THE IMPACT OF NURSING STAFF IN HEALTH MANAGEMENT PROGRAMS

Fatma Ali Alhaqab, Mohammed Hamoad Mohammed Al-Hebbi, Salman Mesfer Almutairi, Hamoud Abdullah Alshahrani, Eiman Mohsen Zober, Riadah Howidi Aldosari, Hussain Owyed Alanazi, Hammad Meshari Alharthi, Fahda Muhaisen Alshaibani, Nawal Mohammed Ali Al Harithi, Khlood Abdalaziz Alhoti, Sarah Alawi Alshubbar, Seham Sulaiman Al Saeed, Fatimah Ibrahma Al Salih, Wazan Mueidh Al Onazi

Abstract

The purpose of this research is to determine the relationship between nurse staffing techniques and nurse and patient outcomes by methodically reviewing and synthesizing the available data. For papers published in English, a search of Web of Science, CINAHL (EBSCO), and MEDLINE (EBSCO) was done. The introduction of a required minimum nurse-to-patient ratio was shown to increase nurse outcomes in every study that examined nurse outcomes; however, results on patient outcomes were not entirely conclusive. There is still a dearth of data about how certain nurse staffing strategies affect patient and nurse outcomes. Future research on the effects of different staffing approaches on results is needed to inform this core area of practice and management.

Keywords: Patient outcomes, nurse staffing, systematic review, workload approaches, nurse outcomes

1. Introduction

The relationship between nurse staffing, nursing workloads, skill mix, and patient care quality has been the subject of considerable study for more than 20 years (Aiken et al., 2014; Duffield et al., 2011; Kane et al., 2007; Needleman et al., 2011). The creation and implementation of Nurse Sensitive Outcomes (NSOs), a clear indicator of a nurse's contribution to high-quality patient care, have made this task easier. According to Kane et al. (2007) and Needleman et al. (2002), an NSO is characterized as a hospital acquired patient event that is thought to be sensitive to nurse staffing levels. NSOs include complications related to the central nervous system (CNS), deep vein thrombosis (DVT), pressure injury, bleeding in the gastrointestinal tract (GI), pneumonia, sepsis, shock/cardiac arrest, UTI, failure to save a life, length of stay, pulmonary failure, physiologic/metabolic disturbance, and surgical wound infection (Needleman et al., 2001).

Research indicates that a shortage of nurses results in an increase in their workload and their capacity to oversee patient care, which increases the risk of NSO-related adverse events (Duffield et al., 2006). For instance, studies have shown that wards with lower nurse staffing levels had greater rates of medication administration mistakes, unfinished care episodes, and episodes of missing nursing care (Ball et al., 2018; Griffiths et al., 2018a). According to Needleman et al. (2011), patients in the United States who worked shifts with eight or less hours below the designated goal staffing level saw a 2% increase in the probability of patient mortality. Similarly, adding one more patient per nurse raised the rate of motility within 30 days of admission by 7% and raised the chance of failing to rescue in 168 adult general hospitals (Aiken et al., 2002).

Furthermore, according to Dalton et al. (2018), receiving sufficient hours of care from a registered nurse (RN) is critical for the prompt identification and handling of patient decline. According to Needlemen et al. (2002), a decrease in the incidence of failure to respond was seen when a registered nurse offered more care hours. Similarly, a 10% increase in RN hours resulted in a decrease in the incidence of seven NSOs in an Australian research (Roche et al., 2012). According to Kane et al. (2007), there was a correlation between a decrease in hospital acquired pneumonia, unplanned extubation, respiratory failure, and a decreased risk of rescue failure in surgical patients. Additionally, there was a reduction in the length of stay for patients in intensive care units with an increase in the number of registered nurses per patient day. Thus, it is essential to be able to ascertain the appropriate number of nurses needed in a particular environment over an extended period of time in order to provide safe, high-quality, and reasonably priced care (Saville et al., 2019).

2. History

Numerous studies (Duffield et al., 2006; Fasoli & Haddock, 2010; Griffiths et al., 2020; Twigg & Duffield, 2009) outline the variety of methods available to assess appropriate nurse staffing levels. Professional judgment, straightforward volume-based techniques (like patient-to-nurse ratios), benchmarking, inpatient prototype categorization (like safer nursing care tool), and timed-task approaches are a few of them (Griffiths et al., 2020). Although there are several approaches to nurse staffing, there isn't a universal agreement on the best and most suitable way to figure out the ideal nurse staffing in various contexts (Whitehead & Myers, 2016).

This review has concentrated on research that examined the influence of staffing as determined by a staffing methodology on patient and nurse outcomes, even though the evidence generally agrees that staffing affects on the quality and safety of patient care in general. It builds on the body of information produced by previous evaluations (Donaldson & Shapiro, 2010; Serratt, 2013a, 2013b) that were limited to the inclusion of research carried out in California between 2004 and 2012 and examined the effects of minimal nurse-to-patient ratios on patient and nurse outcomes. Beyond the scope of previous assessments, this research includes a

thorough analysis of the relationship between nurse staffing strategies and patient and nurse outcomes.

3. Nurse outcomes

Nursing-to-patient ratios and nursing outcomes were evaluated in six research (Cox et al., 2005; Leigh et al., 2015; Spetz, 2008; Spetz & Herrera, 2010; Tellez, 2012; Tellez & Seago, 2013). It was determined that the methodological quality of five investigations (Cox et al., 2005; Spetz, 2008; Spetz & Herrera, 2010; Tellez, 2012; Tellez & Seago, 2013) was poorer.

The research evaluated burnout, staff sickness, occupational injury, complaints and verbal abuse, satisfaction with nurses, and intent to remain. The relationship between work satisfaction and nurse-to-patient ratios was examined in four research. Nurse staffing ratios in the hospital context were shown to be significantly linked with an increase in nurses' work satisfaction in all four studies (Cox et al., 2005; Spetz, 2008; Spetz & Herrera, 2010; Tellez, 2012). The California Board of Registered Nursing surveys (Spetz, 2008; Spetz & Herrera, 2010; Tellez & Seago, 2013) provided the cross-sectional survey data for all three research, which evaluated work satisfaction across time after the staffing legislation's execution. Cox et al. (2005) found no change in intention to remain after the adoption of required nurse-to-patient ratios, despite an increase in satisfaction.

Leigh et al. (2015) looked at how the minimal nurse-to-patient ratios required by California affected the prevalence of occupational sickness and injury among nurses. In comparison to 49 other states and the District of Columbia without such ratios, the research found that nurse to patient ratios were linked with 55.57 and 93.23 fewer occupational injuries and illnesses per 10,000 registered nurses and licensed practical nurses annually, respectively.

4. Hours of nursing per patient per day

One research examined the effect of Nursing Hours Per Patient Day (NHPPD) on nurse-sensitive outcomes (Twigg et al., 2011). The NHPPD staffing technique divides the wards into seven groups according to a number of factors that affect nurse workloads, including patient turnover, the mix of emergency and elective patients, and the degree of involvement. Nine patient outcomes had significantly lower rates after adoption, according to the research. These included the following: average duration of stay, pressure ulcers, sepsis, ulcer/gastritis/upper gastrointestinal bleed shock/cardiac arrest, mortality, central nervous system problems, and deep vein thrombosis. The following outcomes—wound infections, lung failure, physiologic/metabolic disturbance, and failure to rescue—did not show any differences.

The bulk of research on the effects of minimal nurse-to-patient ratios in hospital or elder care settings was carried out in California. The Nurse Hours Per Patient Day staffing strategy was assessed in just one Australian research (Twigg et al., 2011), and improvements were shown in many patient outcomes such as sepsis, death, and pressure injury. Nevertheless, there is still little data   on   this   subject.

Minimum nurse-to-patient ratios that are required in Californian hospitals have been shown to improve nurse outcomes, including intention to remain and work satisfaction (Tellez, 2012), as well as lower incidence of occupational injury and sickness (Leigh et al., 2015). Still unanswered is whether improvements stem from greater personnel per se or from the attainment of an effective ratio as a consequence of managed ratios. The results reported in this study may be explained by the large body of research showing a correlation between increased nurse staffing levels and better nursing outcomes (Shin et al., 2018; Wynendaele et al., 2019).

5. Data on nurse-to-patient ratios and patient outcomes including death and failed attempts at rescue

Since many studies had cross-sectional designs, determining causation was difficult. Research using a cohort or longitudinal approach yielded conflicting findings. Moreover, as most research was done in California, the findings may not apply directly to other states where there may be differences in the law, nursing education, labor standards, and healthcare infrastructure. Mandated nurse staffing ratios are difficult to justify in hospital settings due to the paucity of information about staffing strategies (Olley et al., 2019). Nevertheless, California continues to use the required nurse-to-patient ratio approach, and two Australian states—Queensland and Victoria—have implemented similar laws since 2001 and 2016, respectively (Olley et al., 2019). This might be the case because nurse-to-patient ratios are simple to control and observe, but they also tend to decrease professional judgment in daily staffing choices and are less responsive to the complexity of the patient mix (Griffiths et al., 2020). The Australian research on Nurse Hours Per Patient Day aimed to evaluate the complexity of the patient mix in its design, allowing for professional judgment in daily staffing decisions. It did show improvements in some patient outcomes (Twigg & Duffield, 2009; Twigg et al., 2011). Nevertheless, before extrapolating the findings to other jurisdictions, further investigation is required into this staffing strategy.

Furthermore, a research conducted in 2004 by Zhang and Grabowski found that the Nursing Home Reform Act had a positive impact on patient outcomes. Lastly, there are more patient categorization systems and staffing tools that are available and in use in developed country healthcare systems. This includes, among other things, the Safer Nursing Care tool used in Finland (RAFELA, 2007) and the Department of Health, 2018; the National Quality Board, 2016) in England. Research has shown that the use of these tools and systems may help with staffing choices and lead to better patient outcomes (Fagerström et al., 2018; Griffiths et al., 2018b, 2019; Junttila et al., 2016). Further studies are required to further our understanding of nurse staffing methodologies, with a focus on improving study design and patient and nurse outcome metrics.

6. Conclusion

The data about the effects of implementing a particular nurse staffing approach and the ensuing influence on patient and nurse outcomes is still few, despite the significance of the subject and the abundance of publications on nurse staffing. There is currently insufficient data

to identify a staffing model that improves patient and nurse outcomes better than the others. Instead, the evaluation encourages increases in the number of nurses on duty, which has the added advantage of bettering patient and nurse outcomes. But it's still difficult to estimate how many nurses will be needed in the future.

The data that is now available indicates that higher numbers of registered nurses (RNs) work hours lead to improved patient outcomes; but, current staffing approaches do not yet identify the number of RN hours required to provide safe, high-quality, and reasonably priced care. To get a deeper understanding of the effects of nurse staffing approaches on patient and nurse outcomes, comparative studies with sound research procedures and well-defined staffing criteria are required.

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