

Job stress for medical staff and its impact on patient safety in the surgical department in Saudi governmental hospitals

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Abstract

The study aims to Identify Job stress for medical staff and its impact on patient safety in the surgical department in Saudi governmental hospitals. This study is a quantitative study that follow the descriptive and analytical approach. A five-point likert scale questionnaire used as a tool to measure the dimensions of study variables. The study reached results the most important of which there a statistically significant effect of Job stress (work load, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals. There is no statistically significant effect of Job (Uncertainty, Job Environment) on patient safety in the surgical department in Saudi governmental hospitals. In light of the results, the study reached the recommendations the most important of which; Patient safety should be the most important priorities of the surgical department. Distribute work equitably among employees. Qualifying employees to carry out their work in a more professional and efficient manner through training and education processes.

Key words: Job stress work load, Job Uncertainty, Job Environment, Career Growth medical staff patient safety

Introduction:

Health services are the most expensive services in the world, where patient safety and citizen health is the most precious thing that societies have, which should be preserved and adhered to (Porter & Collins, 2022).

The issue of job stress is of great interest to many researchers in various fields, and this reason is due to the impact of these pressures on the behavior of staff in those institutions towards their work, especially medical staff (Ahorsu et al, 2022). Medical staff are frequently exposed to high-risk factors leading to increased job stress and reduced accuracy, which affects patient safety (Bahadori et al, 2022).

According to Yukongdi & Shrestha (2020), work stress is a type of stress, which caused by conditions in the workplace that negatively affect an individual's performance. The workplace also brings a variety of demands on the workers and a lot of stress for a very long period of time leads to the exhaustion of their ability to deal with those stressors.

Wu et al, (2020) showed that medical staff who work in health institutions and hospitals are the most vulnerable to these stress. They are exposed to varying degrees of psychological and social stress related to job, and they also feels that their job efforts are not appreciated and rewarded. Medical staff is one of the stressful professions that have many sources of stress, which has negative effects reflected on their efficiency, quality of health services, and patient safety.

Patient safety is a priority for health care in all health care roles. Patient safety considered as a vital area that can be improved by health care professionals and stakeholders in the health care system (Abu Swei, 2017). Michelle (2014) showed that patient safety is a set of measures and actions taken by health institutions to protect the patient from any negative or serious consequences when he or she receives a certain type of health service.

Hence, the current study came to identify job stress for medical staff and its impact on patient safety in the surgical department in Saudi governmental hospitals.

Study questions:

The study seeks to answer the following questions:

- 1) What is the level of job stress in the surgical department in Saudi governmental hospitals?
- 2) What is the level of patient safety in the surgical department in Saudi governmental hospitals?
- 3) What is the impact of Job stress for medical staff and on patient safety in the surgical department in Saudi governmental hospitals?

Concepts:

Job Stress: Job stress refers to situations affecting work conditions, workers' personality, and their psychological and physical condition, which may push them to reduce the quality of their performance in general (Kim & Jung, 2021).

Patient safety: Actions taken by institutions and individuals to protect the patient against any adverse effects of receiving the health service. Patient safety is a new health discipline that emphasizes prevention, reduction, reporting and analysis of medical error that often leads to adverse health events (Lippi, et al., 2010).

Medical staff: Medical staff members are those licensed healthcare providers (physicians, nurses, allied health professionals, and other healthcare workers) who are authorized by the law and hospital's bylaws to provide medical care within a healthcare establishment (Austin, 2021).

Aim of study:

The study aims to Identify Job stress for medical staff and its impact on patient safety in the surgical department in Saudi governmental hospitals.

Objectives:

The study seeks to achieve the following objectives:

- 1) Identifying the level of job stress in the surgical department in Saudi governmental hospitals.

- 2) Getting to know the level of patient safety in the surgical department in Saudi governmental hospitals
- 3) Measure the impact Job stress (work load, Job Uncertainty, Job Environment, Career Growth) for medical staff on patient safety in the surgical department in Saudi governmental hospitals

Hypothesis:

Main hypothesis:

H1: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job stress (work load, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

Sub hypothesis:

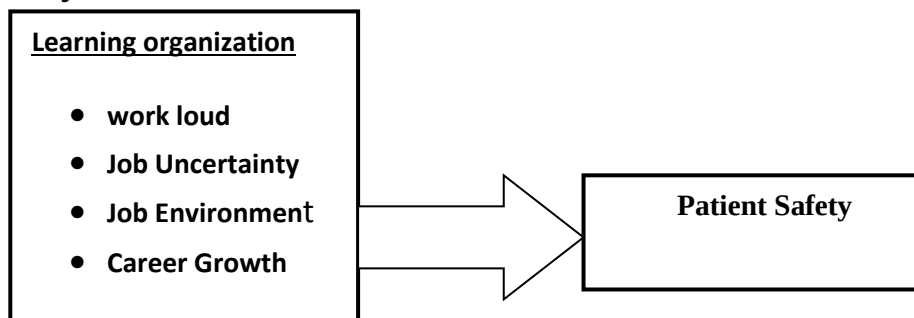
There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of work load of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job uncertainty for medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job environment for medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Career Growth for medical staff and on patient safety in the surgical department in Saudi governmental hospitals.

Study model:



Related literature:

The study of Hussein et al (2022) aimed to assess the Patient safety attitude and identify its determinants among healthcare workers, where the study was conducted in Sharqia Governorate, Egypt, at different levels of health care. the study was a comparative cross-sectional study that involved (240) healthcare workers selected after using a multistage cluster sampling technique from Sharqia Governorate. In order to assess the respondents' attitudes towards Patient safety, the modified Chinese Safety Attitudes Questionnaire (CSAQ) was used. The study results showed that the scale with the highest percentage of positive responses, on average, was safety climate (49.59%). The study found a statistically significant association between the level of health care and mean scores of 'teamwork climate, job satisfaction, working conditions, and stress recognition'.

The study of Chen et al (2021) aimed to identifey the impacts of job-related stress and patient safety culture on patient safety outcomes among nurses in Taiwan. The study measured job-related stress, patient safety culture and patient safety outcomes among nurses in Taiwan. A total of (1562) respondents completed the survey. Partial Least Square-Structural Equation Modelling (PLS-SEM) was applied to explore the relationship between job-related stress, patient safety culture, and patient safety outcomes. The study results showed that Job-related stress was found to have varying influence on the perception of patient safety culture. Specifically, stress related to interpersonal relationship and work

environment is negatively related to patient safety culture, whereas nurse–patient relationship stress is positively related to patient safety culture.

This study of Lee (2021) aimed to reveal the relationship between emergency department nurses' perception of the importance of patient safety management, job stress, patient safety management activities, and attempts to provide basic data for subject education to promote patient safety management activities. The study sample consisted of (142) nurses' who have been working at emergency department as shift nurses with experience at least a year and performing with direct nursing. Survey was performed at the hospitals certified by medical institution located at Gyeonggi-do, China. The data was analyzed using SPSS utilizing frequency and percentage, average and standard deviation, Independent t-test, One-way ANOVA, Post-test with Scheffe test and Pearson's Correlation coefficient. The study results showed that the job stress indicated a different statics base on each of the subjects' background such as age, marital status, final education, work experience in emergency department, clinical career length and the number of reports regarding safety accidents. The outcome of post-test about final education revealed the fact that the subjects' who have Master's or higher have higher job stress compared to subjects' who have a Bachelor of Nursing. There was a significant positive correlation between recognition of the importance of patient safety management and patients' safety management activities.

The study of Kokoroko & Sanda (2019) aimed to examine the effect of workload on job stress of Ghanaian outpatient department nurses and the moderating effect of coworker support on this relationship. A cross-sectional survey design was used, and questionnaire was used to collect data from a sample of 216 outpatient department nurses from four major hospitals in Ghana. The data collected measured workload, job stress, and coworker support using National Aeronautics and Space Administration (NASA) Task Load Index, job stress scale, and coworker support scale, respectively. The study results showed that high levels of workload were associated with high levels of job stress of the nurses. In addition, higher levels of workload were related to higher levels of job stress for nurses who

received high levels of coworker support, but this was not the case for those who received low levels of coworker support (reserve buffering effect).

The study of Ma et al (2018) aimed to investigate associations between job stress, health, and quality of health care among Chinese healthcare staff. To analyze associations between stress, health, and quality of health care among healthcare workers in 74 Chinese hospitals, the study surveyed 2426 healthcare workers of primary, secondary, and tertiary hospitals in Western, Central, and Eastern China in 2017. Structural equation modelling was used to examine relationships between job stress, health, and quality of health care. The study results showed that health had a moderate direct positive effect on the quality of health care ($\beta = 0.24$; $p < 0.001$). Challenge stress had a direct inverse effect on health ($\beta = -0.05$; $p < 0.05$) and a significant direct positive effect on the quality of health care ($\beta = 0.26$; $p < 0.001$). Hindrance stress had a significant inverse effect on health ($\beta = -0.37$; $p < 0.001$) and a moderate inverse effect on the quality of health care ($\beta = -0.19$; $p < 0.001$).

The study of Puteri & Syaebani (2018) aimed to identify the source of stress in the hospital among three divisions; medical professional, medical support, and general support. The study sample consisted of (181) employees at a hospital in Depok city, where the questionnaire was distributed to them and analyzed to reach the results. The study design is quantitative and uses analysis of variance (ANOVA) to test the different level of stress among three divisions. The study results indicated that the level of stress is different among three divisions based on stress severity. However, the difference is insignificant on stress frequency and stress index on two indicators namely job pressure and lack of organizational support.

Methodology:

This study is a quantitative study that follow the descriptive and analytical approach. The descriptive and analytical approach will be employed in the study as follows:

1. Describe the reality of the independent study variable Job stress for medical staff and the independent variables patient safety in the surgical department in Saudi governmental hospitals.
2. The analytical approach in order to analyze the impact Job stress for medical staff and its impact on patient safety in the surgical department in Saudi governmental hospitals.

The Study Population and Sample:

The study population consisted of workers at the surgical department in Saudi governmental hospitals, where a random sample of (260) employees of the administrative and medical staff will be drawn. The study tool was distributed to members of the community electronically.

Table (1) Demographic characteristics

Gender		Frequency	Percent
Valid	Male	132	50.8
	Female	128	49.2
	Total	260	100.0
Education Level		Frequency	Percent
Valid	Diploma or less	36	13.8
	BA	132	50.8
	Master's	91	35.0
	PHD	1	.4
	Total	260	100.0
Experience		Frequency	Percent
Valid	Less than 5 years	34	13.1
	10-under 15 years old	98	37.7
	15 years and over	128	49.2
	Total	260	100.0

Table No. (1) Shows that %50.8 of the samples were males, %50.8 of the samples hold Bachelor's degree, and %49.2 of the samples have 15 years and over of experience.

Questionnaire Design:

A five-point likert scale questionnaire used as a tool to measure the dimensions of study variables based on the following values:

- Strongly Agree: (5) points
- Agree: (4) points
- Neutral: (3) points
- Disagree: (2) points.
- Strongly Disagree: (1) point.

3.9 Presenting Study Results:

(Likert Scale) was used in order to answer the questionnaire items based on these values:

- **Strongly Agree:** (5) points
- **Agree:** (4) points
- **Neutral:** (3) points
- **Disagree:** (2) points.
- **Strongly Disagree:** (1) point.

3.10 Criterion:

To explain the arithmetical averages of the estimates of the individuals of the study sample on each paragraph of the questionnaire and on each of its fields. The following criterion was used: (the upper limit (5) - the minimum (1)) / the number of categories (3) the length of the class is (1.333) (<http://www.uobabylon.edu.iq>). Based on this, the following criterion was adopted: Low Level mean = 1-2.333, Moderate Level mean= 2.344- 3.677, and Mean= 3.68-5 considers high Level of estimation.

The following tables present the arithmetic mean, standard deviation for the study dependent and independent variable:

Table (3) Statistical standard for the interpretation of the arithmetical averages of the resolution paragraphs and their variants

Mean	Estimation level
1-2.333	Low
2.344- 3.677	Moderate
3.68-5	High

Validity and reliability test of the study instrument:

Two types of test will be applied upon as follows:

- Apparent honesty: by presenting the study tool to a group of arbitrators from the professors and taking their observations about the study tool.
- Using the Cronbach alpha test: The Cronbach alpha coefficient test will be used to measure the stability of the measuring tool, its internal consistency, and its ability to measure the dimensions and axes of the study.

Reliability Test:

The Reliability Test, which is the calculation of the Cronbach-Alpha coefficient, will be tested to verify the internal consistency of the fields included in the questionnaire as a measuring tool, where a value ranges between (1-0) and its value is acceptable at (%60) and above (Sekaran & Bougie, 2014).

Cronbach's Alpha was run to ensure Reliability of the study questionnaire Cronbach's Alpha values were (%92.3) more that %60 which indicates that the questionnaire has suitable Reliability, to analysis its data. (Sekaran & Bougie, 2013), table no. 2 shows the results:

Table (2) Reliability Statistics

work loud	
Cronbach's Alpha	N of Items
0.797	10
Job Uncertainty	
0.919	10
Job Environment	
0.845	6
Career Growth	
0.728	5
Patient Safety	
0.759	9
All Variables	
0.923	40

Table No. (5) Indicates that Cronbach's Alpha values were more than 0.60 which indicates that the questionnaire has suitable Reliability, to analyze its data.

Statistical tools:

Collected data will be coded and then analyzed by using Statistical Package of the Social Sciences (SPSS). The following statistical techniques are suggested to be used:

1. Descriptive statistics: frequencies, percentage and means will be used to describe the demographic variables. Moreover, means and standard deviation will be used to find out samples attitudes towards questionnaire statements.
2. Simple and multiple regressions: will be used to test research hypotheses.

Ethical consideration:

- Hospital approval will be obtained to conduct the study there
- Consent form is taken from all the participants in the study.
- Data will be anonymous.
- Data will be used for research purposes only.

Results:

The following tables present the arithmetic mean, standard deviation for the study dependent and independent variable:

The independent Variable, Job stress:

The dependent variable includes four variables (work load, Job Uncertainty, Job Environment, Career Growth).

Table No. 5 refers to the Job stress variables, where the arithmetic means were calculated for each variable of the Job stress, and they were arranged in descending order according to the degree of appreciation, and the results were as follows:

Table (4) Change in the Job stress variables are arranged in descending order according to the degree of appreciation

Variables	Arithmetic Mean	Standard Deviations	Rank
Job Environment	3.904	0.745	1
Career Growth	3.800	0.813	2
Job Uncertainty	3.759	0.787	3
work loud	3.579	0.791	4
Total	3.761	0.784	

Table 4 indicates the arithmetic mean, standard deviations, and rank of the Job stress variables. The table indicates a high degree of Job stress; with an arithmetic mean reach (3.761).

The table indicates that Job Environment was in the first place with arithmetic mean reach (3.904) and a standard deviation of (0.745) at a high level of appreciation. In the second place was Career Growth with arithmetic mean reach (3.800) and a standard deviation of (0.813) at a high level of appreciation. In the third place was Job Uncertainty, with arithmetic mean reach (3.759) and a standard deviation of (0.787) at a high level of appreciation. In the fourth and last place was work loud with arithmetic mean reach (3.579) and a standard deviation (0.791) at Moderate level of appreciation.

The dependent variable, Patient Safety:

To identify the new technology variable, Means and Std. Deviation were execute and table (5) shows the results:

Table (5) Means and Std. Deviation of Patient Safety

No.	Statement	Mean	Std. Deviation
1	All measures are taken to ensure the safety of patients in the surgical department	3.906	0.694
2	Patient safety is one of the most important priorities of the surgical department.	3.385	0.868
3	There is a specific system to ensure that infection is not transmitted between patients and between workers.	3.585	0.766
4	There is a high level of control over hygiene and sterilization in the surgical department.	3.689	0.735

5	The surgical department has technical guidelines to prevent risks or infection	3.875	0.478
6	The staff has full knowledge about the procedures that must be taken for the safety of patients and staff.	3.771	0.556
7	The surgical department has a structure that is responsible for the policies, objectives, strategies, legal and technical framework of patient safety programs.	3.611	0.542
8	There is follow-up and evaluation of patient and staff safety outcomes, processes and strategies.	3.724	0.535
9	The surgical department administration provides a work environment that enhances patient safety.	3.109	0.908
Average		3.628	0.676

Table No. 5 indicates the attitudes of the sample towards questionnaire statements of Patient Safety; Average mean (3.628), S.t (0.676) in Moderate degree of estimation for the independent variable (Patient Safety).

Hypothesis Analysis;

Main hypothesis:

H1: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

To test this hypothesis, multi Regression used to find out if there is a statistically significant effect of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department at Saudi governmental hospitals, at significance level ($\alpha \leq 0.05$).

Table (6) Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.263a	.069	.055	.39966

a. Predictors: (Constant), Growth, loud, Uncertainty, Environment

Table No. 6 shows the value of the Regression coefficient between the independent & dependent variable, reaching its value (0.263) as shown,

the value of the coefficient of determination (R^2) reaches value of (0.069). That's indicates that %6.9 of changes in dependent variable caused by independent variables.

Table 6 represents the results of analysis of independent Job stress on patient safety in the surgical department at Saudi governmental hospitals to test the significance of regression model:

Table (7) ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.019	4	.755	4.725	.001b
	Residual	40.571	254	.160		
	Total	43.590	258			

a. Dependent Variable: Safety

b. Predictors: (Constant), Growth, loud, Uncertainty, Environment

Table (7) analysis of variance, which aims to identify the explanatory model of independent variable Job stress on patient safety in the surgical department at Saudi governmental hospitals, due to statistical examined (F).

The Examined (F) value was equal to (4.725) with possibility value (0.001) which is lower than the specific value (0.05), and that shows that there is significant effect exists at significance level ($\alpha \leq 0.05$).

Therefore, we reject the null hypothesis and accept the alternative:

There a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

However, the following sub-hypothesis emerge from the main hypothesis:

Multivariate Regression Morality:

Table (8) shows the values of the regression coefficients for the capabilities and the statistical tests.

Table (8) Coefficients Multivariate Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.029	.211		14.339	.000
work loud	.208	.061	.244	3.392	.001
Job Uncertainty	-.123	.071	-.178	-1.731	.085
Job Environment	.003	.091	.003	.028	.978
Career Growth	.080	.069	.110	1.155	.249

a. Dependent Variable: Safety

Sub Hypothesis:

H1.1: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of work loud of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

The table (8) indicates that work loud of medical staff have a statistically significant effect on patient safety in the surgical department in Saudi governmental hospitals. The calculated value of (T) was (3.392), which is higher than its tabular value (1.984) at significance level (0.001), which is lower than the specific value (0.05).

Therefore, we reject the null hypothesis and accept the alternative:

There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of work loud of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

H1.2: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job uncertainty for medical staff on patient safety in the surgical department in Saudi governmental hospitals.

The table (8) indicates that Job uncertainty for medical staff have not a statistically significant effect on patient safety in the surgical department in Saudi governmental hospitals. The calculated value of (T) was (1.731), which is lower than its tabular value (1.984) at significance level (0.85), which is higher than the specific value (0.05).

Therefore, we reject the alternative hypothesis and accept the null:

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job uncertainty staff on patient safety in the surgical department in Saudi governmental hospitals.

H1.3: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job environment of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

The table (8) indicates that Job environment for medical staff have not a statistically significant effect on patient safety in the surgical department in Saudi governmental hospitals. The calculated value of (T) was (0.28), which is lower than its tabular value (1.984) at significance level (0.978), which is higher than the specific value (0.05).

Therefore, we reject the alternative hypothesis and accept the null:

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job environment of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

H1.4: There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Career Growth of medical staff and on patient safety in the surgical department in Saudi governmental hospitals.

The table (8) indicates that Career Growth for medical staff have not a statistically significant effect on patient safety in the surgical department in Saudi governmental hospitals. The calculated value of (T) was (1.155), which is lower than its tabular value (1.984) at significance level (0.249), which is higher than the specific value (0.05).

Therefore, we reject the alternative hypothesis and accept the null:

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Career Growth of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

DISCUSSION AND CONCLUSION

The results show that the level of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) was at high level in the surgical department in Saudi governmental hospitals.

The results shows that Job Environment was the most important factor, while Career Growth was at the second place; Job Uncertainty was at the third place, and the last place was for work loud, where all factors were at high level of appreciation except work loud was at moderate level of appreciation.

The results show that there is high level of Job Environment in the surgical department in Saudi governmental hospitals. The study results indicated that medical staff feel concerns because of violence that may occur by patients in the surgical department. In addition, medical staff feel nervous about patients not sticking to the regime.

The results show that there is high level of Career Growth in the surgical department in Saudi governmental hospitals. The study results indicated that there are pressures due to poor opportunities for career advancement. In addition, there a little pressure due to the lack of sufficient number of nurses.

The results show that there is high level of Job Uncertainty in the surgical department in Saudi governmental hospitals. The study results indicated that there are pressures for medical staff because of the employee's lack of clear knowledge of the nature of the task required. In addition, there are pressures because of a lot of work that is not being completed in a timely manner.

The study results also showed that the level of Patient Safety was at moderate level in the surgical department in Saudi governmental hospitals.

The results show that all measures are taken to ensure the safety of patients in the surgical department in the surgical department in Saudi governmental hospitals. In addition, the surgical department administration in Saudi governmental hospitals rarely provides a work environment that enhances patient safety.

The results show that there a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

Conclusion

There a statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job stress (work loud, Job Uncertainty, Job Environment, Career Growth) of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is a statistically significant effect at the significance level ($0.05 \geq \alpha$) of work loud of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job Uncertainty of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Job Environment of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

There is no statistically significant effect at the significance level ($0.05 \geq \alpha$) of Career Growth of medical staff on patient safety in the surgical department in Saudi governmental hospitals.

Recommendations:

In light of the results, the study reached the following recommendations:

- 1) Patient safety should be the most important priorities of the surgical department.
- 2) There should be a specific system to ensure that infection is not transmitted between patients and between workers.
- 3) The surgical department administration should provide a work environment that enhances patient safety.
- 4) Distribute work equitably among employees
- 5) Qualifying employees to carry out their work in a more professional and efficient manner through training and education processes
- 6) There should be a clear limit of the authority entrusted to the employee.
- 7) There should be a sufficient number of nurses in the surgical department in Saudi governmental hospitals.

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