

This is a provisional PDF only. Copyedited and fully formatted version will be made available soon.



# DISASTER AND EMERGENCY

M E D I C I N E J O U R N A L

## **Hospital management support for patient safety**

**Author:** Abdullah Ghaleb Alshareef

**DOI:** 10.5603/demj.102767

**Article type:** Research paper

**Submitted:** 2024-09-25

**Accepted:** 2024-11-05

**Published online:** 2024-11-27

This article has been peer reviewed and published immediately upon acceptance. It is an open access article, which means that it can be downloaded, printed, and distributed freely, provided the work is properly cited.

[ORIGINAL ARTICLE]

## **HOSPITAL MANAGEMENT SUPPORT FOR PATIENT SAFETY**

**Abdullah Ghaleb Alshareef**

*Head of Business Management Department, School of Business, University of Jeddah,  
Jeddah, Saudi Arabia*

### **ADDRESS FOR CORRESPONDENCE:**

Abdullah Ghaleb Alshareef, Head of Business Management Department, School of Business, University of Jeddah, Jeddah, Saudi Arabia, e-mail: [agalshareef@uj.edu.sa](mailto:agalshareef@uj.edu.sa)

### **ABSTRACT**

**INTRODUCTION:** Hospital management support can play an important role in addressing the issue of patient safety. There is increasing concern about patient safety, as it is often linked to a lack of effective managers who can use their influence to change health professionals' behavior, leading to a decrease in work pressure and medical errors and enhancing patient safety.

**MATERIAL AND METHODS:** A cross-sectional study was conducted at three private hospitals. The sample (n = 315) consisted of health professionals from different private hospitals in Jeddah, Saudi Arabia. A 40-item questionnaire addressed patient safety, teamwork, collaboration, hospital management support, supervisor support, work pressure, and communication. The quantitative data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23 and the standard multiple regression analysis was the method used to test hypotheses in this study.

**RESULTS:** The results of this investigation indicate that a significant amount of variance in perceived patient safety ( $R^2 = 0.41$ ) is accounted for by the predictor variables. The most

significant predictor of patient safety is teamwork with a  $\beta$  weight of 0.33, followed by work pressure, with a  $\beta$  weight of 0.31, and hospital management support, with a  $\beta$  weight of 0.30.

**CONCLUSIONS:** This study has shown that patient safety can be improved by enhancing teamwork, collaboration, and communication among health professionals within hospitals. Patient safety can be improved when heads of units or clinical supervisors use their influence to change behavior and implement procedures that support health professionals working together as a team.

**KEYWORDS:** patient safety; teamwork; collaboration; hospital management support; supervisor support; work pressure; communication

## **INTRODUCTION**

Patient safety is a very important component of health systems that are becoming increasingly challenging. Patient safety is delivered by healthcare workers, which means they have to work in a good environment to deliver high-quality services. Administrators know how important it is to ensure all patients are kept safe. Hospital management must understand the important role that health staff play in providing high-quality care and ensuring patient safety [1]. Management in the health sector must consider that the working environment of health workers will affect their efficiency and effectiveness as well as the quality of patient safety. Enhancing patient safety will take effective teamwork, communication, and collaboration to avoid medical errors and minimize hazards and provide quality care [2].

In broad health system terms, patient safety can be defined as any stimulus that results in “the absence of preventable harm to a patient and reduction of risk of unnecessary harm associated with health care to an acceptable minimum” [3]. According to the World Health Organization, in 2023 it was estimated that around one in every ten hospital patients experienced harm and more than three million deaths occur every year due to unsafe care. It is necessary here to clarify exactly what is meant by patient harm in a healthcare setting. Some factors can lead to patient harm, including lack of hospital management support and ineffective teamwork and communication among healthcare workers [4–7].

In healthcare settings, decreased workload, effective communication, and collaboration have all been consistently demonstrated to improve patient safety [8, 9]. In

addition, Browne, and Braden find that workload is significantly associated with patient safety, which indicates that reducing nurses' workload will enhance patient safety [10]. Both of these studies showed that teamwork and collaboration are the most effective strategies for decreasing workload and, at the same time, will increase patient safety.

## **THE PRESENT RESEARCH**

Enhancing patient safety in the health sector is of great importance for providing quality health services. In healthcare settings, there is increasing concern about patient safety, as it is often linked to a lack of capacity and shortage of health professionals, which in turn leads to increased work pressure and medical errors [11]. These factors are important in patient safety concerns and have been linked to the quality of patient safety in numerous studies. Research conducted by Pérez-Francisco et al. [12] to identify the relationships between overload, burnout, quality of health care, and patient safety found that overload was related to burnout and decreased patient safety and quality of care. Similarly, in their study, Al Ma'mari et al. [13] explored whether workload and burnout can predict the perceptions of patient safety among nurses in Oman. They found that there was a significant relationship between these factors. Another study conducted in Germany by Sturm et al. [8] found that increased workloads can lead to more job-related stress and impact patient safety.

Hospital management support is critical to successful patient safety. Hospital management needs to understand that health professionals are the heart of the hospital and management must do everything possible to provide all the support health professionals need to provide better and more effective care to patients. This study aims to examine the relative influence of patient safety on teamwork, collaboration, hospital management support, supervisor support, work pressure, and communication among health professionals, as shown in Figure 1. Understanding these factors can help policymakers and administrators not just in hospitals but also in the health system to determine policies and services that may enhance patient safety and increase the quality of care, as well as to ensure a positive culture that is reflected in patient safety.

## **MATERIAL AND METHODS**

A cross-sectional study was constructed, and data were collected from different departments of three private hospitals between February and May 2023. The sample consists of 315 health

professionals. The study measured six exogenous variables: teamwork, hospital management support, supervisor support, collaboration, work pressure, and communication, and one endogenous variable, which was patient safety. The study was a cross-sectional survey, part of which relates to the topic of patient safety. For the study, a survey consisting of 43 items was arranged into three sections. The response set was designed in accordance with five-point Likert scales. The first section collected demographic and work-related details including age, education level, staff position, unit/work area, work hours, marital status, gender, and ethnicity. For the purpose of the study, the second section included surveys on patient safety culture. Hospital Survey Version 2.0 was used to help hospitals evaluate patient safety. This survey contains several scales and questions that evaluated patient safety regarding teamwork (3 items), hospital management support (6 items), supervisor support (3 items), and communication effectiveness (7 items) [14]. The third section collected data using the Safety Attitudes Questionnaire developed by Bryan Sexton, Eric Thomas, and Bob Helmreich in 1978 to measure patient safety culture (5 items), collaboration (3 items), and work pressure (4 items) [15].

The quantitative data were collected through a questionnaire using Statistical Package for Social Sciences (SPSS) and standard multiple regression analysis was used to determine which factors are most important in predicting patient safety [16]. The purpose of using standard multiple regression analysis is to determine the overall fit of the model and the relative contribution of each of the factors to the total variance is explained. For this study, a statistical analysis of the demographic characteristics of health professionals and their responses to the questions on teamwork, hospital management support supervisor support, work pressure and communication, and one endogenous variable, patient safety, was undertaken.

## **RESULTS**

The participants were asked to provide information about their position and primary unit in the hospital and their marital status. All the participants reported their job position on the survey (nursing = 113, medical = 62, supervisor = 49, support = 43, other clinical position = 39) as shown in Table 1. Overall, there were more female participants (211; 67%) than males (103; 33%). This is typical for the health workforce, which is majority female. Exactly half of the respondents had been working in this hospital for less than five years (43%), followed by less than ten years (39%), more than eleven years (16%), and less than one year (12%). It can

be seen from the data in table 1 that 19% of participants were working in a clinical services unit, followed by a patient care unit (17%), medical/surgical unit (16%), and administration unit (10%). When asked how many hours per week they worked in the current hospital, almost 68% (215) of participants responded that they worked more than 40 hours per week.

Hospital management support was measured by the Surveys on Patient Safety Culture (SOPS) hospital survey, using six items to study how health professionals think about hospital management support for patient safety. The first item asks if hospital management shows patient safety is a top priority. Of the health professionals, 62% (195) agreed that hospital management is concerned about patient safety and is taking action to improve patient outcomes. However, health professionals were asked if they received adequate resources to improve patient safety and most respondents (70%; 220) indicated they did not receive adequate resources to improve patient safety, such as enough staff to handle the workload and the quality of the equipment. This indicates that there are insufficient resources to support healthcare professionals, who are often working more than 40 hours a week, so they will not be able to deliver high-quality services. This study suggests that hospital management needs to measure the ratio of staff to patients and test the quality of the equipment with which health professionals work.

In response to the question regarding work pressure among health professionals, most respondents (67%; 211) reported that when their workload became excessive, their performance was impaired. Moreover, most participants (55%; 173) said they feel less effective at work when fatigued. Additionally, almost 51% (128) of participants experience poor collaboration with other health professionals. When the participants were asked if they get support from their supervisor when pressure builds up, they reported that whenever pressure builds up, their supervisors want them to work faster, even if it means taking shortcuts. This is concerning, as health professionals without support from an immediate supervisor can become worried and may make medical errors. In response to the question asking whether they talk to their supervisor about patient safety, most of those surveyed reported that it is not easy for them to discuss medical errors with their supervisor.

## **DISCUSSION**

For the current study, patient safety scores were analyzed according to participants' job position, primary unit, how many hours a week they work, their years of experience, and other

personal factors. Participants were divided into nursing, medical, supervisor, support, other clinical positions, and other, according to their job position. Job position was found to be statistically associated with patient safety using analysis of variance (ANOVA). A statistically significant difference in patient safety was found comparing support, supervisor, and other ( $p = 0.005$ ). However, there were no differences in the fear of the coronavirus comparing nurses, medical, and other clinical positions ( $p = 0.785$ ). This indicates that nursing, medical, supervisor, support, and other clinical positions were more likely to enhance patient safety in comparison to support, supervisor, and other. No significant difference in patient safety was found based on participants' gender. There was no significant difference in mean (M) scores comparing female participants [ $M = 2.843$ , standard deviation (SD) = 0.4101] and male participants ( $M = 3.101$ ,  $SD = 0.4211$ ) [ $t(465) = -0.902$ ,  $p = 0.303$ ]. This result suggests that gender does not influence patient safety among participants in the current study.

Regarding participants' work hours, health professionals were divided into three groups according to their work hours: Group 1, who worked fewer than 30 hours per week; Group 2, who worked 30 to 40 hours per week and Group 3, who worked more than 40 hours per week. The results from one-way ANOVA showed that the group's means are statistically significantly different because the value in the Sig is 0, which is less than (0.05). The study found that health professionals who work more than 40 hours per week ( $M = 3.266$ ,  $SD = 0.4245$ ) were more likely to negatively influence patient safety compared to those who work less than 30 hours per week. This suggests that patient safety can be improved by reducing working hours among health professionals.

The current study's hypothesis proposed that teamwork, hospital management support, supervisor support, collaboration, work pressure, and communication had an impact on patient safety. The standard multiple regression analysis was used and conducted to examine the ability of teamwork, hospital management support, supervisor support, collaboration, work pressure, and communication to predict patient safety among health professionals in private hospitals in Saudi Arabia. This method was conducted to understand whether patient safety is influenced by teamwork, hospital management support, supervisor support, collaboration, work pressure, and communication. Table 3 shows the model summary including the R square and the standard error of the estimate, which was used to determine how well a regression model fits the data in this current study.

As seen in Table 3, overall, 41% of patient safety among health professionals was explained by knowing the scores for teamwork, hospital management support, supervisor

support, collaboration, work pressure, and communication. Furthermore, it can be seen in Table 4 that the independent variables teamwork, hospital management support, supervisor support, collaboration, work pressure, and communication were statistically significant and predicted the dependent variable patient safety. R for regressions was significantly different from zero,  $F(5,084) = 58.437$ ,  $p < 0.0005$  with  $R^2 0.410$ ). This means that the regression model is a good fit for the data.

The results of the multiple linear regression analysis are presented in Table 5. Overall, all independent variable coefficients are statistically significantly different from zero at  $\alpha = 0.05$ . Furthermore, the standardized partial regression coefficients indicated that teamwork ( $\beta = -0.338$ ;  $p = 0.00$ ), hospital management support ( $\beta = -0.304$ ;  $p = 0.00$ ), supervisor support ( $\beta = -0.146$ ;  $p = 0.001$ ), collaboration ( $\beta = -0.122$ ;  $p = 0.005$ ), work pressure ( $\beta = -0.311$ ;  $p = 0.001$ ), and communication ( $\beta = 0.148$ ;  $p = 0.001$ ) were significant predictors of patient safety at  $\alpha = 0.05$ .

The current study was designed to examine the relative influence of teamwork, collaboration, hospital management support, supervisor support, work pressure, and communication among health professionals on patient safety. The results of this investigation indicate that a significant amount of variance in perceived patient safety ( $R^2 = 0.41$ ) is accounted for by the predictor variables. The most significant predictor of patient safety is teamwork, with a  $\beta$  weight of 0.33. This is followed by work pressure, with a  $\beta$  weight of 0.31, and hospital management support, with a  $\beta$  weight of 0.30. Therefore, it is suggested that hospital administrators who are interested in improving patient outcomes should ensure health professionals work together as an effective team and provide enough support and staff to handle the workload. These results reflect those of Alsabri et al. [17], who also found that teamwork improves the safety culture in hospitals and may positively affect patient outcomes. Patient safety can be improved when heads of units or clinical supervisors use their influence to change behavior and implement procedures for health professionals to work together as a team.

In this study, hospital management support was found to improve patient safety. This finding is in agreement with Al-Mugheed and Bayraktar [18], who found that improved patient safety may result from increased management support. This study suggests that there is a need for hospital management to know how to deal with and manage teams effectively as well as how to encourage health professionals to collaborate with other units to improve processes and patient safety. Moreover, there is a need for hospital management to make sure



the working conditions at the hospital support health professionals in providing quality care. It is very important to consider that when the entire unit inside a hospital works as a team, patient safety and quality can be more confidently ensured.

Of the health professionals in this study, 70% (220) indicated they did not receive adequate resources for ensuring patient safety. The findings of this study reveal that work pressure is often present in hospitals with insufficient staffing of health professionals and this is linked with significant risks to patient safety. Supporting this, a Chana study conducted by Amponsah-Tawaih and Adu [19] to examine how work pressure influences safety behavior in public hospitals found that work pressure among health professionals correlated negatively with safety behaviors. Working in hospitals can be very difficult due to heavy workloads. It is the hospital management's responsibility to provide adequate resources for health professionals so they can provide better and more effective care to patients. Administrators need to create efficient plans that offer clear communication with and coordination of all units inside hospitals. Moreover, there is a need to measure the way hospitals' patient population makes use of the hospitals' resources and what the hospitals have to offer to ensure hospitals are providing what is required to meet the demands of providing health services. This will lead to reducing work pressures, especially high workloads, for health professionals and enhance patient safety by providing care that meets the current and future healthcare needs of the community.

Meanwhile, communication was shown to have a significant impact on patient safety in the current study, which also illustrated that a lack of support from hospital management and supervisors will result in weak relationships and poor collaboration between health professionals, which leads to ineffective communication. It is clear that hospital units did not cooperate with one another to provide the best care for patients. This study suggests that there is a need for hospital management to develop communication plans to improve communication between health professionals at the hospital level and each unit or department needs to understand how to communicate at a standardized level to enhance patient safety. These findings confirm previous studies from other countries. For example, one American study conducted by Burgener suggests that there is a need for hospital management to provide communication protocols that enhance effective communication in hospitals to improve patient safety [20]. To enhance patient safety, hospital management is required to develop plans and processes in hospitals to support effective communication.

Consequently, the results of this study suggest that patient safety and health professionals' satisfaction can also be improved by providing support not just from hospital management but also from the immediate supervisors of health professionals. This is consistent with several previous studies [21–23]. In Oman, Ammouri et al. [22] found that nurses who felt they were supported by supervisors had a higher overall perception of patient safety. Another study conducted by Seo and Lee [23] in Korea suggests that when supervisors emphasize patient safety and provide enough resources, health professionals are likely to perceive their hospital's safety culture more positively. In summary, this study indicated that effective management should provide a clear plan of each unit's accountabilities within the entire hospital to support health workers in delivering healthcare to achieve patient safety.

### **Implications**

Based on the findings of this study, it's challenging to make broad generalizations because the study was conducted in the number of health professionals in healthcare settings limited to private hospitals and one area in the country. Consequently, this research contributes to existing knowledge about patient safety by determining the policies and services that may enhance patient safety and increase the quality of care. The findings of this study guide not just administrators but also all health professionals in all areas to provide better and more effective care for patients. Hospital management needs to develop policies at both hospital and unit levels that increase teamwork and improve communication and support from hospital management for patient safety as well as supervisors' support. Furthermore, it is important to offer health professionals communication skills training and regular practice to ensure health staff are prepared to work as a team so they can provide better and more effective care for patients. This means that there is a need for hospital management to communicate clearly and openly with every health professional inside the hospital. Additionally, hospital management needs to provide health professionals with what they need to do their jobs well, including equipment, supplies, online learning, virtual platforms, and education programs, to enhance patient safety.

### **CONCLUSIONS**

This study has shown that patient safety can also be improved by enhancing teamwork, collaboration, and communication among health professionals within hospitals. Hospital administrators must ensure health professionals can work in an environment that allows them

to provide high-quality care. Hospital management should do everything possible to provide the proper environment for health professionals to improve, which will enable them to provide better and more effective care for patients. Work pressure in the hospitals of participants in this study has reached a critical level and there is a need to ensure there are enough health workers to successfully manage and work together as an effective team to improve patient safety.

Hospital management needs to provide effective supervision for health professionals so they can understand and perform their responsibilities for working together as a team and providing high-quality healthcare. This study suggests that the head of each unit inside the hospital needs to provide supervision for the unit's staff to ensure that staff can safely collaborate and communicate with each other, and they can safely perform their designed roles. Additionally, supervisors should ensure that communication processes are flexible. Management must ensure there are no barriers between each unit that prevent health professionals from communicating with other roles and to make sure that information is provided in a way that is easy for health professionals to understand and use. The evidence from this research suggests that to enhance patient safety among health professionals, hospital management needs to develop plans to support effective communication and collaboration between multidisciplinary teams and health professionals within hospitals.

Institutional Review Board Statement: the ethics approval was from the Institutional Review Board of the General Directorate of Health Affairs in Madinah (protocol code H-03-M0084 and Jan 2023).

## **Article information and declarations**

### **Data availability statement**

The data presented in this study are available upon request from the corresponding author.

### **Ethics statement**

Institutional Review Board Statement: the ethics approval was from the Institutional Review Board of General Directorate of Health Affairs in Madinah (protocol code H-03-M0084 and Jan 2023).

### **Author contributions**

Abdullah Ghaleb Alshareef designed the study and was involved in analyzing data and writing the manuscript.

### **Funding**

None.

### **Acknowledgments**

None.

### **Conflict of interest**

The author declares no conflict of interest.

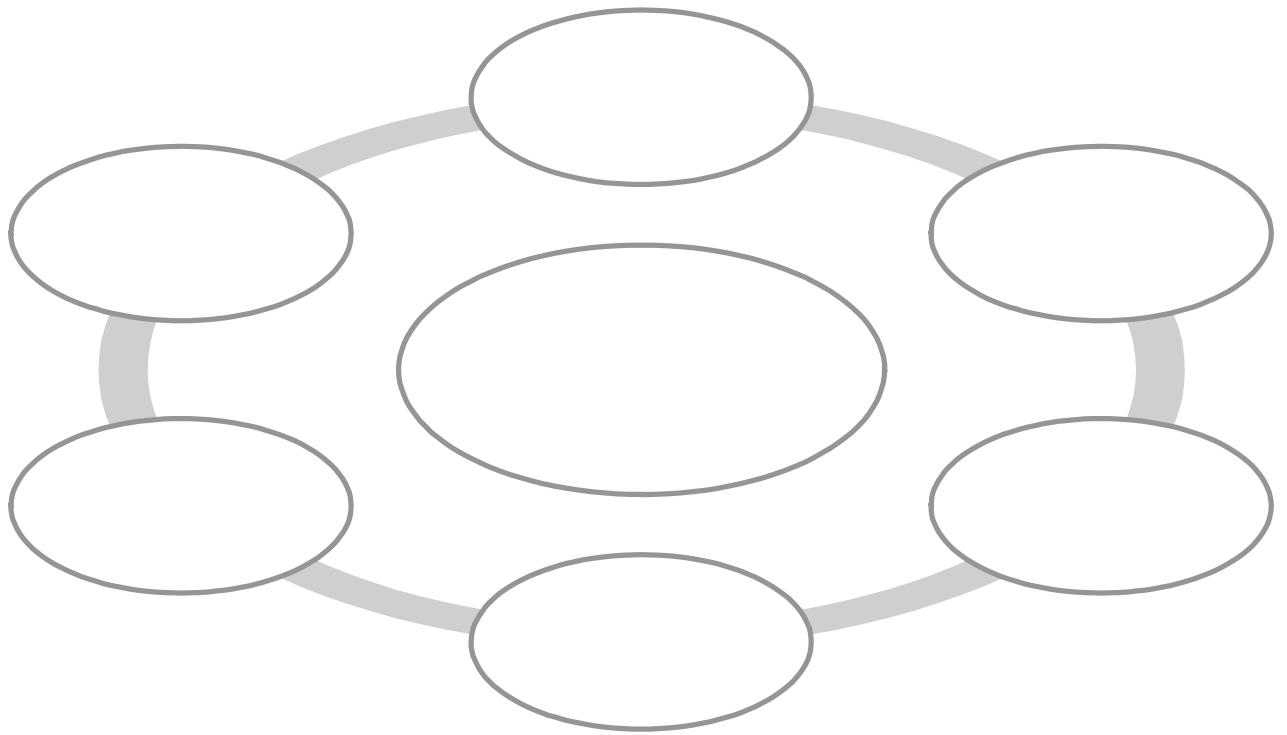
### **Supplementary material**

None.

## **REFERENCES**

1. Scheepers RA, Boerebach BCM, Arah OA, et al. A systematic review of the impact of physicians' occupational well-being on the quality of patient care. *Int J Behav Med.* 2015; 22(6): 683–698, doi: [10.1007/s12529-015-9473-3](https://doi.org/10.1007/s12529-015-9473-3), indexed in Pubmed: [25733349](https://pubmed.ncbi.nlm.nih.gov/25733349/).
2. Han JH, Roh YS. Teamwork, psychological safety, and patient safety competency among emergency nurses. *Int Emerg Nurs.* 2020; 51: 100892, doi: [10.1016/j.ienj.2020.100892](https://doi.org/10.1016/j.ienj.2020.100892), indexed in Pubmed: [32659674](https://pubmed.ncbi.nlm.nih.gov/32659674/).
3. World Health Organization. Patient safety, 2023. <https://www.who.int/teams/integrated-health-services/patient-safety> (20.01.2024).
4. Wade C, Malhotra AM, McGuire P, et al. Action on patient safety can reduce health inequalities. *BMJ.* 2022; 376: e067090, doi: [10.1136/bmj-2021-067090](https://doi.org/10.1136/bmj-2021-067090), indexed in Pubmed: [35351684](https://pubmed.ncbi.nlm.nih.gov/35351684/).
5. Nordin A, Nordström G, Wilde-Larsson B, et al. Patient safety culture change over time-health care staffs' perceptions. *Open J Nurs.* 2020; 10(03): 320–339, doi: [10.4236/ojn.2020.103022](https://doi.org/10.4236/ojn.2020.103022).
6. Wagner A, Rieger MA, Manser T, et al. WorkSafeMed Consortium. Healthcare professionals' perspectives on working conditions, leadership, and safety climate: a cross-sectional study. *BMC Health Serv Res.* 2019; 19(1): 53, doi: [10.1186/s12913-018-3862-7](https://doi.org/10.1186/s12913-018-3862-7), indexed in Pubmed: [30665401](https://pubmed.ncbi.nlm.nih.gov/30665401/).
7. Manser T. Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. *Acta Anaesthesiol Scand.* 2009; 53(2): 143–151, doi: [10.1111/j.1399-6576.2008.01717.x](https://doi.org/10.1111/j.1399-6576.2008.01717.x), indexed in Pubmed: [19032571](https://pubmed.ncbi.nlm.nih.gov/19032571/).
8. Sturm H, Rieger MA, Martus P, et al. Do perceived working conditions and patient safety culture correlate with objective workload and patient outcomes: a cross-sectional

- explorative study from a German university hospital. *PLoS One*. 2019; 14(1): e0209487, doi: [10.1371/journal.pone.0209487](https://doi.org/10.1371/journal.pone.0209487), indexed in Pubmed: [30608945](https://pubmed.ncbi.nlm.nih.gov/30608945/).
9. Chien SF, Wan TTh, Chen YC. Factors influencing teamwork and collaboration within a tertiary medical center. *World J Methodol*. 2012; 2(2): 18-23, doi: [10.5662/wjm.v2.i2.18](https://doi.org/10.5662/wjm.v2.i2.18), indexed in Pubmed: [25237612](https://pubmed.ncbi.nlm.nih.gov/25237612/).
  10. Browne J, Braden CJo. Nursing turbulence in critical care: relationships with nursing workload and patient safety. *Am J Crit Care*. 2020; 29(3): 182-191, doi: [10.4037/ajcc2020180](https://doi.org/10.4037/ajcc2020180), indexed in Pubmed: [32355966](https://pubmed.ncbi.nlm.nih.gov/32355966/).
  11. World Health Organization. Health workforce, 2022. [https://www.who.int/health-topics/health-workforce#tab=tab\\_1](https://www.who.int/health-topics/health-workforce#tab=tab_1) (20.01.2024).
  12. Pérez-Francisco DH, Duarte-Clímets G, Del Rosario-Melián JM, et al. Influence of workload on primary care nurses' health and burnout, patients' safety, and quality of care: integrative review. *Healthcare (Basel)*. 2020; 8(1): 12, doi: [10.3390/healthcare8010012](https://doi.org/10.3390/healthcare8010012), indexed in Pubmed: [31947761](https://pubmed.ncbi.nlm.nih.gov/31947761/).
  13. Al Ma'mari Q, Sharour LA, Al Omari O. Fatigue, burnout, work environment, workload and perceived patient safety culture among critical care nurses. *Br J Nurs*. 2020; 29(1): 28-34, doi: [10.12968/bjon.2020.29.1.28](https://doi.org/10.12968/bjon.2020.29.1.28), indexed in Pubmed: [31917951](https://pubmed.ncbi.nlm.nih.gov/31917951/).
  14. Agency for Healthcare Research and Quality 2021 [Internet]. Hospital Survey on patient safety culture Versions 2.0 user's guide. Hospital Survey on Patient Safety Culture: User's Guide. <https://www.ahrq.gov/sites/default/files/wysiwyg/sops/surveys/hospital/hospital-user-guide.pdf>(20.01.2024).
  15. Center for Healthcare Quality and Safety [Internet]. Safety Attitudes and Safety Climate Questionnaire. Safety Survey - Center for Healthcare Quality and Safety - UTHouston. <https://www.uth.edu/chqs/short-form-scale-items> (20.01.2024).
  16. Chatterjee S, Hadi AS. Regression analysis by example. John Wiley & Sons 2015.
  17. Alsabri M, Boudi Z, Lauque D, et al. Impact of teamwork and communication training interventions on safety culture and patient safety in emergency departments: a systematic review. *J Patient Saf*. 2022; 18(1): e351-e361, doi: [10.1097/PTS.0000000000000782](https://doi.org/10.1097/PTS.0000000000000782), indexed in Pubmed: [33890752](https://pubmed.ncbi.nlm.nih.gov/33890752/).
  18. Al-Mugheed K, Bayraktar N. Patient safety attitudes among critical care nurses: A case study in North Cyprus. *Int J Health Plann Manage*. 2020; 35(4): 910-921, doi: [10.1002/hpm.2976](https://doi.org/10.1002/hpm.2976), indexed in Pubmed: [32329530](https://pubmed.ncbi.nlm.nih.gov/32329530/).
  19. Amponsah-Tawaih K, Adu MA. Work pressure and safety behaviors among health workers in ghana: the moderating role of management commitment to safety. *Saf Health Work*. 2016; 7(4): 340-346, doi: [10.1016/j.shaw.2016.05.001](https://doi.org/10.1016/j.shaw.2016.05.001), indexed in Pubmed: [27924238](https://pubmed.ncbi.nlm.nih.gov/27924238/).
  20. Burgener AM. Enhancing communication to improve patient safety and to increase patient satisfaction. *Health Care Manag (Frederick)*. 2020; 39(3): 128-132, doi: [10.1097/HCM.0000000000000298](https://doi.org/10.1097/HCM.0000000000000298), indexed in Pubmed: [32701609](https://pubmed.ncbi.nlm.nih.gov/32701609/).
  21. Alshareef AG, Wraith D, Dingle K, et al. Identifying the factors influencing Saudi Arabian nurses' turnover. *J Nurs Manag*. 2020; 28(5): 1030-1040, doi: [10.1111/jonm.13028](https://doi.org/10.1111/jonm.13028), indexed in Pubmed: [32277535](https://pubmed.ncbi.nlm.nih.gov/32277535/).
  22. Ammouri AA, Tailakh AK, Muliira JK, et al. Patient safety culture among nurses. *Int Nurs Rev*. 2015; 62(1): 102-110, doi: [10.1111/inr.12159](https://doi.org/10.1111/inr.12159), indexed in Pubmed: [25495946](https://pubmed.ncbi.nlm.nih.gov/25495946/).
  23. Seo JK, Lee SE. Hospital management, supervisor support and nurse speaking-up behaviours: The mediating role of safety culture perception. *J Nurs Manag*. 2022; 30(7): 3160-3167, doi: [10.1111/jonm.13737](https://doi.org/10.1111/jonm.13737), indexed in Pubmed: [35815819](https://pubmed.ncbi.nlm.nih.gov/35815819/).



**Figure 1.** Theoretical model from current literature

**Table 1.** Characteristics of respondents of the study (n = 315)

Questions	Number, %
<b>Gender</b>	
Male	104 (33%)
Female	211 (67%)
<b>What is your position in this hospital</b>	
Nursing	113 (36%)
Medical	62 (20%)
Supervisor	49 (15%)
Support	43 (14%)
Other clinical position	39 (12%)
Other	9 (3%)
<b>What is your primary unit in this hospital</b>	
Multiple units, no specific unit	49 (16%)
Medical/surgical units	52 (16%)
Patient care units	54 (17%)
Clinical services	59 (19%)
Administration/management	32 (10%)
Surgical services	42 (13%)
Support services	27 (9%)
<b>How long have worked in this hospital?</b>	
Less than one year	37 (12%)
1 to 5 years	135 (43%)
6 to 10 years	91 (29%)
11 or more years	52 (16%)
<b>Typically, how many hours per week do you work in this hospital?</b>	
Less than 30 hours per week	20 (6%)
30 to 40 hours per week	80 (26%)
More than 40 hours per week	215 (68%)

**Table 2.** Characteristics of respondents to patient safety questions (n = 315)

	Number, %
<b>Attended patient safety training</b>	
Yes	218 (69%)
No	97 (31%)
<b>How would you rate your unit/work area on patient safety?</b>	
Poor	25 (8%)
Fair	47 (15%)
Good	125 (40%)
Very good	70 (22%)
Excellent	48 (15%)

**Table 3.** Model summary

Model	R	R square	Adjusted R square	Std. error of the estimate
1	531a	0.410	0.423	0.43815

**Table 4.** F-ratio

Model	Sum of squares	Df	Mean square	F	Sig.
<b>Regression</b>	27.024	5.084	5.985	58.437	0
<b>Residual</b>	60.241		0.156		

**Table 5.** Coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
<b>(Constant) patient safety</b>	4.062	0.152		28.632	0.000		
<b>Teamwork</b>	-0.192	0.027	-0.338	-6.715	0.000	0.603	1.624
<b>Hospital management support</b>	-0.185	0.025	-0.304	-6.633	0.000	0.587	1.605
<b>Supervisor support</b>	-0.085	0.023	-0.146	-3.348	0.001	0.647	1.488
<b>Collaboration</b>	0.087	0.037	0.122	2.894	0.005	0.996	1.208
<b>Work pressure</b>	-0.189	0.026	-0.311	-6.688	0.000	0.601	1.612
<b>Communication</b>	-0.081	0.025	-0.148	-3.257	0.001	0.676	1.479