



## INVESTIGATING THE ASSOCIATION BETWEEN NURSE STAFFING LEVELS AND PATIENT OUTCOMES

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### Abstract

Studies have shown connections between the number of nurses working and negative outcomes for patients, such as death while in the hospital. Nevertheless, the cause-and-effect aspect of this link is questionable. It has been suggested that omissions of nursing care, also known as missed care, care left undone, or rationed care, might serve as a more direct indication of the adequacy of nurse staffing. The objective of this study is to identify the nursing care that is most often overlooked in acute adult inpatient wards and to establish the evidence linking missed care to nurse staffing levels. We conducted a comprehensive search in the Cochrane Library, CINAHL, Embase, and Medline databases to identify quantitative studies that examine the relationships between staffing levels and instances of missed care. We conducted a comprehensive search of prominent academic publications, personal libraries, and reference lists of relevant papers. More than 75% of nurses reported intentionally not providing some aspects of care. Fourteen researches have shown a substantial correlation between low nurse staffing levels and increased claims of missing care. There was insufficient data to suggest that the addition of support workers to the team had a significant impact on reducing missed care. In hospitals, there is a correlation between insufficient staffing of Registered Nurses and instances of reported neglected nursing care. Missed care serves as a reliable measure of the sufficiency of nurse staffing. The degree to which the observed associations really indicate failures has not yet been studied.

**Keywords:** association, nurse staffing levels, patient outcomes, review.

### 1. Introduction

There is a substantial amount of information regarding the correlation between nurse staffing levels in hospitals and patient outcomes. Nevertheless, there are other more elements that might influence the results throughout a patient's hospitalization. In recent times, there has



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been a growing focus on investigating the impact of neglected nursing care on negative patient outcomes. Missed care has been recognized as a potential measure of the quality of nursing care in hospitals (Griffiths, Ball, et al., 2014; Griffiths, Dall'Ora, et al., 2014). The global forecast for a deficit of nurses by 2025, caused by a retiring workforce and an aging population, highlights the need to get a comprehensive knowledge of how nurse staffing affects patient safety. Moreover, the worldwide community is very interested in studying the processes and all potential consequences that might be influenced by inadequate staffing in hospitals.

## 2. Missed nursing care

In hospitals, having a low number of nurses working is linked to negative results, including death (Griffiths et al., 2016; Kane, Shamliyan, Mueller, Duval, & Wilt, 2007; Shekelle, 2013). Although this research has had a substantial influence and has been used to support the argument for higher nurse staffing levels, including the implementation of mandated minimums, there is still ongoing debate over the cause-and-effect relationship between nurse staffing levels and outcomes (Griffiths, et al., 2016). For the majority of patient outcomes, the causal link is often just partial and indirect.

In recent times, there has been a growing focus on missed nursing care, which refers to any aspect of care that is not provided or delayed, either partially or completely (Kalisch, Landstrom, & Hinshaw, 2009). There is some evidence suggesting that missed nursing care may be linked to negative patient outcomes (Carthon, Lasater, Sloane, & Kutney-Lee, 2015; Lucero, Lake, & Aiken, 2010). Investigations of possibly preventable fatalities in hospitals illustrate how oversights by nursing personnel may result in significant negative consequences. Reports on avoidable deaths in hospitals have found that failure to monitor patients' vital signs, detect early signs of deterioration, communicate abnormal observations, and provide an appropriate response are often linked to avoidable deaths (Dagmar, Kate, & Frances, 2007).

Therefore, it has been suggested that the reason death rates are affected by nurse staffing levels is due to the failure to provide necessary care, specifically in terms of monitoring and preventing deterioration (Clarke & Aiken, 2003). Due to overwhelming workloads, nurses may not be able to fulfill all required care tasks and are forced to participate in what is known as "implicit rationing" (Schubert, Glass, Clarke, Schaffert-Witvliet, & De Geest, 2007). Missed nursing care has been proposed as a possible quality measure associated with the sufficiency of nursing staffing. It serves as an early warning sign that can more effectively identify issues resulting from low staffing levels before they manifest as negative outcomes.

Although there is substantial evidence linking nurse staffing levels to patient outcomes, research on missed nursing care is more limited. This is partly due to the challenges in measuring nursing activities, which are not routinely recorded by healthcare providers (Lucero et al., 2010). Nevertheless, an increasing amount of research is now investigating the correlation between nurse staffing and instances of neglected patient care. Prior studies have examined various

aspects of missed care, but they have not thoroughly investigated the connection between missed care and staffing levels in a systematic manner (Jones, Hamilton, & Murry, 2015).

### 3. Incidence of neglected healthcare tasks

An aggregate assessment of the frequency of missed care may be derived from seven studies (Al-Kandari & Thomas, 2009; Ball, et al., 2016; Ball, et al., 2014; Cho et al., 2016; Griffiths, Ball, et al., 2014; Griffiths, Dall'Ora, et al., 2014; Schubert, et al., 2013; Zander, et al., 2014). According to European studies conducted using the RN4Cast survey, the frequency of incomplete care during the last shift varied from 75% in England (Ball, et al., 2014) to 93% in Germany (Zander, et al., 2014). The overall estimate across 12 European countries was 88% (Griffiths, Ball, et al., 2014; Griffiths, Dall'Ora, et al., 2014). Korea reported a rate of 81% using the same instrument (Cho et al., 2016). In a study conducted in Kuwait, it was found that 55% of nurses reported being unable to carry out all the necessary procedures during their most recent shift (Al-Kandari & Thomas, 2009). In a study conducted by Schubert et al. (2013), it was found that 98% of Swiss nurses had neglected to include at least one question in the BERNCA survey during the last 7 days.

Multiple studies have examined various elements of neglected healthcare, using different tools to assess different areas of treatment and with varying degrees of precision, making it difficult to directly compare the findings. Table 2 displays a concise overview of the care that was not provided and the relative frequency, based on the average ranking of frequency, using the three most often used instruments. The category of care known as "planning and communication" (with a median rank in the 20th percentile) was found to be missing more often compared to clinical treatment (with a median rank in the 65th percentile,  $df = 2$ ;  $p = .001$ ).

The interest in missing care nursing has often been focused on its function as a possible method for elucidating the connection between patient safety outcomes and nurse staffing levels. The concept that inadequate staffing leads to increased mortality by causing lost chances to detect and prevent deterioration is a crucial component of the argument that these connections between staffing levels and outcomes are causal (Clarke & Aiken, 2003; Griffiths, et al., 2016). The research in this review does provide some support for this assertion. However, the present subjective measures, which rely on infrequent surveys, are not easily suitable for regular quality monitoring, despite the new interest in utilizing missed care as a prominent quality indicator.

The care that is most often described as being neglected, such as engaging in conversations and providing emotional support to patients, has significant value for patients. However, it is unlikely to clearly elucidate the relationship between staffing numbers and unfavorable outcomes, such as death. The relative disregard for these components of care may actually indicate a prioritization of clinical treatment due to a paucity of personnel, which is justified for valid clinical reasons. However, less favorable causes, such as deference to medicine, have also been proposed (Papastavrou et al., 2014). However, the stated levels of neglect of clinical treatment are still significant. Comprehensive assessments of neglected

healthcare do not differentiate between the varying significance of the care that is not provided. Not all instances of neglected healthcare are equally important, and the effect on patient outcomes will differ (Recio-Saucedo et al., 2017). Although there is evidence suggesting that missed care plays a role in the connection between staffing levels and patient satisfaction and falls, there is no direct evidence linking omitted clinical care to the relationship between staffing and mortality.

In addition, the research included in this analysis generally confirms the correlation between staffing levels and instances of neglected care. However, none of these studies specifically investigated the relationship between staffing levels and any quantifiable measure of care quality. While there is a link between nurse reports of missing treatment and negative patient outcomes, it is still uncertain how closely these reports align with actual instances of care being omitted. Although smaller studies with a greater risk of bias often did not find significant relationships, studies that relied on patient accounts did not definitively support the findings of research that relied on nurse reports. Due to variations in measurement techniques and analytical procedures, it is challenging to compare findings across different research. Based on the findings of a study conducted by Ball et al. in 2016, the results showed a significant impact size. The study indicated a 66% decrease in the likelihood of reporting missing care in the best staffed wards compared to the lowest staffed wards. This reduction translates to a decrease from 89% to 75%. While there may be a correlation between staffing levels and the incidence of reported missing care, it is important to note that the majority of missed treatment cannot be solely attributable to inadequate staffing.

#### 4. Summary

Although there is a correlation between reported missing care and nurse staffing levels, it is important to note that these reports may only serve as indications of insufficient nurse staffing. However, there is currently no study that establishes a direct link between reported missed care and objective measures of care. The degree to which the associations revealed in these researches accurately reflect instances of neglect and the resulting outcomes of such failures has not been thoroughly examined.

The occurrence of missed care may be used as a measure of care quality and ensuring sufficient staffing levels is a strategy to prevent missed care, considering its possible repercussions. Although there is a significant correlation between staffing and missed care, it is improbable that the majority of care omissions are solely attributable to personnel numbers. Complaints of omitted care alone are insufficient for assessing the sufficiency of nurse staffing. However, variations in the rate or frequency of such complaints may suggest issues with nurse staffing. Subsequent investigations should prioritize the use of quantifiable indicators to assess the impact of neglected healthcare tasks on patient well-being.

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