

# Patient Safety AND Quality OF Care IN University Hospitals: A Systematic Review OF THE Roles OF Dental Technicians, Nursing, Social Sciences, AND Health Administration

Hesham Saleh Almadani<sup>1</sup>, Yasir Hameed Alharbi<sup>1</sup>, Ibrahim Hassan Alfaden<sup>1</sup>, Khalid Ali Alshraifi<sup>1</sup>, Ahmed Jamaan Alqarni<sup>1</sup>, Ali Hassan Alzahrani<sup>1</sup>, Reem Shlueih Alqubaidhi<sup>2</sup>, Jamal Yahya Hassan Atwi<sup>3</sup>, Manal Ahmed Mohammed Hassan<sup>4</sup>, Fawziya Ali Mashhoor<sup>15</sup>

<sup>1</sup>Dental Technician – University Dental Hospital, King Abdulaziz University, Jeddah, Saudi Arabia.

<sup>2</sup>General Nursing – King Abdulaziz University Hospital, Jeddah, Saudi Arabia.

<sup>3</sup>Psychology – Medical Services Center, King Abdulaziz University, Jeddah, Saudi Arabia.

<sup>4</sup>Hospital Administration – Support Services Administration – King Abdulaziz University Hospital, Jeddah, Saudi Arabia.

<sup>15</sup>Sociology – Home Healthcare – King Abdulaziz University Hospital, Jeddah, Saudi Arabia.

## Abstract

**Background:** Safety of patient, providing quality health care and increasing the satisfaction of patients are some of the main objectives of any given medical facility, but the scenario of health care is changing very fast and medical specialization alone cannot save the day. Hence the integrated effort of dental technicians, nurses and professionals from social sciences is required. This present study evaluates the scenario in the light of previous studies in Saudi Arabia.

**Research Methodology:** This present study is based on exploratory research design and collects the information from studies published in PubMed, Scopus, etc. and other related reports. Studies are selected finalized on the basis of predefined criteria of inclusion and exclusion using a PRISMA framework.

**Results:** The study states that the development of infrastructure is essential for engaging the new age digital health equipment in the medical facilities and work towards the integration of various professions at education and training level.

**Conclusion:** Findings of the study state that as of now there is a need to shift from a specialization focused approach to integrated effort to offer best medical care, patient safety and quality health care to patients. This calls for a holistic or collaborative model where all the specialized people come together to deal with the issues is delay, high processing time, appointments, cultural and language barriers and many other related hurdles.

**Keywords:** Patient safety, clinical safety, multidisciplinary team, inter-professional collaboration, University Hospitals, Dental Technicians, Social Sciences.

## Introduction

Patient safety, quality of care, patient satisfaction are the main functions of a given health care system; whether it is a clinical setup, a hospital, a medical college or a university hospitals. These facilities are the places that people looked upon for various treatments, surgeries, long term and short term clinical attention, etc. Whereas the medical colleges and university hospitals serve as a medium of complex clinical practices, extensive research work and above all medical education. WHO (2021) In these settings, the doctors, nurses and related paramedical staff use to deal with most critical ailments and complex medical procedures; then on the other hand future doctors and healthcare professions are also

trained here. As a matter of fact, medical colleges and university hospitals cannot afford to have loose ends in terms of patient safety, quality care as because this can adversely affect the reputation of the facility and trust of the people on such facilities. Al-Awa et al (2016); Al-Samaani et al (2020)

Nurses are considered as the frontiers of medical care in different medical facilities; they use to provide constant supervision, monitoring of patients, look for medication and allied treatments. Al-Khalifa et al (2019); MoH, KSA (2016) They also play a major role in preventing the patient from the infections that are generally acquired from the hospitals, then the nurses help in reduction of errors related to medications and related medical procedures. Then the nurses are trained for effective communication with the patients and even with the reporting process to doctors, such communication is liable to save the life of patients, expedite the healing process and patient safety. Al-Shammary et al (2021)

Furthermore, professionals in social services, including social workers and psychologists, also contribute important information about psycho-social factors that influence the health outcomes of patients. Social services professionals promote clients' mental health issues with co-occurring substance use disorders and help patients conceptualize treatment options based upon their beliefs and on their individual circumstances. Al-Maimani S et al (2020), Al-Saeed et al (2023)

As final objective, health administrators are the strategic managers who operationalize policy, distribute personnel and resources, and create a safety culture that permits these types of providers to function within their specific practice scope. Health administrators' responsibilities include quality assurance program considerations and concerns about the broad spectrum of international accreditation standards, and include tech and cost resource distribution in an evolving modern healthcare system. Health administrators in Saudi Arabia's pursuit of healthcare excellence must also advocate for the introduction of electronic health records, making adjustments to risk-management systems, and staffing hospitals correctly by integrating an optimal mix of qualified personnel. CBAHI (2023)

This present study seeks to evaluate the scenario in the light of previous studies conducted in Saudi Arabia or in the context of MEA. The study will follow the exploratory research design for the detailed and chronological presentation of previous establishment, current development and future prospects in relation to patient safety, quality care and patient security with an integrate effort of dental technicians, nursing, social sciences, and health administration.

### **Research Gaps**

There is some research gap related to IPE (Inter-professional Education) or the related models in Saudi Arabia for university hospitals, though it is required that the doctors, nurses, dental technicians, and administrators may have common training program to deal with the integrated effort of patient safety and quality care. Then it was also found that there is a dearth of actual quantitative data related to the combined work of healthcare professionals.

### **Objective of Study**

The main objective of this present study is to systematically review and evaluate the existing body of knowledge on the differentiated role of healthcare professionals like dental technicians, nursing staff, professionals from social sciences.

### **Research methodology**

#### **Research Design**

This present study uses the narrative literature review approach also known as exploratory research design. In this research design the main focus stays on the developments in the recent past, current scenario and future prospects for the respective point in question of patient safety and quality care. Here the area of study is multidisciplinary teams and their role in patient safety. The study is a systematic review of published and presented studies in Saudi Arabia investigating the role of dental technicians, nursing staff and professional sciences.

### Inclusion and Exclusion Criteria

Considerations	Inclusion	Exclusion
<b>Time Line</b>	Studies conducted during 2014 to 2024	Studies conducted prior to 2014
<b>Language</b>	Studies published in English and Arabic only	Studies in other languages, if the transcript is not available.
<b>Specific Keywords</b>	Studies carrying specific keywords	Studies carrying partly or no keywords
<b>Study Area</b>	Studies conducted mostly in Saudi Arabia and MEA region (will include some international studies)	

### Sources of Data

Some of the important sources of data are PubMed, Embase, Scopus, Web of Science, etc. Saudi Digital Library, Index Medicus for the Eastern Mediterranean Region (IMEMR), CINHALL, and relevant Saudi journals, including Ministry of Health (KSA) publications, doctoral thesis archives, conference proceedings, and institutional reports.

### Keywords

The study will include only those reviews, that have the respective keywords. Some of the important keywords are "Patient safety", "clinical safety", "multidisciplinary team", "inter-professional collaboration", "University Hospitals", "Dental Technicians", "Social Sciences" "Health Administration".

### Information Extraction

A master file will be prepared and respective information be stored in it. The major heading will be the (Author, Year, Journal), Hospital setting, objectives of the study, research approach and outcomes; related to the present topic of study. Studies and reports will be scrutinized and screened by using PRISMA model.

### Ethical Considerations

As this present study reviews the studies conducted in the past and based on secondary data only, hence no human subject or primary data will be included. All sources are properly cited and used in accordance with academic integrity standards.

### Results

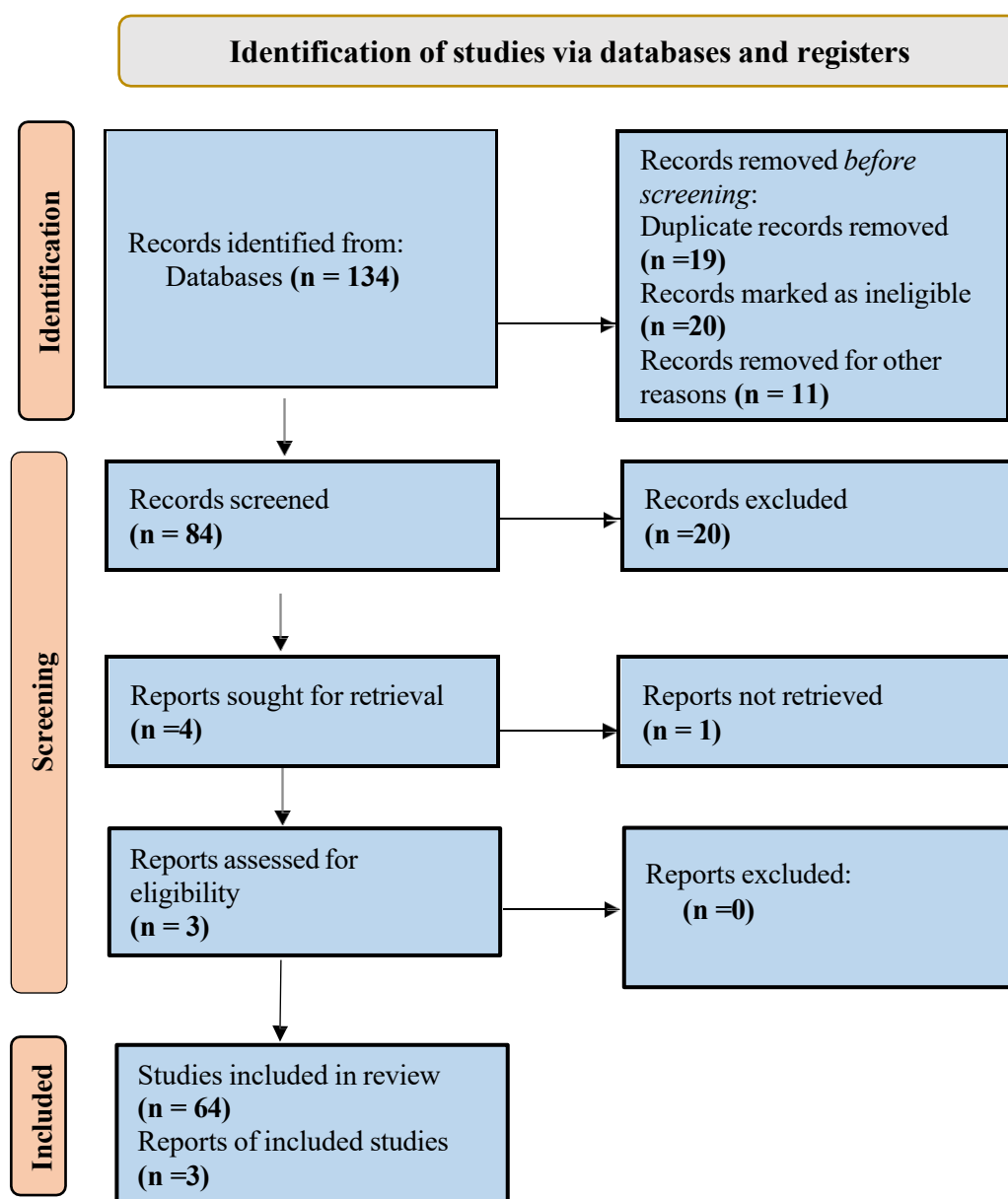
A total of 134 research studies and 4 reports were identified, all of them were based on the importance, types, and effects of anesthesia on dental treatment and surgery in and outside Saudi Arabia. Further 84 records were saved for screening, then in the screening process 20 records were further removed on the basis of exclusion criteria stated above. Total studies finalized for review were 64. Then 3 reports were also included in the study and 1 report was excluded.

A study conducted by Abed et al (2021) evaluates the records of 165 inpatient departments in 15 hospitals of Saudi Arabia and stated that in the hospitals where the nurse-to-patient ratio is 1:4 or above, are above to provide better patient safety and quality care, also less casualties were recorded. Then in some of the hospitals where the nurse to patient ratio was above 1:5, 30% more chances of casualties was found.

Then in another study conducted by Al- Samaani et al (2020) on nurses in tertiary hospital of Central Saudi Arabia region, resulted that less than 60% of the nurses were having affirmative perception about the patient safety and quality care. While 73.0% of nurses indicated that there was teamwork in their unit, only 24.5% indicated that their unit was adequately staffed. suggest a perceived deficit in teamwork as well as adequate resources. The Saudi Patient Safety Center (SPSC) reported sentinel

events (events resulting in unexpected death or serious injury) reported to the Saudi Ministry of Health from 2012-2015 resulted in a claim of 91% prevention. As mentioned in the report of SPSC (2016)

In 2017, the Saudi Patient Safety Center (SPSC) was established for the purpose of developing national safety standards, improving patient safety concepts, and promoting safe processes. The SPSC has also launched several contracts and agreements aimed at sharing health data at the hospital level to enhance patient safety. Al-Yami et al (2019) published a study of patient satisfaction in dental clinics under the Saudi Ministry of Health that demonstrated patients self-reported satisfaction with the dentist was high overall, yet patient satisfaction scored lower on system-level factors, like scheduling and wait times for appointments. The results suggest that increasing efficiency of administrative work can improve the patient experience. Al-Qahtani et al (2018)



Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71  
<https://creativecommons.org/licenses/by/4.0/>

Al-Maimani et al (2020) Evaluated the process and quality of communication between the dental care staff of selected hospitals and stated that 34% of the staff has to clarify the procedures with senior dentist as the written scripts were inadequate or not up to the mark to follow, such types of communication gaps may affect the usage of sensitive dental care of patients, use of appropriate dental appliances and the overall patient safety. R Al-Mokadem et al (2017); Al-Shammary et al (2021)

## **Discussion**

### **Integrated nature of Patient Safety**

Patient safety and quality care are the the outcomes of combined and integrated efforts of different departments of a given hospital setting, as a matter of fact most of the functions are independent but then again effect of the same on the patient is collective. Like a nurse's ability to provide safety and care is dependent not only on the nurse's education but also the right resources and staff provided by the health administration. Al-Samaani et al (2020); Al-Maimani et al (2020) and SPSC (2023)

### **Role of Nursing professionals**

Nurses are generally stated as front line of action in the medical facilities of Saudi Arabia and rest of the world, they struggle with all kinds of adverse conditions and provide the patients with quality care to the maximum possible extent. As stated above the nurse to patient ratio plays a vital role in the process and appropriate ratio can save the life of patients and help in providing quality care to them, this may also ensure the complete patient safety. But the data also presents that the integration is not as adequate as required, while nurses view teamwork as a strength, they also frequently view staffing as a weakness. Al-Faour et al (2021); Al-Samaani et al (2020)

### **Role of Dental Technicians**

Most of the times they are sidelined but then again the role of dentist in providing patient safety is again very crucial. It is a general belief that the level of emergencies and crucial cases are less in dental care department, but then again oral care becomes crucial when it comes to the use of implants, at the time of trauma and many other related cases. Then in some of the cases, there are patients of old age of pediatric segment and they are less cooperative for the treatment. Al-Maimani et al (2020), Al-Mokadem et al (2020)

### **Role of Health Administration**

Various studies and govt. Reports MoH, KSA (2016) state that in university hospitals or medical colleges the role of health administration becomes crucial as the important foundation for the health system. Like the implementation of EHRs and development of infrastructure for providing various other digital healthcare systems that are very important for the safety of patients and providing quality care to them. Al-Yami et al (2016) Attaining the accreditation standards like the Central Board for Accreditation of Healthcare Institution's (CBAHI) standards, can be stated as major administrative decisions that positively influence patient safety along with others of significance. Studies have shown some difference at the level of appointment of doctors, waiting list for tests, reports and surgeries. It will be correct to state that the system is improving but the effect is not gradual, it takes time for processing and getting end results, hence more efforts should be poured in to improve the experience of the patients. Al-Qahtani et al (2018)

### **Social Sciences**

The effort of social science professionals and social workers are generally less quantified in Saudi Arabia but their role in patient safety and providing quality care can not be sidelined. Researchers Al-Jahani et al (2019), Al-Shammary et al (2021) have given ample importance to them by highlighting the variation in type of patients for differences at cultural level, issues related to languages and even the mental health issues; these issues use to raise the barrier for providing effective treatment to the patient at the earliest.

### **Recommendations for Future Study**

The healthcare infrastructure of Saudi Arabia is in the process of development and it will take time to meet the global standards, although maximum efforts are being made in accordance to the policy

document of Saudi Vision 2030. Still there are some gaps or key lacuna in the overall development of the system. Al-Shammary et al (2021) The role that inter-professional education (IPE) programs play across universities in Saudi Arabia needs consideration as well. Al-Dossari et al (2024)

### Limitations of the Study

There is a lack of quantifiable data on various online and offline portals, that is directly related to the integrated efforts of nurses, dental technicians and professionals from social science in relation to patient safety and providing of quality care.

### Conclusion

This review study evaluates the patient safety and quality care in the university hospitals and medical colleges of Saudi Arabia, in the light of the fact that the mentioned medical facilities not the representation of any one dimension of medical specialization, rather they are offering combination of processes and treatments that are relevant to the wide spread list of ailments, then on the other hand the efforts of diverse healthcare teams cannot be avoided as well. This study talks about the combined efforts of various specializations and domains like the nurses, healthcare professionals, dental technicians and even social workers or the social science professionals. This calls for a holistic or collaborative model where all the specialized people come together to deal with the issues is delay, high processing time, appointments, cultural and language barriers and many other related hurdles.

### References

1. World Health Organization. Patient safety: The prevention of harm to patients. 2021. Available from: <https://www.who.int/news-room/fact-sheets/detail/patient-safety>
2. Al-Awa F, Al-Doghaither B, Alamri N, et al. Quality of care in university hospitals in Saudi Arabia: a systematic review. *Int J Health Plann Manage*. 2016;31(2):e222-e234.
3. Al-Samaani Z, Al-Harthi Y, Al-Qahtani M. The perception of safety culture among nurses in a tertiary hospital in Central Saudi Arabia. *J Clin Nurs*. 2020;29(19-20):3852-3861.
4. Al-Yami R, Al-Yami Z, Al-Khalifa T. The impact of electronic health records on patient safety in a Saudi hospital: a retrospective study. *Saudi Med J*. 2019;40(8):799-805.
5. Ministry of Health, Kingdom of Saudi Arabia. Saudi Vision 2030: Health Sector Transformation Program. 2016. Available from: <https://www.moh.gov.sa/en/Ministry/Strategic-Plan/Documents/Health-Sector-Transformation-Program.pdf>
6. Al-Shammary M, Al-Shammary Y. Interprofessional collaboration between social workers and other healthcare professionals in a Saudi hospital: challenges and opportunities. *J Saudi Soc Sci*. 2021;5(2):121-129.
7. Al-Maimani S, Al-Shehri M. A survey of the quality of communication between dentists and dental technicians in Riyadh, Saudi Arabia. *Saudi Dent J*. 2020;32(2):105-111.
8. Al-Saeed M, Al-Jahani A, Al-Otaibi F. Factors influencing patient safety culture in Saudi Arabia: a systematic review. *J Patient Saf*. 2023;19(1):15-22.
9. Central Board for Accreditation of Healthcare Institutions (CBAHI). Accreditation Standards for Hospitals. 2023. Available from: <https://www.cbahi.org/content/standards/hospitals/en/>
10. Al-Shammary A, Al-Madi E, Al-Sarhan N. The role of healthcare social workers in addressing patient safety in a Saudi hospital. *J Patient Saf Risk Manag*. 2018;23(4):175-182.
11. Abed R, Al-Faour I, Al-Omari H, et al. A study on the relationship between nurse-to-patient ratio and adverse events in a tertiary hospital in Saudi Arabia. *J Nurs Care Qual*. 2021;36(3):215-220.
12. Al-Samaani Z, Al-Harthi Y, Al-Qahtani M. Perceptions of patient safety culture among nurses in a tertiary hospital in Central Saudi Arabia. *J Clin Nurs*. 2020;29(19-20):3852-3861.
13. Saudi Patient Safety Center (SPSC). Annual Report: Sentinel Events in Saudi Arabia (2012-2015). SPSC, 2016.
14. Al-Yami R, Al-Yami Z, Al-Khalifa T. The impact of electronic health records on patient safety in a Saudi hospital: a retrospective study. *Saudi Med J*. 2019;40(8):799-805.
15. Ministry of Health, Kingdom of Saudi Arabia. Saudi Vision 2030: Health Sector Transformation Program. 2016.
16. Al-Qahtani S, Al-Hazza A, Al-Jasser A. Patient satisfaction with hospital services: a study of public and private hospitals in Saudi Arabia. *J Community Health*. 2018;43(5):987-994.

17. Al-Maimani S, Al-Shehri M. A survey of the quality of communication between dentists and dental technicians in Riyadh, Saudi Arabia. *Saudi Dent J.* 2020;32(2):105-111.
18. Al-Mokadem M, Al-Harbi F, Al-Dossari A. Patient satisfaction with dental services and its relationship to the technical quality of prostheses. *Int J Prosthodont.* 2017;30(4):321-327.
19. Al-Jahani A, Al-Otaibi F. The role of hospital social workers in addressing the psychosocial needs of patients in a public hospital in Saudi Arabia. *J Health Care Res.* 2019;1(1):25-30.
20. Al-Shammary M, Al-Shammary Y. Interprofessional collaboration between social workers and other healthcare professionals in a Saudi hospital: challenges and opportunities. *J Saudi Soc Sci.* 2021;5(2):121-129.
21. Al-Samaani Z, Al-Harhi Y, Al-Qahtani M. Perceptions of patient safety culture among nurses in a tertiary hospital in Central Saudi Arabia. *J Clin Nurs.* 2020;29(19-20):3852-3861.
22. Al-Maimani S, Al-Shehri M. A survey of the quality of communication between dentists and dental technicians in Riyadh, Saudi Arabia. *Saudi Dent J.* 2020;32(2):105-111.
23. Saudi Patient Safety Center (SPSC). SPSC National Report of Hospital - 2023. Available from: <https://www.spsc.gov.sa/English/HSPSC/Pages/national-report.aspx>
24. Al-Faour I, Abed R, Al-Omari H, et al. A study on the relationship between nurse-to-patient ratio and adverse events in a tertiary hospital in Saudi Arabia. *J Nurs Care Qual.* 2021;36(3):215-220.
25. Al-Samaani Z, Al-Harhi Y, Al-Qahtani M. Perceptions of patient safety culture among nurses in a tertiary hospital in Central Saudi Arabia. *J Clin Nurs.* 2020;29(19-20):3852-3861.
26. Al-Maimani S, Al-Shehri M. A survey of the quality of communication between dentists and dental technicians in Riyadh, Saudi Arabia. *Saudi Dent J.* 2020;32(2):105-111.
27. Al-Mokadem M, Al-Harbi F, Al-Dossari A. Patient satisfaction with dental services and its relationship to the technical quality of prostheses. *Int J Prosthodont.* 2017;30(4):321-327.