly related to patient safety (t = -1.17, p = .24). However, for nurses with low conscientiousness (n = 157), time pressure was negatively related to patient safety (t = -2.58, p = .01).
Conclusion: Findings of this study support that nurse conscientiousness may buffer the negative impacts of time pressure at workplace.

Keywords: Patient safety, time pressure, and nurse conscientiousness.

Introduction

As we all know, patient safety is critical (IOM, 1999) but as nurses have multiple roles to fulfill (Greggs-McQuilkin, 2004), patient safety becomes hard to guarantee and the fulfillment of multiple roles will increase time pressure, which has both advantages and disadvantages. From our research, it was found that time pressure hastens working speed (Ben-Zur & Breznitz, 1981), but it reduces decision quality at the same time (Kocher & Sutter, 2006). Even worse, it may also threaten patient safety (Gaba et al., 1994). To cope with time pressure, highly conscientious nurses are efficient and careful, and nurse conscientiousness may moderate the impact of time pressure on nurses (Ehrenberg et al., 2008). However, how nurse conscientiousness moderates the impact of time pressure on patient safety still has not been addressed yet. Thus, this study could only investigate the interaction between time pressure and nurse conscientiousness on patient safety.

Literature

Patient safety

In relation to patient safety, adverse events indicate the occurrences of patient injuries due to health-care (Berntsen, 2004; Kostopoulou, 2006). And near-misses indicate the occurrences of situations that may lead to accidents, diseases, or injuries but they are not harmful to patients (Berntsen, 2004; Kostopoulou, 2006). Hospital records generally record adverse events and subjective reports, which are utilized to
measure patient safety, may cover near-misses (Spence Laschinger & Leiter, 2006). According to various documents, patient safety indicators (JCAHO, 2001; JHH, 2003; Laschinger & Leiter, 2006; Elfering et al., 2006) include (1) patient fall; (2) nosocomial infection; (3) medication administration errors; (4) delayed patient care; (5) incomplete or incorrect documentation and (6) patient injury due to care.

**Time Pressure**

The definition of time pressure is a psychological urgency attributed to insufficient time for completing required tasks. Nurses must make numerous critical clinical decisions in each shift, time pressure is therefore endemic among nurses. And it adversely impacts on the following areas, namely: (1) decision quality; (2) emotional exhaustion; (3) judgment accuracy; (4) arithmetic performance and (5) exacerbation of negative emotions.

**Conscientiousness**

The literature on conscientiousness has identified that conscientiousness is related to carefulness, efficiency, achievement motivation, and task-orientation (Barrick & Mount, 1993; Costa & McCrae, 1992; Goldberg, 1993). Conscientiousness was found positively related to performance among various occupations in two meta-analyses (Barrick & Mount, 1991; Salgado, 1998). Such a positive relationship between conscientiousness and job performance was further confirmed by subsequent studies (Barrick et al., 2001; Hurtz & Donovan, 2000; Small & Diefendorff, 2006). Thus conscientiousness may be a critical predictor for patient safety, indicating the adequacy of considering nurse conscientiousness in this study.
Hypotheses

In a highly pressured situation, conscientiousness may help improve care outcomes. Conscientiousness characterizes an individual’s tendency to be efficient and careful (Ehrenberg et al., 2008), which together help improve job performance. Thus, highly conscientious nurses who are working under time pressure may contribute to patient safety. From this, we can conclude that for highly conscientious nurses, time pressure is positively related to patient safety.

**H1: For highly conscientious nurses, time pressure is positively related to patient safety.**

Individuals may comply with time pressure, when it is within an acceptable range, without sacrificing performance competency. Nurses with a low level of conscientiousness are possibly lacked of systematic, disorganized behavior and are usually irresponsible for patient care. Thus, lowly conscientious nurses who are working under time pressure may minimize patient safety. From this, it is conclude that for lowly conscientious nurses, time pressure is negatively related to patient safety.

**H2: For lowly conscientious nurses, time pressure is negatively related to patient safety.**

Method

This research was conducted in the form of a survey and with the adoption of Patient Safety Measures, Time Pressure Measures and Conscientiousness Measures which included the application of the self-reported patient safety approach (Spence Laschinger & Leiter, 2006), reliable patient safety items (Teng et al., 2009), and the
question “in the past, how frequently did the following events occur to you or your patients?” was asked. Time Pressure which measured by Putrevu & Ratchford (1997) and translated into Chinese in Taiwan (Teng et al., 2007c). And the items measuring conscientiousness came from the Mini-Markers of Saucier (1994). The data was collected by means of a cross-sectional design and the sample of this study was full-time and day-time RNs and proportionate random sampling was adopted for increasing the sample representativeness. As the majority of nurses in Taiwan work full-time, thus this criterion fits the population features. Head nurses, nursing administrators and nursing students were excluded from this study as their jobs may be different from other nurses to a considerable extent. 411 questionnaires were distributed to nurses in 89 units but the returned usable responses were only 380 with 92.5% as the effective response ratio.

**Analysis**

The study measures had average variance extracted (AVE) of above .49, the finding of which has satisfied the criteria of Bagozzi & Yi. The confidence intervals of Cronbach's alpha values're bigger than .75 but our study measures had set Cronbach's alpha to be above .76. Our study measures had a composite reliability (CR) of above .85 Convergent validity is the general agreement among ratings, gathered independently of one another, where measures should be theoretically related, and it is the ability of a measurement scale to correlate or converge with other measures of the same variable. All but two indicators loadings exceeded .54 and had t statistics exceeding 2 (the minimum t value was 9.90), thus satisfying convergent validity criterion (Anderson & Gerbing, 1988).

Discriminant validity describes the degree to which the operationalization is not
similar to (diverges from) other operationalizations that it theoretically should not be similar to. The maximum correlation between constructs equalled to .02, which was below the minimum AVE, which is .49, thus fulfilling Fornell and Larcker's (1981) Discriminant Validity criterion.

The model fit indices performed were performed imperfectly and the reason might be that the range of adverse events covered for the measures for patient safety was far too wide.

This study used ANOVA for testing the interaction between time pressure and nurse conscientiousness on patient safety. Median split was used to categorize nurses into the high-conscientious group, and the low-conscientious group. For each group, t tests were conducted to test the impact of time pressure on patient safety.

**Discussion & Conclusion**

We found that time pressure and nurse conscientiousness had a trend interaction on patient safety for highly conscientious nurses, time pressure did not appear to have any connection with patient safety. Whereas for lowly conscientious nurses, time pressure was negatively related to patient safety.

To conclude our research, we've found that time pressure is negatively related to patient safety. For lowly conscientious nurses, in terms of theoretical implications, this study concluded that conscientiousness can negatively affect patient safety and a critical health care outcome performance indicator supports the finding of Witt (2002) & Witt et al. (2002) which is that conscientiousness reduces nursing performance. As for clinical implications, Klimstra et al., (2009); Ryan, (2009) found that personality (conscientiousness) can be changed. And the research is needed to investigate if training courses may help improve conscientiousness.
As mentioned at the beginning of my presentation, all participants of this study were registered nurses. RNs were chosen as the samples for this study for the limitation of the ability to see if the proportion of registered nurses would impact on the study findings. This study can be replicated and whether or not the present study findings can be moderated by the proportion of RNs can be explored.

This study identified an interaction between time pressure and conscientiousness with respect to patient safety. It provided novel means for increasing patient safety and indicated their relevance to nursing administration. Further evidence is warranted to confirm the casual relations between time pressure, nursing conscientiousness and patient safety.

References


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