**Review Article**

**Worsening Nursing Shortage Post Covid-19 Pandemic: Effect on Staffing and Inpatient Outcomes**

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**Abstract**

**Background:** A lack of registered nurses (RNs) has been estimated across United States till 2030. In 2010, the Institute of Medicine (IOM) [1], convened and mandated an increase in the number of baccalaureate-set nurses to eighty percent, to enable improvement in patient safety. Unfortunately, the current nursing workforce has not met the IOM stipulated goal with only 65.2% of RNs according to the National Council of State Boards of Nursing. Additional variable to nursing shortage was COVID-19, known as the coronavirus which invaded the United States of America in January of 2020 [2]. According to the World Health Organization [2], COVID-19 is a contagious airborne condition caused by the SARS-COV-2 illness, and it can cause serious sickness and/or death (WHO, 2023). COVID-19, placed a large amount of strain on healthcare systems and nurses around America. Prior to 2019, there was a systematic approach for nurses to provide safe, quality, and patient-centered care. However, COVID-19 caused a shift for many healthcare organizations for various reasons, leading to a nationwide nursing shortage. Hence, the rationale of our question/hypothesis.

**Methods:** The search engine utilized in this review study was Google Scholar. The keywords entered for this research in Google Scholar included nursing, patients, nursing shortage, patient safety, healthcare organizations, COVID-19, and the United States of America. The date of the articles retrieved ranges from 2019 to 2023, and the search yielded 16,400 peer literature review articles in 0.03 seconds. From populated 16, 400 review articles resulted, 20 were strictly selected to address the nursing shortage and its impact on patient outcomes: covid-19 factor based on the set inclusion criteria mentioned above. Majority of the articles were from nursing journals that highlighted the current nursing shortage as well as various reasons for its occurrence within the United States. Additionally, these articles highlight the effect and relation that nursing shortage has on patient outcomes.

**Results:** The results of this study showed that nursing shortage effect on staffing and inpatient outcomes worsened post COVID-19 pandemic, notably regarding nurse and patient safety. Many nurses are leaving the bedside to pursue higher positions in the field of nursing such as leadership and management, education, research, nurse practitioner, and/or certified registered nurse anesthetist, while others are taking advantage of early retirement, less burdensome positions, and catering to life’s demands of caring for a family or loved ones. Before 2019, nurses were departing from the bedside and/or profession, and it is only continuing to expand, which has led to significant post COVID-19 nursing shortage.

**Conclusion and Implications:** Nursing shortage decreases patient satisfaction as patients are unable to receive adequate care due to inadequate staffing in a timely manner. Healthcare systems are run by patient satisfaction. One of the primary basis of healthcare and nursing is to provide patient-centered care. Research confirms that patient fulfillment is the most significant marker of quality care and considered an outcome of healthcare services. Patient satisfaction allows hospitals to evaluate the effectiveness of care. If there is a nursing shortage, there are not enough nurses to meet the increasing needs of patients. Therefore, patients begin to experience a delay in care, increased wait times, and increased potential for sentinel events to occur.

**Keywords:** COVID-19; Nursing Shortage; Patient Safety; United States; Workload Demands

**Introduction**

A shortage of registered nurses has been estimated across United States through 2030 according to the United States Registered Nurse Workforce Report Card and Shortage Forecast [3]. In this state-by-state analysis, the authors anticipated a significant RN shortage in 30 states with the most detrimental shortage in the Western region of the U.S. Research has presented that total supply of RNs reduced by more than 100,000 from 2020 to 2021, the largest decrease ever witnessed in forty years. It has also been noted that a significant number of seasoned nurses are leaving bedside nursing left with younger nurses under the age of 35, and most were employed in hospitals [4]. In 2010, the IOM requested to expand the number of baccalaureate-registered nurses in the field to at least 80% to promote patient safety. At present nursing field has not reached the goal with only 65.2% of registered nurses having baccalaureate or graduate mark level according to the National Council of State Boards of Nursing [5].

COVID-19, also known as the coronavirus, commuted to the United States of America in January of 2020 [2]. According to the World Health Organization (2023) [2], COVID-19 is a contagious airborne condition caused by the SARS-COV-2 illness, and it can cause serious sickness and/or death (WHO, 2023). COVID-19, placed a large amount of strain on healthcare systems and nurses around United States. Prior to 2019, there was a systematic approach for nurses to provide safe, quality, and patient-centered care. For example, many American inpatient units functioned through cautious nurse-to-patient ratios, depending on the severity of patients’ requirements. Hence, intensive care units were staffed at a one-to-one patient/nurse ratio, while progressive and general care units were staffed at a one to four and/or one to six patient/nurse ratio. However, COVID-19 caused a shift for many healthcare organizations for various reasons, leading to a nationwide nursing shortage. The nursing shortage affected staffing and inpatient outcomes, which worsened post COVID. As a result, many nurses left the bedside and/or profession causing an increase supply of patients, decrease supply of nurses, and increase workload demand for remaining nurses. The chain effect of the nursing shortage led to a decrease in patient safety, decrease in patient satisfaction, and an increase occurrence for sentinel events to occur in healthcare settings. It is the hope that further research can be gained to decrease nursing shortage and provide positive outcomes for patients, nurses, healthcare organizations, and prospective nursing students/educators.

Nurses are known as the frontliners of patient care “a termed coined during the COVID-19 pandemic”, and nurses have a huge impact on patient outcomes whether for the benefit or demise. According to the World Health Statistics Report (WHSR) there are roughly 29 million nurses worldwide, with 3.9 million of those living in the United States [6]. Unfortunately, due to many constraints such as the COVID-19 pandemic, retirement, educational/career pursuits, and life demands, many nurses are leaving the bedside in many inpatient settings, creating a nursing shortage nationwide. Nursing shortage not only affects patient safety and quality of care, but nursing shortage affects the health and well-being of nurses as well. Nursing shortage decreases patient safety by increasing workload demand on nurses, decreasing patient satisfaction, and increasing occurrence for sentinel events to occur in inpatient settings. A change must be implemented to decrease the nursing shortage in the United States of America and promote health, safety, and quality of care for patients and nurses within the healthcare system.

Nursing shortage decreases patient safety by increasing workload demand on nurses. In most healthcare organizations, inpatient settings are divided into units based on the needs of a patient. For example, during the start of the COVID-19 pandemic, there was an rise of patients requiring intensive care treatment in the United States of America. As a result, an increase for intensive care units and intensive care nurses heightened. However, due to the decrease supply of nurses on intensive care units, many nurses who usually work a 1:1 or 1:2 ratio, were now working a 1:3 ratio on intensive care units. Additionally, progressive care units usually have a ratio of 1:4, but now are assigning nurses a ratio of 1:5 and 1:6, and one can only imagine the ratio occurring on general level of care units. Evidence shows that patient location within the unit, patient health condition, and nurse skill set are determining factors for creating a safe shift assignment for nurses [7]. Also, depending on the state- hospitals are held accountable for safe staffing through legally mandated nurse to patient ratios, public reporting system, and hospital-based staffing committees; for example, Massachusetts limits nurses to one patient in the intensive care unit [7]. However, as staffing decreases and patients increase this creates an increase workload for nurses. Research exposes advanced registered nurse staffing levels in hospitals are associated with higher patient outcomes and improved care quality, including lower risks of in-hospital mortality, shorter lengths of stay and fewer omissions of necessary care [8]. Unfortunately, in 2019 the world was hit with the COVID-19 pandemic, which caused an increase in patients worldwide. Many patients presented to emergency rooms complaining of fever, shortness of breath, difficulty breathing, weakness, numbness, joint pain, loss of taste and smell. No one knew what to do, and it was unknown if the pandemic was caused via airborne, contact, or droplet source until more research was conducted. The world was in an uproar and so was the healthcare system. Lopez et al. [9], presents that as the COVID-19 pandemic continues to spread globally, there has been a extreme need for more hospital beds to cater to the increasing number of patients requiring treatment.

As the number of patients began to increase, waiting times in emergency rooms became longer, and people were dying due to the inability to receive adequate care in a timely manner. Many units increased their nurse-to-patient ratio due to the increased number of patients, which increased the workload for nurses. Nurses were taking on longer hours, increased ratios, and higher patient acuity with little to no help, can one say burnout? As a result, many nurses began to leave the bedside and look for better/safer opportunities. Nursing managers scrambled to find replacements by hiring travel nurses, providing incentives/bonuses, and even working themselves to lift the burden of nurses currently in the field. It is expressed that nurses working during the pandemic have experienced many untoward effects on their physical, psychological, and social health [9]. This toll on nurses led to an increase in nursing shortage, which also decreases patient satisfaction. Nursing shortage decreases patient satisfaction as patients are unable to receive adequate care due to inadequate staffing in a timely manner.

Healthcare systems are run by patient satisfaction. One of the primary the basis of healthcare and nursing is to provide patient-centered care. Research reveals that patient satisfaction is the most important variable for quality care and considered an outcome of healthcare services [10]. Patient satisfaction allows hospitals to evaluate the effectiveness of care. If there is a nursing shortage, there are not enough nurses to meet the increasing needs of patients. Therefore, patients begin to experience a delay in care, increased wait times, and increased potential for sentinel events to occur.

The Joint Commission identifies a sentinel event as an sudden occurrence involving death and/or severe physical and/or psychological injury to a patient, such as a fall or medication error [11]. Hence, many patients suffer from medical anxiety due to insufficient staffing which leads to poor patients’ outcomes. Patients need a large amount of emotional support as well as medical intervention to relieve medical anxiety. Additionally, patients are at an increased risk for falls due to staffing shortage. If patients fall and injure themselves, there may be prolonged hospitalization and/or even death at the hands of negligence due to failed communication and inadequate staffing. For the years 2005 to 2017, The Joint Commission reported that 67% of all sentinel events took place in a hospital setting. One sentinel event for the years 2005 to 2017 took the lives of 5,826 patients, with an overall total of 11,189 patients impacted in one way or another [11]. Specifically, nursing shortage plays a part in patients’ dissatisfaction of services and the occurrence of sentinel events with the risk for additional occurrences.

**Study Significance**

Nursing shortage is a prevalent topic in the United States of America especially with the outbreak of the COVID-19 pandemic. The decreased supply of nurses and increase demand for nurses is having a significant impact on the healthcare system. As a result, this concern is leading to an increase in patient dissatisfaction and an increase in sentinel events. A change must be implemented to decrease the nursing shortage in the United States of America and promote health, safety, and quality of care for patients and nurses working within the healthcare system. Hence, the aim of this study is to answer a research question, “*Did Nursing Shortage Effect on Staffing and Inpatient Outcomes Worsened Post Covid Pandemic?* This study could be researched by synthesizing scholarly articles leading to next step, review of literature, to enable answering the above research question.

**Design**

This is a systematic review analysis of descriptive, correlational, and review designed articles. Descriptive design articles included surveys from various patients, patient families, healthcare providers, specifically nurses and friends and families of nurses within the healthcare system. Correlational design articles are the observational study from various registered nurses in the healthcare system caring for patients during the current nursing shortage and COVID 19 pandemic in the United States of America. Included in the review design are various literature reviews pertaining to the effect that nursing shortage has on patient, nurses, and healthcare organizations in the United States of America during the COVID-19 pandemic.

**Methodology**

The methodology used for this research is mixed as the elected articles utilizes quantitative and qualitative data regarding the effect of nursing shortage in the United States, and its effect on patient and nurse outcomes within the healthcare system. The quantitative data used within this research includes surveys and observations, while the quantitative data includes interviews, ethnography, and literature review. Additionally, the independent variables within this research include retirement of baby boomers, COVID-19 pandemic, burnout of nurses, lack of nurse educators, decreased work morale amongst nurses, and increased work demand on nurses, while the dependent variables include decreased patient satisfaction and outcomes. The inclusion criteria that enabled the retrieval of needed articles included patient outcomes specifically related to inpatient care during/after COVID-19 in the United States of U. S., licensed practical and/or registered nurse satisfaction and employment within/during/and after COVID-19 in the United States of America, and statistics of various healthcare organizations turnover and retention rates during/after COVID-19 in the United States of America. The exclusion criteria that enabled the retrieval of needed articles included poor patient outcomes unrelated to nursing shortage during/after COVID-19 in the United States of America, licensed practical and registered nurses who retired or transitioned from the nursing field prior to COVID-19 pandemic in the United States of America, and healthcare organization outcomes from countries outside of the United States during/after COVID-19.

**Search Engines**

The search engine utilized in this research was Google Scholar. The keywords entered for this research in Google Scholar included nursing, patients, nursing shortage, patient safety, healthcare organizations, COVID-19, and the United States of America. The date of the articles retrieved ranges from 2019 to 2023, and the search yielded 16,400 peer literature review articles in 0.03 seconds. From populated 16, 400 review articles resulted, 20 were strictly selected to address the nursing shortage and its impact on patient outcomes: covid-19 factor based on the set inclusion criteria mentioned above. Majority of the articles were from nursing journals that highlighted the current nursing shortage as well as various reasons for its occurrence within the United States. Additionally, these articles highlight the effect and relation that nursing shortage has on patient outcomes. It is the hope that this research will develop a plan to decrease the nursing shortage in the United States of America and promote satisfactory patient outcomes.

**Discussion**

Many results have concluded from 2019-2022 regarding the current nursing shortage and its effect on staffing and inpatient outcomes post-COVID pandemic. Many studies emphasized that more evidence is necessary to identify the causes of nursing shortage, limit staff burnout, and reduce the effects of poor outcomes for staff and patients within healthcare systems across the United States of America. Nursing shortage has proven more than just nurses leaving the bedside, nursing shortage is also a lack of opportunity for prospective nurses to enter the field due to a decrease of instructors to lead the next generation. Haddad et al. [6] states, “ Nursing shortage is a healthcare organization problem, and it is going to take a lot of effort to correct the problem and promote health for nurses and patients. It has been presented to healthcare organizations to utilize nurse residency programs to aid in nurse retention and recruitment. Nurse residency programs provide newer nurses with a foundation to smoothly transition into the field of nursing. Also, nursing units within healthcare inpatient settings can work on creating safer patient assignments even amid increased workload demands for nurses. Research has shown that having a positive work environment positively affects patient outcomes [12]. When nurses are negatively affected by their work environment, it negatively affects patients as well.

**Results**

Did nursing shortage effect on staffing and inpatient outcomes worsened post COVID-19 pandemic? Yes, nursing shortage effect on staffing and inpatient outcomes worsened post COVID-19 pandemic, notably regarding nurse and patient safety. Prior to 2019, there was much debate regarding the high turnover of nurses, especially among millennials. Millennials are known to transition within a career until they find fulfillment. Long gone are the days of working for a living, now are the days of working to maintain a living. Millennials are not the only generation leaving the bedside, so are baby boomers and generation characteristics for various reasons. Many nurses are leaving the bedside to pursue higher positions in the field of nursing such as leadership and management, education, research, nurse practitioner, and/or certified registered nurse anesthetist, while others are taking advantage of early retirement, less burdensome positions, and catering to life’s demands of caring for a family or loved ones. Before 2019, nurses were departing from the bedside and/or profession, and it is only continuing to expand, which has led to the current post COVID-19 nursing shortage.

In 2019, the world was hit with COVID-19, which affected a large amount of healthcare organizations. Many healthcare organizations experienced an increase in patients and a decrease in staff, especially nurses. Research has shown that no nurses equal no healthcare; according to Al-Mahdi et al. [13]. If there are no nurses at the bedside to care for patients this will negatively affect healthcare organizations. Nurses assess patients, carry out orders provided by the healthcare providers, and provide pertinent information to practitioners if acute changes occur with patients. Nurses play a beneficial role in healthcare, and healthcare organizations are maintained based on adequate staffing and satisfied patients.

A cross-sectional descriptive survey study was completed by Karaca & Durna [10], and quality nursing leads to patient satisfaction. Patient gratification is the primary goal of healthcare organizations, and identifying ways to improve nursing excellence leads to better staff and patient outcomes. However, increasing workload demand on nurses’ post COVID-19, contributes to nurse fatigue, which negatively affects patient safety [14]. Nurse fatigue has led to an increase in nurse and patient incidents. For example, exhaustion has led to the cause of many motor vehicle accidents from nurses attempting to drive home/work post-shift obligations. Additionally, many patients have received the wrong medication due to a lack of nursing judgment because of weariness. Daily nurses and patients are at an increased risk for adverse reactions and outcomes due to nurses’ inability to meet the growing demand of patients within healthcare settings. It has been noted that proper nurse to patient ratios lead to better staffing outcomes, and it is imperative for states to work with healthcare organizations to create laws and regulations to ensure the safety of patients and nurses [7].

**Limitations & Further Research**

Limitations to this study include limited data on the COVID-19 virus and its effect on patient outcomes regarding increased nurse workload demands. For example, are patients having adverse outcomes because of the increased workload demands or is there another reason for poor outcomes? Are all the healthcare organizations experiencing the same amount of nursing shortage, or is it only in certain states and units? Many questions still linger which warrants further research and data to be conducted pertaining to this topic. Additionally, COVID-19 is still producing more strains, which has unknown consequences on the general population. Lastly, more research is needed to find ways to decrease burnout among nurses. To examine how burnout within the nursing field affects staff and patients [15,16], facilitated a literature review, which reviewed 312 scholar research articles and distributed various questionnaires among staff to rate burnout. Burnout was extremely high and really altered the value of life for caregivers and patients. From the study it was concluded that more research is needed, but it can be used in future studies to decrease burnout among nurses and promote healthier outcomes for healthcare organizations. Additionally, evidence has shown that more research in general needs to be resolved regarding nursing shortage and its effect on staffing and inpatient outcomes post- COVID pandemic.

**Conclusion**

Nursing shortage drastically affects staffing and patient outcomes. Hence, it must be noted that adequate staffing among nurses and patient outcomes are highly correlated. Without a satisfied core of nurses, proper patient care cannot be administered to lead to better patient outcomes. A lack of nurse supply and a decrease of patient satisfaction leads to poor outcomes for healthcare organizations, which really affects the quality of care provided. It is the hope of healthcare organizations and legal administrators to realize the effect of COVID-19 on staffing and patient outcomes and conduct further research studies to lessen the nursing shortage within the United States of America.

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