



LAUTECH JOURNAL OF NURSING

VOL. 12, JANUARY, 2023

ISSN 2659-1405

Impact Factor Value of 0.861 based on International Citation Report for year 2020/2021



***A Publication of the Faculty of Nursing Sciences,
College of Health Sciences,
Ladokpe Akintola University of Technology, Ogbomosho, Nigeria***

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12th Edition LAUTECH Journal of Nursing (LJN)

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ISSN 2659-1405

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VOLUME 12, JANUARY, 2023

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Printed and published in Nigeria by

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EFFECT OF NURSING STAFF SHORTAGE ON HOSPITAL HEALTHCARE PERFORMANCE IN LADOKE AKINTOLA UNIVERSITY TEACHING HOSPITAL OGBOMOSO, OYO STATE, NIGERIA

AMOO, P. O.; MAKINDE, O. Y. & AJAGBE, O. R.

ABSTRACT

The study examines effect of nursing staff shortage on hospital healthcare performance in Ladoke Akintola University Teaching Hospital Ogbomoso, Oyo State, Nigeria given the significance of cognate healthcare performance in the life of an individual. Both questionnaire and interviewed techniques were used for data collection from 100 respondents was selected through stratified sampling techniques. In analyzing the data, probit regression was employed in addition to conventional descriptive statistics such as tables, frequency distribution and percentages. The result of this study observed that decreased in the quality of health care given [53%], increase errors [56%], increase in mortality [59%] and burnout [68%] were effect of nurses' shortage on hospital healthcare performance while, higher morbidity [39%] and dissatisfaction [45%] are not an effect of nurses' shortage on hospital healthcare performance. Specifically, this study revealed that the effect of nurses' shortage on hospital healthcare performance is moderately high

Keywords: Nurses; Staff shortage; hospital healthcare; performance; Nigeria.

INTRODUCTION

Healthcare has been on the forefront of the news and the mind of many people, therefore, when there is shortage of nurses, the future of healthcare may be uncertain. Nurses are indispensable in the healthcare system because of the important role they play in patient care, which may make patient safety to be at risk resulting in medical errors that otherwise would never have happened. This shortage is especially alarming as a result of baby boomers that are living longer and the affordable Healthcare Act which increases the number of uninsured individuals, who are in need of checking their health status. Another reason that causes shortage of Nurses is the dissatisfaction within their career thus, majority of nurses do not think positively about their career across the country despite the fact that nurses are the backbone of women and child healthcare.

The role of nurses in the healthcare delivery system at every level involves provision of essential services for the promotion of physical, mental, economic, social and public wellbeing of individuals, families and communities (Olubiyi, and Nwakwo, 2004).

Nurses teach members of the communities about healthful habits and lifestyle that gives them best health, they also motivate them to learn solving their own health care problems. Other functions of nurses include their roles as teachers, educators, managers, supervisors, researchers, evaluators and policy makers. Therefore, a healthcare system without adequate nurses is like a patient with severe anaemia. The shortage of staff in healthcare

system is a crisis faced by many countries worldwide, including Nigeria.

The shortage of nurses in the public sector influences healthcare performance in a negative manner which makes patients to suffer care. When there is poor-quality performance in health care system, it weakens the institution, making it more difficult to attract, motivate and retain staff. The writers observe that during clinical experience of nursing students, many nurses were resigning leading to shortage of nurses. This is not a recent problem in the healthcare system, because it has been like that for decades but only recently have the rate of resignation is becoming alarming. This alarming rate of nurses' shortage result from the increase in population growth, aging workforce, declining number of applicants to nurses schools, and baby boom generation which calls for the increase in healthcare services. World Health Organization (2006) also, noted that there are different types of reasons causing nursing staff shortage generally. This includes less supervision and support, long working hours on duties, unsafe workstations, scarce career structures, poor incentives, unfair pay, insufficient resource and neglected health care systems. Others are poor human resource planning, management practices and structures, unsatisfactory working conditions, heavy workloads, lack of professional autonomy, poor access to need supplies, tools, information and narrow or no access to professional development opportunities.

Moreover, Galadanci, Idris, & Yakasai (2010) report that free healthcare introduces by government increases workload for Kano state healthcare providers' which leads to immediate poor attitude, low morale and low quality of care available among providers' in the state hospitals. Hammad (2017) reports that Riyadh City in the Kingdom of Saudi Arabia (KSA) has a chronic and severe shortage of Saudi-trained nurses and a high nurse turnover rate. Expatriate nurses comprise most of the nursing workforce in Riyadh, which presents a challenge to safe healthcare delivery. To

formulate strategies to promote and encourage secondary school Saudi students to choose nursing as their career path, it is imperative to understand community attitudes and perceptions toward the nursing profession.

Okeke, (2016) opines that healthcare has been on the forefront of the news and the mind of many people, therefore, the fact that we have a nursing shortage make everyone uncertain about the future of healthcare. Most importantly, patient safety is at risk resulting in medical errors that otherwise would never have happened. Hospitals, nursing programs, and the government must all work together as a team in order to overcome the nurses shortage.

Abubakar, (2014) observes that hospitals are intended to offer a range of medical services to an ill or injured person. This probably depends upon skilled health providers available to address patients' daily needs or care. Motivated service providers are treasures to a fully functioning healthcare system. The healthcare system in Nigeria despite the investments and therapeutic technology thus far is yet to realize the desired results since the Alma-Ata declaration. This may be due to the poor working condition of personnel, workload and unfair salaries attracting a brain drain. Moreover, service providers are dealing with human lives which call for more attention where there is poor-performance and poor quality service delivery can in turn lead to loss of lives. Edward (2012) reveals that nurses shortage is a growing problem in the healthcare industry as hospital leaders are experiencing difficulties recruiting and retaining nurses. Therefore, in view of this, it is pertinent to examine effect of nurses' staff shortage on hospital healthcare performance in Ladoke Akintola University Teaching Hospital Ogbomoso, Oyo State, Nigeria.

Objectives of the study

1. To assess if a decrease in the quality of health care given will be the effects of nurses' shortage.
2. To assess if an increase errors, will be the effects of nurses' shortage.

3. To assess if an increase in higher morbidity will be the effects of nurses' shortage.
4. To assess if an increase in mortality rates will be the effects of nurses' shortage.
5. To assess if burnout be the effects of nurses' shortage.
6. To assess if dissatisfaction will be the effects of nurses' shortage.
7. To assess if increase for patients needing emergency care will be the effects of nurses shortage.

METHODOLOGY

Descriptive research design was adopted for the study. This study was carried out on effect of nursing staff shortage on hospital healthcare performance at Ladoke Akintola University Teaching Hospital Ogbomoso, Oyo State, Nigeria. The study area was chosen because of its precedence, geographical location and also stood as commercial center servicing diverse interest of the people. LAUTECH Teaching Hospital (LTH), Ogbomoso is a foremost State-owned Teaching Hospital, located in Ogbomoso Oyo State, Southwest Nigeria. It was founded in May 2011 and started full operations later the same year. Lautech Teaching Hospital, Ogbomoso (LTH) provides comprehensive services in the areas of diagnostic radiology/imaging, cancer care, emergency and dialysis services, rehabilitation centre and more.

A well-structured questionnaire was designed to obtain relevant information from 100 respondents. Stratified sampling technique was adopted to select staff from each of the departments/ units which include the medical ward, surgical ward, children emergency unit, special care baby unit, labour ward, post-natal ward, gynaecology ward, ante-natal clinic. This is to ensure that every staff was given the opportunity to be part of the sample. The researcher went to hospital in the study area, distributed the questionnaires in person, and retrieved the filled questionnaire. In analyzing the data, probit regression was employed in

addition to conventional descriptive statistics such as tables, frequency distribution and percentages. For the probit models, we assume an individual is faced with two alternatives, whether nurse's shortage has effect on hospital healthcare performance or not. This is expressed as (Nagler 1994).

We assume Y can be specified as follows: $Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_5 X_{5i} + U_i$

And that: $X_i = 1$ if $X > 0$ $X_i = 0$

Otherwise, Where $X_1, X_2, X_3, X_4, \dots, X_n$ represent vector of random variables, β represent a vector of unknown parameters and U represent a random disturbance terms (Nagler, 1994).

Operationalization of Research Constructs

The probit model specified in this study to analyze effect of nursing staff shortage on hospital healthcare performance can be expressed as follows:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U_i$$

Where Y_i = Performance

X_1 = Salary (Naira)

X_2 = Nursing school admission (Yes (1) No (0))

X_3 = Professional (Dummy Variable, professional (1) others (0))

X_4 = Government policy (Yes (1) No (0))

X_5 = Brain drain (Yes (1) No (0))

U_i = Error term

RESULTS

A summary of demographic characteristics of the respondents are summarized in Table 1. The researcher is mainly interested in effect of nursing staff shortage on hospital healthcare performance. A total of 100 questionnaires were printed and distributed to nurses in the study area to get their opinions and all were answered. The data collected were analyzed using frequency distribution, table

presentation, simple percentages and cumulative. A summary of socio - demographic characteristics of the respondents is presented in Table 1. About 100% of the respondents were females. 10% of the respondents were between the ages between 20 – 29 years, 35% of the respondents were between ages 30-39, 50% were 40-49 years and 5% fall between ages 50years and above. The result of marital status, about 70% were married while 30% were single. In terms of qualification, 5% of the respondents had diploma in nursing certificate (RNC), 70% of the respondents were registered nurses (RN), 5% of them had other specialties

added to their diploma in nursing like burns and plastic nursing, orthopedic nursing, cardiothoracic nursing and 20% of them were BSN holders. Also, the study shows that 5% of the respondents had working experiences of 1-5 years, 35% of the respondents had worked for 6-10 years, and 50% of the respondents had worked for 11 - 20 years and 10% of the respondents had working experiences of only 21 years above. The demographic characteristics of respondents indicated that majority of the respondents were females, within the age group of 40-49years, married and are RNM with 11-20years of experience.

Table 1: Respondents Socio - demographic Data

Socio-demographic Data	Frequency	Percentage (%)
<u>Sex</u>		
Female	100	100.0
Total (%)	00	100.0
<u>Age group (years)</u>		
20-29	10	10.0
30-39	35	35.0
40-49	50	50.0
50 above	5	5.0
Total (%)	100	100.0
<u>Marital status</u>		
Single	30	30.0
Married	70	100.0
Total (%)	100	100.0
<u>Qualification Levels</u>		
RN	5	5.0
BSN	20	20.0
RNM	70	70.0
Others	5	5.0
Total (%)	100	100.0
<u>Years of Experience</u>		
1-5years	5	5.0
6-10year	35	35.0
11-20years	50	50.0
21year above	10	10.0
Total (%)	100	100.0

Source: Field survey, 2022

Table 2 indicated decreased in the quality of health care given [53%] is an effect of nurses' shortage on hospital healthcare performance. Further findings revealed that increase errors

[56%] is also an effect of nurses' shortage on hospital healthcare performance and higher morbidity [39%] is not an effect of nurses' shortage on hospital healthcare performance.

Table 2: Effect of Nurses Shortage on Hospital Healthcare Performance N = 100

	SA	A	D	SD	Sig
1 DECREASE IN THE QUALITY OF HEALTH CARE GIVEN					
There is long period of stay	40(40%)	45(45%)	8(8%)	7(7%)	
There is re admission due to complications	67(67%)	7 (7%)	20(20%)	(6%)	
Working together in strenuous condition	55 (55%)	5 (5%)	5 (5%)	35(35%)	
Nurses leave their workdays extremely tired	20(20%)	10(10%)	30(30%)	40(40%)	
Nurses feel disheartening to complete task	10(10%) 38%	10(10%) 15%	50(50%) 26%	30(30%) 23	Sig
2 INCREASE ERRORS.					
poor salary scale	60 (60%)	5(5%)	33(33%)	2(2%)	
With excess workload nurses can make preventable mishap	55 (55%)	5 (5%)	5 (5%)	35(35%)	
Nurses are unhappy and frustrated	20(20%)	10(10%)	30(30%)	40(40%)	
increased workload on nurses	10(10%)	10(10%)	50(50%)	30(30%)	
increased medication error	40(40%)	45(45%)	8(8%)	7(7%)	
Few nurses cannot prepare to deal with patients health needs	67(67%) 42%	7 (7%) 14%	20(20%) 24%	(6%) 20%	Sig
3 HIGHER MORBIDITY.					
unhappy and frustrated nurses	40(40%)	10(10%)	30(30%)	20(20%)	
reduced patient care	30(30%)	10(10%)	50(50%)	10(10%)	
patients are suffering	7(7%)	45(45%)	8(8%)	40(40%)	
healthcare workforce is not prepared to deal with their health needs	(6%) 21%	7 (7%) 18%	20(20%) 27%	67(67%) 34%	Not Sig

The result in table 3 revealed that increase in mortality [59%] is an effect of nurses' shortage on hospital healthcare performance. Further findings indicated that burnout [68%] is a major effect of nurses' shortage on hospital healthcare performance and dissatisfaction [45%] is not an effect of nurses' shortage on

hospital healthcare performance. Finally, increase for patients needing emergency care [43%] is not an effect of nursing shortage on hospital healthcare performance. Generally, the effect of nurses' shortage on hospital healthcare performance is moderately high [51%]

Table 3: Effect of Nurses Shortage on Hospital Healthcare Performance N = 100 Contd

	SA	A	D	SD	Sig
1 INCREASE IN MORTALITY.					
patients are suffering	40(40%)	33(33%)	2(2%)	25(25%)	
patients are dying	40(40%)	5 (5%)	35(35%)	20(20%)	
decrease in the quality of health care given.	35(35%)	10(10%)	40(40%)	15(15%)	
patients are left increasing their length of stay in the facility	30(30%)	20(20%)	30(30%)	20(20%)	
not satisfied with the profession.	75(75%)	8(8%)	7(7%)	10(10%)	
	44%	15%	23%	18%	Sig
2 BURNOUT.					
They feel undervalued in their position	35(35%)	15(15%)	45(45%)	5(5%)	
Not employing younger nurses	60(60%)	5(5%)	33(33%)	2(2%)	
increased baby bloom population	40(40%)	45(45%)	8(8%)	7(7%)	
increased workload on nurses	67(67%)	7(7%)	20(20%)	6(6%)	
	51%	17%	27	5%	Sig
3 DISSATISFACTION.					
nursing patient ratio	55(55%)	5(5%)	5(5%)	35(35%)	
increasing salary scale adjusting	20(20%)	10(10%)	40(40%)	30(30%)	
Nurses retired without replacement	20(20%)	5 (5%)	35(35%)	42(42%)	
Nurses are over worked	8(8%)	40(40%)	7(7%)	45(45%)	
Poor salary	50(50%)	10(10%)	30(30%)	10(10%)	
	31%	14%	23%	32%	Not Sig
4 INCREASE FOR PATIENTS NEEDING EMERGENCY CARE					
poor nursing patient ratio	42(42%)	5 (5%)	35(35%)	20(20%)	
Patients are overlooked and neglected due to shortage of nurses	45(45%)	5(5%)	35(35%)	15(15%)	
increased workload on nurses	33(33%)	2(2%)	30(30%)	35(35%)	
	40%	3%	33%	23%	Not Sig
TOTAL	37	14	26	23	

Table 4 shows regression of effect of nursing staff shortage on hospital healthcare performance. The results showed that Table 4 has coefficient of variables that were statistically significant at 1%, and 5% probability levels. The variables are salary, nursing school admission, professional and government policy. Salary (4.72) positively affects healthcare performance and significant at 1% level of probability. Nursing school

admission (-2.12) is negatively correlated with hospital healthcare performance and significant at 5% level of probability. Professional (2.68) negatively affects hospital healthcare performance and significant at 5% level of probability. Government policy (7.04) is another factor that influences healthcare performance. This is positive and significant at 1% level of probability.

Table 4: Regression of Probit analysis for Effect of nurses’ staff shortage on hospital healthcare performance. Dependable variable: Performance

Explanatory variable	Coefficient	Std. Err.	Z	p>/z/	(95% conf.)	Interval
Ln (age)	-1.89e – 15	0.2768342	-0.00	1.000	-.5614458	.5614458
Brain drain	-5.03e – 15	0.1825742	-0.00	1.000	-.3702776	-.3702776
Salary	1.052632	0.2228768	4.72***	0.000	-.6101653	1.495098
Nursing school admission	-1.236842	.0.2021309	-2.12**	0.000	-.8355615	1.658123
Professional	-.4736842	-.1288922	-2.68**	0.000	-.217808	.7295677
Government policy	1.1	0.1563256	7.04***	0.000	0.7896119	1.410388
Constant	-2	.242334	-8.25	0.000	-2.481094	-1.518906
Number of Obs.	100					
F (4, 95)	113.33					
Prob. > F	0.0000					
Pseudo R2	0.8267					

Source: Field Survey, 2022; ** Significant at 5% ; *** Significant at 1%

Discussions of findings

This study determines the effect of nursing staff shortage on hospital healthcare performance in Ladoke Akintola University Teaching Hospital Ogbomoso, Oyo State, Nigeria. Demographic characteristics clearly revealed that 100% of the respondents were females. This shows that the workers in the institution were females. This is in line with the idea of the centre for advocacy (2006). It was posited that current global shortage of nursing personnel is because of lack of awareness and dangerous lack of skilled nurses who are needed to care for individuals, patients and to the population as a whole. With this, male respondents should be encouraged by creating awareness to engage themselves in nursing.

Majority of respondents were 40-49 years. This results explain that greater percentage of the population of nurses were nearing retirement age and this accounts for some of the causes of nurses shortage and if nothing is done to replace this one's retiring the healthcare performance will suffer more damages of nurses shortage (The Centre for advocacy, 2007). This result further revealed that majority of respondents are married. This implies that, the married were more likely to be relatively stable and committed, making institution to view them as more reliable. Further findings showed that majority of respondents were registered nurses (RN), This implies that the quality of healthcare services provided is highly dependent on an adequate supply of qualified nursing personnel. Kouroush, (2009) revealed that there was a direct relationship between availability of nursing staff and nurses productivity and hence the quality of care rendered. This study further observed that majority of respondents had worked for 11-20 years. This result revealed that maturity nurses are moving towards retirement age and this will create a big vacuum in the health system if plans are not made to recruit younger nurses who can spend more years in service before retiring.

Our study indicated that the effect of nurses' shortage on hospital healthcare performance is the decreased in the quality of health care given. The writers opined the damage that the shortage of nurses affect the quality of healthcare system. They also observe that nurses are over burdened with caring for excess patients, which leads to long staying and re-admission of patients, and this puts strain on most of the nurses. This study supports Mark, Anstrom, Sheng, Piccini, Baloch, Monahan, & Packer, (2019) who showed that nurses shortage in the health care settings affect the health of nurses itself as it increases the workload, which may result in the job stress, anxiety, and over burden.

Findings of this study revealed that increase errors is a significant effect of nurses' shortage on hospital healthcare performance. The writers explained the fact that nursing shortages can lead to errors, higher morbidity, and mortality rates. This study is similar to Okeke, (2016) who explained that patient safety is at risk resulting in medical errors that otherwise would never have happened. This study is consistent with Cox, *et al* (2014) and Nasuridin, *et al* (2020) who noted that government sector and private sector also facing the shortage of nurses, which ultimately results in poor patient care and over burden the nurses and it also, increases the chance of medical errors and overburdened health care professional can make the medical errors very easily ultimately it increases the mortality rate. This study is in line with Duffield, *et al*, (2014) and Roche, *et al* (2015) who penned that in hospitals with high patient-to-nurse ratios, nurses experience burnout, poor salary, dissatisfaction, and the patients' experienced higher mortality and failure-to-rescue rates than facilities with lower patient-to-nurse ratios.

This study observed that the effect of nurses' shortage on hospital healthcare performance is significant to increase in mortality. This is in line with the study of Duffin, (2014) who explained that shortage of nurses also, increases the workload on the remaining nurses which result in the poor patient care, that eventually lead to

increase mortality rates. This study also agrees with Goodare, (2017) who recognized that the shortage of nurses is affecting the quality care and even safety of patients' life.

Our findings indicated that burnout is a significant effect of nurses' shortage on hospital healthcare performance. This study corroborates the findings of Aiken, *et al.*, (2011) and Institute of Medicine, (2020) who shows that workload demand and aspects of the work environment, such as poor staffing ratios, lack of communication between physicians and nurses, and lack of organizational leadership within working environments for nurses, are known to be associated with burnout in nurses. In terms of dissatisfaction, dissatisfaction [45%] is not an effect of nurses' shortage on hospital healthcare performance. This study is not in line with Jarrar, Rahman, Minai, AbuMadini, & Larbi, (2018) who reported multiple factors causing shortage of nurses which may be job dissatisfaction, less financial aid, late promotion, less motivation, number of retirements increases the shortage because when country does not focus on new recruitments its increases the burden on the profession which also leads to the shortage of young employ.

This study implied that generally, the effect of nurses' shortage on hospital healthcare performance is moderately high. This study is in tandem with the assertion of Maurits., de Veer, van der Hoek, & Francke, (2015) who posited that shortages of nurses puts negative effect on the patients care because exhausted nurses will not be able to provide best patients care and burden of nurses can only be decrease by producing the more nurses. The writers posited that improving the technology to help nurses as it has been revealed in the research studies that satisfied health care professionals can give best services in the patients care and it is same scenario is with nurses.

This study, shows that the effect of nursing staff shortage on hospital healthcare performance shows that salary (4.72) positively affects healthcare performance and

significant at 1% level of probability. This study is in agreement with Open Journal of Nursing (2014), where it was reported that nursing is a challenging profession and it is perceived that the salary scale is not commensurate to the workload, hence if they are opportune to find a better paying state or country they migrate. The writers explained that the higher in salary increase of nurses, the greater the hospital healthcare performance which implied that one major cause of nursing shortage is poor salary scale of nurses. Nurses are leaving their present job place, state, country as they leave this gap is hardly replaced causing shortage.

Nursing school admission (-2.12) is negatively correlated with hospital healthcare performance and significant at 5% level of probability. This study support Edward, (2012) who opined that nursing shortage is a growing problem in the healthcare industry as hospital leaders are experiencing difficulties recruiting qualified staff and retaining nurses. Also, the writers implied that an increase in the nursing school admission with a fall in the number of qualified academic staff will definitely leads to decrease in the level of admission to be giving and this shows that the admission into nursing is high but schools have limited qualified staff, this causes shortage in nursing staff.

Professional (-2.68) negatively affects hospital healthcare performance and significant at 5% level of probability. This finding reveals professional alternatives as possible causes of nursing shortage. This study concur with Hammad (2017) who reported that Riyadh City in the Kingdom of Saudi Arabia (KSA) has a chronic and severe shortage of Saudi-trained nurses as a profession. The writers observed that in the past, nurses are known to be female profession but today, many opportunities have opened to the women.

Government policy is another factor that influences healthcare performance. This is positive and significant at 1% level of probability. This revealed that the more the ability of government at all levels to employ the

required nursing staff to work the greater hospital healthcare performance. This study support Galadanci, *et al* (2010) who reported that, free healthcare introduced by government increases workload for Kano state healthcare providers' and leads to immediate poor attitude, low morale and low quality of care available among providers' in the state hospitals because of poor government policy implementation.

Conclusion and recommendations

In conclusion, shortage of nurses has remained on the high side in Nigeria. The main causes of nursing shortage according to this study include poor salary scale, poor nursing-patient ratio, increase in population of baby boomers, increase in aging population of nursing and professional alternatives. To reduce the rate of nursing shortage, nurses complain need to be heard. The salaries of nursing should be increased to measure with their workload. There should be incentives to help encourage and entice more nursing into the profession like bonuses, leave allowances, and flexible work shifts. There should be strict policies on nursing patient ratio.

The National Association of Nigerian Nurses and Midwives (NANNM) ought to charge the government at all levels to recruit more nurses if the nation must commit to the reduction of maternal and child mortality rate. Government should put a stop-gap to brain drain and travelling of medical personnel by providing better working environment. Also, government needs to find lasting solutions to the problems of poor funding and movement of health workers particularly nurses to greener pastures: The introduction of the Electronic Medical Record (EMR) and other technological advances can also affect nurses staying in the profession. While some specialties such as nursing informatics are booming, that adds to the shortage problem by removing nurses from direct patient care areas. Some seasoned nurses struggle with the technology and remove themselves from the profession at an earlier rate.

Organizations must be creative in meeting the needs of nurses while providing the best and

safest care to the patients. An environment that empowers and motivates nurses is necessary to rejuvenate and sustain the nursing workforce. Empowerment in autonomy in staffing ratio decisions considering high volume and acuity levels will lead to less burnout and a strong desire to leave the workforce. Many organizations have endorsed and sought after the Magnet Certification to provide superior nursing processes and a high level of safety, quality, and patient satisfaction.

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