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Sydney Montgomery

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The Effects of Nurse-to-Patient Ratios on Patient Outcomes in a Variety of Hospital Settings

Sydney Montgomery

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Process Description

Nurse-to-patient ratios has been a topic of discussion that has gained momentum over the last several years. Across the country, nurses are being loaded down with unrealistic amounts of patients to care for, in a variety of settings. The reason for this is related to the current shortage of nurses in the workplace, as well as the cost to hospitals that would result from increasing nurse to patient ratios. Nurses on medical surgical floors in the Western Kentucky area are regularly responsible for the care of six to eight patients at a time, with severely limited help from nursing assistants. Nursing shortages have left critical care units in the area with only two nurses to work the entire unit, with a census of 7 patients. In the state of Kentucky, there is no policy mandating a maximum nurse to patient ratio, such as saying that no nurse can care for more than four patients at one time. However, evidence-based practice suggests that lower nurse-to-patient ratios results in better patient outcomes and therefore, the majority of policies in place regarding nurse to patient ratios are not based on best evidence.

The current policy that I am using as an example for this clinical question comes from a medical surgical floor and is a grid system where the census determines the number of staff members for all job classifications, including registered nurses, that will be on the floor. Based on this grid, there are times when a nurse has as many as seven patients at a time. For example, if the census of the floor is at seventeen patients, the maximum number of nurses that will be on the floor is three (“Murray-Calloway County Hospital Staffing Grid,” 2018). Research needs to be conducted and analyzed to see if having a lower nurse-to-patient ratio truly effects patient outcomes, and what guidelines should determine these ratios. Policies that are currently in place are subjecting nurses to care for a large number of patients, and are not taking into consideration patient acuity.

Theoretical Framework

Published in 1952, Hildegard Peplau's Theory of Interpersonal Relations focuses on the nurse-patient relationship, and the different nursing roles involved. It is Peplau's belief that the nurse-patient relationship is one of the most important aspects of a patient's care. The theory includes six different nursing roles and they are as follows: the stranger role, the resource role, the teaching role, the counseling role, the surrogate role, and the active leadership role. The nursing model also identifies and outlines the aspects of the sequential nurse-patient relationship, which includes the orientation phase, the identification phase, the exploitation phase, and the resolution phase (Petiprin, 2016).

The orientation phase can be described as the initial interaction, where the nurse and patient will define the problem and identify what type of services the patient will be needing. This is also the time that the nurse will perform an initial assessment and patient will share any concerns or expectations about the health care experience. Next, the identification phase serves as the stage where a nursing care plan will be developed and the patient will begin to feel more comfortable and capable. The exploitation phase is the point at which the nursing care plan will be implemented and the necessary actions are taken to meet the goals that had been set prior to this point in time. Finally, the resolution phase, the final phase, is meant to terminate the nurse-patient relationship, as the patient's needs have been met. This acts as the evaluation stage of the nursing process (Petiprin, 2016).

When nurse-to-patient ratios are unreasonably high and nurses are weighed down with a large number of patients to care for, Hildegard Peplau's Theory of Interpersonal Relations cannot be adequately fulfilled. The nurse does not have enough time or resources to satisfy each step of

this theory for each patient when nurse-to-patient ratios are unbalanced, meaning patients are not receiving the quality care that they deserve. As for the six different nursing roles defined in Peplau's theory, the overloaded nurse cannot meet all of these roles to the standard that is expected. When time management is an issue, the things that must be cut back on are typically patient education and meeting the patients' psychosocial needs, meaning that the educating role and the counseling role are likely to be minimized. The nurse-patient relationship is one of the most important aspects in healthcare, and unsafe nurse-to-patient ratios are taking this away from patients, as well as nurses who want to offer their patients well-rounded, holistic, and optimal care.

Evidence

In a meta-analysis research study completed by Medical Care Journal entitled, "The Association of Registered Nurse Staffing Levels and Patient Outcomes," a variety of findings were concluded that support the claim that nurse-to-patient ratios should be lowered for the safety of patients. The setting for this study consisted of random samples of US community hospitals, annual surveys of the American Hospital Association (AHA), state health services databases, ongoing multi-center investigations, or single hospital evaluations. The sample included 28 studies in total, including 17 cohort studies, 7 cross sectional studies, and 4 case-controlled studies. It was found that greater registered nurse staffing was consistently associated with a reduction in the adjusted odds ratio of hospital related mortality. Through the analysis of data (that can be found specifically in the article), it is estimated that an increase of one RN per patient day would save 5 lives per 1,000 hospitalized patients in ICUs, 5 lives per 1,000 medical patients, and 6 lives per 1,000 surgical patients. It was also found that higher RN staffing numbers was associated with lower odds of patient adverse events, including hospital

acquired pneumonia (reduction of odds by 19% in all patients), respiratory failure (60% lower odds in ICU patients), unplanned extubation (51% less odds in ICU patients), cardiac arrest (reduction of odds by 28% in ICU patients), failure to rescue (reduced by 16% in medical patients), and nosocomial bloodstream infections (reduced by 36% in medical patients) (Kane, et al., 2007).

Furthermore, it was found that reducing the number of patients from five patients to two or fewer per registered nurse is associated with a 49% reduction in nosocomial sepsis and a 39% reduction in failure to rescue. To put this into perspective, this reduction in RN workload would save approximately seventy-seven lives out of one thousand surgical patients (Kane, et al., 2007).

In summary, this article shows that an increase in nursing staff typically results in better patient outcomes. However, it must also be considered that other factors are also in play, such as nursing skill, patient acuity, dedication, experience, collaboration, and hospital volume.

Another study conducted by The European Journal of Cardiovascular Nursing entitled, “The Effect of Nurse-to-Patient ratios on Nurse-Sensitive Patient Outcomes in Acute Specialist Units: A Systematic Review and Meta-Analysis,” concluded similar findings as the previous study. There were limitations that must be taken into consideration when evaluating the data. Therefore, the only nursing setting that this data can confidently speak for, as far as the effect of nurse-to-patient ratios on patient outcomes, is the intensive care unit setting. It must also be noted that every study included in this meta-analysis rated high in the NOS quality assessment tool, which speaks volumes for the study overall. The setting for this study was a wide variety of electronic databases and grey literature, and search terms included 18 terms on setting (Ex: ICU, CCU, etc.), 17 terms relating to nursing or manpower or skill mix, and 78 nurse-sensitive

outcomes (Ex: wound infection, length of stay, etc.) Out of all the studies that were screened in the database, thirty-five studies met the inclusion criteria. As far as the ICU setting, it was found that patients were fourteen percent less likely to experience an in-hospital mortality per every increase in one RN on the unit. There were also statistically significant findings that suggest patients were less likely to experience an adverse event in the ICU when the nurse-to-patient ratio was higher (Driscoll et al., 2018). It could be deduced that if these results can be seen from higher nurse to patient ratios in the intensive/critical care settings, a similar effect could be seen on medical surgical units in reducing in-hospital mortality and patient adverse events.

In a study entitled, “Association Between Nurse Staffing and In-Hospital Bone Fractures: A Retrospective Cohort Study,” the effect that higher nurse-to-patient ratios have on adverse patient outcomes were further examined. As this was a retrospective cohort study, the researchers gathered past data from a variety of hospitals using a national inpatient database, and limited the data to patients and hospital situations that fit the inclusion criteria. The setting of this study was medical surgical floors, specifically those with patients aged 50 or over who underwent planned major surgery for some form of cancer or cardiovascular disease. Then, the study identified 770,373 patients from 1,074 hospitals, and used ICD-10 codes and post-operative procedure codes to narrow this number down to patients with in-hospital fractures, resulting in 662 patients to be included in the study. Once all the data was sorted and scaled to fit the criteria, the results showed clearly that the group with the highest nurse to occupied bed ratio had significantly lower rates of in-hospital fractures, when compared to the group that had the lowest nurse to occupied bed ratio. This study also examined the correlation between nursing care, which was measured in hours, and patient falls in the hospital. The results found

that higher nursing care hours per patient was significantly associated with lower fall rates, which is congruent with previous research that has been completed (Morita et al., 2017). In conclusion, this provides significant data showing a great improvement in patient care and a reduction of adverse patient outcomes on medical surgical floors when the nurse to occupied bed ratio is higher.

Referring back to Hildegard Peplau's Theory of Interpersonal Relations, an article entitled, "Finding Time for Patients: An Exploration of Nurses' Time Allocation in an Acute Psychiatric Setting," discusses the amount of time that nurses on this unit spend one-on-one with their patients, and what estimated percentage of this time is spent therapeutically with the clients. Peplau's Theory of Interpersonal Relations is centered around the nurse-patient relationship, and the steps taken throughout this relationship from beginning to end. In order for these steps to be taken and progress to be made, the nurse must spend a measurable amount of time with the patient. This becomes problematic when the nurse-to-patient ratio is high and nurses do not have enough time to adequately treat and speak with their patients. As nurses in this study were observed, the findings of this study showed that nurses spent less than fifty percent of their day with patients directly. Of this fifty percent, less than ten percent of this patient interaction was considered therapeutic. However, it was found that the nurses spent approximately thirty percent of their time completing administrative tasks or socializing (McLaughlin & Whittington, 2001).

Limitations to applying this to medical surgical nurses include that this study was focused on psychiatric nursing, and also that we are unaware of the number of patients each nurse had. Regardless of this, we know that these nurses were only able to spend less than half of their entire day directly caring for their patients. This leaves a wide window open for patients to experience adverse outcomes, and Peplau's nurse-patient relationship goals are likely not able to

be met when the nurses are spending less than a mere fifty percent of their shift interacting with the patients. When nurse-to-patient ratios are high, nurses are likely to have even less than fifty percent of their time spent with patients directly, because so much of their time goes to passing medications for six different patients or simply charting on this number of patients. As a result, Peplau's theory and the nurse-patient relationship is jeopardized.

Proposed Policy/Procedure

The table shown below is the original policy and current policy in place regarding nurse staffing on the fourth floor (a medical surgical floor) at Murray Calloway County Hospital. Please note the policy below has been adapted to only show the pertinent data that is related to the nature of this paper.

Census	0645-1915 Shift # of RNs	1845-0715 Shift # of RNs
28	5	4
27	5	4
26	5	4
25	5	4
24	5	4
23	5	4
22	4	4
21	4	4
20	4	3
19	4	3
18	4	3
17	3	3
16	3	3

15	3	3
14	3	3
13	3	3
12	3	2
11	2	2
10	2	2
9	2	2
8	2	2
7	2	2
6	2	2
5	1	1
4	1	1
3	1	1
2	1	1
1	1	1

(“Murray-Calloway County Hospital Staffing Grid,” 2018).

Below is the alternate policy that is being proposed based upon the evidence found in research, suggesting that lower nurse-to-patient ratios typically results in better patient outcomes with fewer adverse events.

Census	0645-1915 Shift # of RNs	1845-0715 Shift # of RNs
28	6	6
27	6	6
26	6	6
25	6	6
24	5	5

23	5	5
22	5	5
21	5	5
20	5	5
19	5	5
18	4	4
17	4	4
16	4	4
15	4	4
14	4	4
13	3	3
12	3	3
11	3	3
10	3	3
9	2	2
8	2	2
7	2	2
6	2	2
5	2	1
4	1	1
3	1	1
2	1	1
1	1	1

The updated, proposed policy regarding nurse-to-patient ratios keeps the ratio to a maximum of five patients to one nurse, but usually within four patients to one nurse. This is opposed to the previous and current policy in place, where nurses had up to seven patients each at times. Based on the research that has been done and the evidence available, I have concluded

that it is optimal for nurses on a medical surgical floor to have a maximum of five patients, and fewer if possible. Limiting the number of patients each nurse is responsible for caring for has been proven to improve patient outcomes, and limit the adverse outcomes that can occur, including hospital-acquired infections, morbidity, respiratory failure, and more.

Implementation into Professional Practice

Education to the staff of the hospital floor will be completed through a variety of techniques. First, there will be a poster board on a table during the presentation, and it will display brief descriptions of each aspect of the paper. This will provide a brief summary of all the information collected, including the overarching idea, the theoretical framework, the research evidence that supports the proposed policy change, and the new policy. In addition to the poster board, I will have a handout for each member of the presentation. The handout will basically outline the same information that is on the poster board, but this provides the information in a different form to reiterate the ideas. Lastly, I will give the presentation orally as the participants read their handout and view the poster board. The goal is that having the information presented in these three different forms will be more effective in the nurses fully understand the evidence and thus, be more likely to be in favor of changing the policy. I have chosen to present the information in these ways because data suggests that having information presented to you in multiple routes enhances memory and learning.

There are several aspects that would have to be considered before implementation of the new policy that is being proposed. Provided this policy change was approved by the hospital and administration, the first step would be for the director of the floor to ensure that there was adequate nursing staff in order to accommodate for having more nurses on the floor at a time. If there was not adequate staff, more nurses would need to be hired. Once this issue was solved,

the next step would simply be to implement the new policy and change the scheduling to meet the new requirements. The current schedule would not need to be altered, but this policy could be implemented by the time the next schedule came out. Before the change was implemented into the next scheduling period, a meeting with the entire floor would need to be held in order to discuss the change and make sure all information was clear to the staff, as well as taking time to answer any questions with regards to the policy change. Phasing this policy into practice would not be as difficult as some policy changes, because this policy makes work easier for the nursing staff and makes care better for the patients as well. The main hurdle to overcome would be the cost of more staff to the hospital and having the directors approve the change.

Conclusion

In summary, nurse-to-patient ratios play a major role in healthcare, having a great effect on both the nurses and the patients involved. The evidence is abundant that having lower ratios is safer and provides more optimal outcomes for patients. So, the question remains why the majority of the country continues to give nurses astronomical amounts of patients when the evidence suggests otherwise. Between Peplau's Theory of Interpersonal Relations suggesting that nurse-patient relationships require time-consuming steps to be taken and the evidence that demonstrates a clear reduction in patient adverse outcomes, limiting nurse-to-patient ratios seems like the only option. Hopefully, the future of healthcare for the United States holds mandated safe staffing ratios, for the safety of our nurses as well as our patients.

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