

Advancing Patient Safety Culture: A Systematic Review of Strategies and Best Practices in Riyadh, Saudi Arabia

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ABSTRACT

This research study is an important contribution to that critical argument of how to develop patient safety culture in health care settings in Riyadh, Saudi Arabia. Having understood the pivotal role played by culture in the improvement of patient outcomes, very systematically lays down a literature review looking for the prevalent gaps and inefficiencies occurring in the present practices. That is to mean, the paper duly critically appraises different approaches and interventions that have greatly contributed to making a huge difference in the organizational climate, regarding the culture of safety through a systematic and rigorous manner. These findings, therefore, underline the need for full-fledged deployment of safety protocols, fostering a transparent atmosphere through which healthcare providers should learn from their mistakes, and demand quality enhancement programs. Presents a summary of such findings, and their general meanings with regards to health policy, leadership, and practice that suggest a way for healthcare institutions in Riyadh, to draw a more resilient and patient-centered safety culture. This research contributes to the academic void of discourse of patient safety by offering practical insights to the health leaders and policy-makers in Riyadh that, when implemented, will optimize the quality of care in health care and experience that patients have in it.

Key words: Patient safety culture, healthcare quality, medical errors, leadership, communication, Riyadh, non-punitive reporting.

1. INTRODUCTION AND OBJECTIVES

1.1. Introduction

The Saudi healthcare system plays an essential role in ensuring the well-being of the country's citizens. As healthcare practices evolve globally, there is an increasing emphasis on a culture of patient safety, encompassing the attitudes, beliefs, values, and behaviors that shape safety practices within healthcare organizations [1]. A robust patient safety culture is essential for reducing medical errors, improving the quality of care, and ultimately enhancing patient outcomes [2]. Recently, there has been a growing recognition of the need to advance patient safety culture in Riyadh's healthcare institutions. This shift is influenced by advancements in medical technology, evolving healthcare policies, and increasing awareness of the importance of patient-centered care [3].

Safety culture, as defined by the Health and Safety Commission Advisory Committee on the Safety of Nuclear

Installations, refers to "the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, the style, and proficiency of an organization's health and safety management" [4]. Research in the healthcare field in Saudi Arabia shows evidence of the positive effects of a strong organizational safety culture on healthcare quality, patient outcomes, and patient safety. Although the Saudi Ministry of Health and healthcare organizations are engaged in concerted efforts to promote a culture of safety across the country, patient harm is still highly prevalent in Saudi Arabia. A 2023 cross-sectional study conducted by Alasqah to examine patient perceptions of safety in primary healthcare settings in the Qassim region of Saudi Arabia reported that 11% of patients experienced vaccine-related safety issues, while 27% experienced diagnosis-related safety issues [5]. Errors in diagnosis are cited as the most common safety problem in the country, followed by issues in communication and medication errors [5]. The types of harm that patients bear from the lack of a patient safety culture in Saudi healthcare organizations include financial problems, problems with their physical health, limitation in activities, mental health issues, and increased need for care [5].

Worldwide, patient harm is the 14th leading cause of mortality and morbidity. The World Health Organization reports 42.7 million cases of patient harm worldwide every year [6]. Therefore, patient safety is a serious issue in healthcare globally. Medical errors refer to incidents that pose serious threats to the safety of patients because of their ability to negatively affect a patient's social, physical, emotional, and psychological well-being [6]. Strong and positive patient safety cultures significantly reduce the incidence of adverse patient events in healthcare organizations. An improvement in safety culture positively impacts commitment to recording and reporting safety issues among healthcare professionals [7]. Therefore, higher patient safety culture levels are associated with improved patient safety in healthcare organizations.

Despite the acknowledged significance of patient safety culture, there is a shortage of comprehensive research focused on the strategies and best practices for advancing it in Riyadh, Saudi Arabia. This gap in knowledge hinders the ability of healthcare leaders, policymakers, and practitioners to implement evidence-based interventions that can drive meaningful improvements in patient safety outcomes. Moreover, given the diverse nature of healthcare institutions in Riyadh, each facing unique challenges and possessing distinct organizational cultures, it is imperative to

identify context-specific approaches tailored to the local healthcare landscape. Therefore, a systematic review of the existing literature is essential to gather insights into the most effective strategies and best practices successfully employed in similar contexts. This research project aims to address this critical knowledge gap by systematically reviewing the existing literature to identify, synthesize, and evaluate the strategies and best practices for advancing patient safety culture in Riyadh, Saudi Arabia. The findings of this study will serve as a valuable resource for healthcare leaders, policymakers, and practitioners in Riyadh, enabling them to make informed decisions and implement targeted interventions to enhance patient safety culture and, consequently, the quality of care provided within the region.

1.2. Objectives

1.2.1. Research Objectives

The following objectives guide this systematic review of the literature:

Objective 1: To identify the extant patient safety culture strategies in Riyadh, Saudi Arabia.

Objective 2: To identify the impact of effective leadership and communication on patient safety culture in Riyadh, Saudi Arabia.

Objective 3: To assess patients' perspectives on patient safety culture in Saudi Arabia.

Objective 4: To identify best practices for advancing patient safety culture in Riyadh, Saudi Arabia.

1.2.2. Research Questions

RQ1: What strategies do healthcare organizations in Riyadh, Saudi Arabia, employ to promote a patient safety culture?

RQ2: How do leadership and effective communication contribute to developing and sustaining a positive patient safety culture in healthcare institutions in Riyadh, Saudi Arabia?

RQ3: What are the patient perspectives regarding patient safety culture in healthcare organizations in Riyadh, Saudi Arabia?

RQ4: What are the best practices for advancing patient safety culture in Riyadh, Saudi Arabia?

1.2.3. Significance of the Study

This study is significant as it comprehensively reviews patient safety culture within a specific and culturally unique healthcare context. It aims to enhance healthcare quality and patient outcomes in Riyadh by identifying effective strategies and guiding the implementation of best practices. This research is invaluable for healthcare leaders, policymakers, and practitioners, offering insights that can shape policies and improve the safety and quality of patient care. Its focused approach to Riyadh addresses the cultural nuances essential in the effective application of patient safety strategies. By contributing to academic literature and offering practical solutions, the study aims to advance healthcare quality in Saudi Arabia and foster a safer, more reliable healthcare environment for patients.

2. LITERATURE REVIEW

2.1. Patient Safety Culture

Patient safety refers to preventing and reducing medical errors that could harm patients during healthcare delivery [2]. It is among the fundamental contributors and

determinants of high-quality healthcare. Most patient harm cases result from preventable incidents [2]. Therefore, efforts to improve patient safety at all healthcare industry levels should focus on identifying areas where errors are most likely to occur and taking proactive steps to prevent them. A patient safety culture has been identified as key to promoting patient safety. Research indicates that a positive association exists between patient safety cultures and reduced adverse patient outcomes in healthcare organizations [2]. A patient safety culture is linked to several positive healthcare outcomes, including willingness among healthcare professionals to report errors, a reduction in medication errors, and patient satisfaction. A patient safety culture refers to collecting individual and group competencies, perceptions, values, behavior patterns, and attitudes that determine a healthcare organization's commitment to improving healthcare safety [4]. A patient safety culture can be promoted by creating a blame-free environment for medication error reporting and allowing healthcare providers across the organization to collaborate in the delivery of healthcare services [3].

Poor communication and blame culture were the leading factors in stifling a patient safety culture for countries in the Arabian Peninsula, including Saudi Arabia [7]. Responding to medication errors in healthcare organizations punitively can discourage healthcare providers from reporting errors [8]. Saudi Arabia currently lacks the healthcare organizational environment necessary to create a patient safety culture [8]. Nurses in Saudi Arabia were also found to fear reporting medication errors because of fear of being blamed. Another study showed that the Saudi healthcare landscape features communication issues between patients and healthcare providers, resulting in poor-quality care and preventable errors [3]. The communication problem results from cultural differences, workforce diversity, and language barriers. There has been a rise in the prevalence of claims and complaints against healthcare providers in the Kingdom of Saudi Arabia due to the morbidities and mortality associated with medication errors. The poor state of patient safety culture is further emphasized by [9], who found that of unexpected events that cause death or serious psychological and physical harm to patients, as reported by the Saudi Ministry of Health between 2012 and 2015, 91% were preventable [9]. This indicates that a patient safety culture would play an essential role in reducing the number of adverse events in healthcare in Saudi Arabia.

In this regard, therefore, the healthcare organizations in Riyadh, Saudi Arabia need to tailor comprehensive strategies that will draw towards them how best a culture of safety for patients can be developed. There is a need for put-in-place initiatives that will guarantee effective communication channels and bridge the cultural and language gap between healthcare teams' diversity and their patients [10]. On the other hand, to flip the coin, training programs or initiatives in relation to the importance of a transparent and non-punitive reporting system could also play a major role [11]. Healthcare organizations could also encourage open discussions on errors and near-misses, so that the personnel could identify the causes of these occurrences and develop systemic changes that would not allow possibilities of their recurrence [9]. In addition, leadership from such organizations has to actively market a culture of safety by ensuring that it walks the talk of commitment to safety through their action and policies. All

these could involve investments in state-of-the-art technology and systems, such as electronic health records and medication management systems, for them to reduce the chances of errors happening [12]. In addition, the collaboration of the policymakers, health providers, and the patients is essentially important in such a manner that the very essence of patient safety is fully embedded within the nature of health delivery in the Kingdom of Saudi Arabia. Hence, facing these challenges in the healthcare industry would place the Kingdom of Saudi Arabia on the road to great strides in reducing avoidable harm to patients while improving general quality care.

2.2. The Impact of Effective Leadership and Communication on Patient Safety Culture

Effective leadership and communication are cited as some of the most important factors influencing a culture of patient safety in healthcare organizations in Saudi Arabia. [13] conducted a study to examine the factors contributing to a culture of patient safety in Saudi Arabia. They identified leadership and effective communication as key determinants, with ineffective leadership and poor communication stifling efforts at achieving a culture of safety in Saudi healthcare organizations [13]. The findings of this study show that healthcare organizations in the kingdom need to ensure that they have effective leadership and open communication channels between healthcare providers to enhance the quality of care and promote patient safety.

In healthcare organizations, effective leadership is necessary to create an organizational culture favorable to patient safety. Effective leadership creates an organizational environment where healthcare providers can feel free to communicate with one another and share concerns, protecting patients from harm. Therefore, healthcare leaders who create a positive climate contribute to a reduction in medical errors and an improved safety culture [6]. Effective leadership is a key requirement for success in any setting. Leaders must lead by example, showing an unrelenting commitment to the organization's mission. In Saudi Arabia, healthcare leaders must instill a sense of vision in healthcare providers by instilling a sense of purpose and setting the tone for organizational direction [3]. They must promote a cohesive and positive work environment where communication is encouraged among providers. They must inform healthcare providers that asking questions is not only allowed but also required to ensure they are certain about the procedures and medications they administer to patients within healthcare organizations [14]. If the leadership makes a strong case for a culture of patient safety within healthcare organizations, there will be a dramatic improvement in patient safety within a short time [3].

One of the measures of a strong safety culture within healthcare organizations is employee willingness to speak up whenever something goes wrong, and leaders must support and create an environment that encourages speaking up to allow healthcare teams to learn from adverse events, unsafe conditions, and near misses [15]. Leaders can accomplish this feat by encouraging nonpunitive and transparent reporting where blame is eliminated, and the focus is on the faults that lead to adverse patient events to ensure they are not repeated [11]. Leaders, therefore, must lead change efforts to eliminate intimidation in healthcare organizations [14]. Tolerating unprofessional behavior in

the healthcare organization risks patient safety, and failing to address it transparently and fairly allows it to persist [3]. Healthcare leaders should recognize and reward healthcare workers who identify adverse safety events and create suggestions to improve safety. Leaders must foster effective communication to allow healthcare providers to understand what they are expected to do [12]. Organizations must have clearly articulated goals and lists of do's and don'ts in all care aspects. Organizational mission and vision must be clearly stated and reviewed regularly to meet evolving organizational needs.

Application of technology to the health leadership and communication strategies provides further yet another very important frontier towards the enhanced culture of patient safety [11]. Implementation of digital health tools in an organization will support electronic health records, telemedicine, and mobile health applications that will help attain accuracy within the domain of patient information to make it for real-time communication among the provider of healthcare and health data at the point of care [15]. Such a digital transformation would, therefore, see effective and better delivery of healthcare that avails comprehensive data systems to help in better decision-making, therefore reducing errors in the possibility and improving patient outcomes [15]. Success from such innovations demands leadership that is proactive in use and assures healthcare providers of proper training and support services in such new system adoptions. This would in a way encourage not just a culture of safety but a culture that meets the expectations of patients for integrated and more accessible health care services [15]. So, the leadership role is above the conventional approaches of communication and management by strategically including technology in order to respond to the challenges of the modern healthcare environment.

2.3. Patient Perspectives on Patient Safety Culture

The high prevalence of adverse medical events in the Kingdom of Saudi Arabia greatly impacts patient outcomes [5]. Many patients have reported experiencing harm during healthcare delivery in healthcare organizations in the kingdom. A study by [5] examined patient perceptions of safety culture in healthcare organizations in Saudi Arabia. There were various categories of patient-related problems. The researcher surveyed 730 patients. 11% of the participants reported that they experienced vaccine-related adverse medical events, while 27% stated that their safety problems were related to wrong diagnoses [5]. The study also showed that 26% of the patients reported mental health problems due to healthcare services they received, while 40% experienced financial problems [5]. The highest rate of safety problems as perceived by patients is related to diagnosis [5]. Diagnosis is an essential task in healthcare because it allows healthcare providers to determine the healthcare problems they need to address [5]. A misdiagnosis can be detrimental because the patient would be treated for a medical condition they are not suffering from, while the problem they have is left unaddressed [5]. Nevertheless, diagnostic errors are more prevalent than other error types in healthcare organizations, with most of them being preventable [5]. Diagnostic errors lead to considerable preventable patient harm.

Patients also perceived ineffective communication between patients and care providers as a leading safety problem, as

reported by 24.1% of the study participants. Several studies in Saudi Arabia have identified the issue of communication problems between patients and healthcare providers, especially expatriates, who make up about 61% of the nurses in Saudi Arabia [10]. Patient-centered interactions are important in delivering healthcare services. However, many expatriate nurses do not know Arabic and may have problems understanding patients, which results in adverse effects on the relationship between the provider and the patient and diminishes patient safety [10]. Communication barriers between healthcare providers and patients due to language barriers also impact medication management and the wellbeing of patients and the members of their families. Under many circumstances, expatriate nurses do not report medication errors for fear of punishment [16].

Subtler aspects of a patient safety culture would require delving into the manifold, complicated issues that are taking on health care settings. These are, therefore, much broader than the health outcomes at that point in time, as there is an inclusion of overall patients' trust and confidence in the system [10]. Here, healthcare infrastructure and available resources emerge as the prime factor that significantly influences patient safety culture, adding the risk of medical errors and adverse events by poor access to modern medical settings and the latest technology. [6] affirmed the necessity for continuing permanent education and training of health providers to take on the needed proactivity for further improvement of skills in accurate diagnoses, enhanced communication, and moving toward a model of care increasingly based on patients [10]. These are such critical actions in building a strong culture for patient safety, which does not only seek to address the identified gaps through patients but can also foresee challenges that might come with the changing nature of healthcare.

2.4. Best Practices for Advancing a Safety Culture in Healthcare Organizations

The systematic review and analysis of patient safety culture in Riyadh, Saudi Arabia, reveal several crucial factors influencing its advancement [17]. Ineffective leadership, a punitive approach to errors, inadequate staffing, and deficient communication are significant barriers to fostering a positive patient safety culture [17]. Conversely, encouraging results are found in elements such as supportive organizational attitudes, effective teamwork, and managerial support, all of which contribute positively to the culture of patient safety within healthcare institutions [12]. Notably, the absence of patient perspectives in assessing safety culture is a notable gap identified in the literature, urging for greater inclusion of patient voices in safety initiatives [3]. Additionally, it is underscored that establishing a blame-free environment and enhancing communication and leadership capacities is a pivotal strategy for advancing patient safety culture in Riyadh [12].

Continuous assessment emerges as a linchpin in this endeavor, allowing for tracking progress and identifying areas demanding attention within the healthcare system [12]. Within this context, the nursing perspective proves to be of particular importance. Nurses' perceptions of patient safety culture, with a specific emphasis on aspects like teamwork, organizational learning, and feedback regarding errors, play a pivotal role in shaping the culture of safety initiatives [3]. Furthermore, demographic factors significantly impact healthcare providers' awareness of patient safety culture,

underlining the importance of targeted training and awareness programs, particularly for specific age groups and genders [2]. Despite notable progress, areas such as nonpunitive response to error and staffing remain in need of improvement, indicating that there is still ground to cover in enhancing patient safety practices [12].

The safety culture of an institution is identified with a big relation to the organizational structure and individual behaviors [6]. However, a strong safety culture is not the absence of adverse events; it shows systems, policies, and practices of proactive programs that make patient safety a core value at all organizational levels [10]. Other aspects said to be the integration of the principles of safety into the running, day-to-day operations of the organization, engaged and empowered frontline staff [13]. This would include implementation of comprehensive safety training programs, conducting of regular safety audits, and willingly used channels of easy communication in the reporting of safety concerns without retribution [3]. It may leverage cutting-edge technology and analytics from data to help get value ahead of insights about the safety hazards for appropriate action [14]. The ethos of the organization must be that, in parallel to commitment to safety culture, leadership indeed has an important role in the modeling of safe behaviors and an environment for safety by everybody [12]. It has presented a journey that will require collective effort toward more improvement and a stand commitment to protecting the health of the patients and the health care personnel [18].

3. MATERIALS AND METHODS

3.1. Study Design

This research employs a systematic review methodology to comprehensively analyze existing literature on patient safety culture in Riyadh, Saudi Arabia. A systematic review is the most suitable approach as it allows for synthesizing a diverse range of studies to comprehensively understand the strategies and best practices for advancing patient safety culture within the region [4]. The study design is structured in such a manner as to allow for a robust examination of existing practices, strategies, and perspectives regarding patient safety culture in healthcare institutions in Riyadh, Saudi Arabia.

3.2. Data Sources and Search Strategy

A comprehensive search for research articles touching on patient safety culture was conducted across several academic databases. The study includes both qualitative, quantitative, and mixed-methods studies to provide a holistic view of patient safety culture in the region. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed [19], as well as those of JBI. The databases searched included PubMed, BioMed Central, and Scopus to obtain studies that involve patient safety culture, patient safety, and safety culture. The electronic search string used included: ((“patient safety”) AND (“safety culture”)) AND (“patient satisfaction”) OR (“client satisfaction”).

3.3. Inclusion Criteria

- Articles published between 2013 and 2023.
- Studies conducted in Riyadh, Saudi Arabia.
- The studies focused on patient safety culture, strategies for promoting patient safety culture, the state of patient

safety culture, the effects of a robust patient safety culture, and patient safety culture best practices.

- Studies must be published in English.

3.4. Exclusion Criteria

- Studies conducted outside Riyadh.
- Studies that focused on issues other than patient safety culture.
- Studies not published in English.
- Studies published before 2013.

3.5. Data Analysis

The process of data analysis for the systematic review followed a structured process of extracting, categorizing and synthesizing information from the literature selected. Data synthesis involved the identification of patterns, trends, and gaps in the extant literature on patient safety culture in Riyadh, Saudi Arabia. The analysis was guided by the research objectives and questions. The data collected was subjected to a thorough screening process, with the researcher reviewing each article to ensure it aligned with the inclusion and exclusion criteria for the research. The process involved examining the title, abstract, and full text of each of the articles included. Studies meeting the inclusion and exclusion criteria were retained to be analyzed further, while those that did not meet the criteria were thrown out.

The process of data extraction started after the identification of relevant studies. Key information, including strategies for patient safety culture, patient perspectives on safety culture, the impact of leadership and communication, and safety culture best practices, was systematically extracted. The process of data extraction ensured that all essential information would be captured in subsequent analyses. The data extracted was then categorized according to the defined research questions and objectives, allowing for a comprehensive examination of the various aspects of patient safety culture in Riyadh. Each category was analyzed independently to identify common themes, variations, and notable findings. Data synthesis involved a thematic analysis in which emerging trends and patterns were identified across the selected studies. The process allowed for an understanding of the strategic and best practices used to advance patient safety culture in Riyadh. It also allowed for an exploration of the impact of leadership and communication and unearthed patient perspectives on safety culture.

The data analysis process was concluded with a comprehensive narrative presenting the synthesized data, showing key themes, opportunities, and challenges related to patient safety culture in Riyadh, Saudi Arabia. The thorough data analysis process ensures that the study gives healthcare leaders, practitioners, and policymakers in Riyadh valuable and reliable insights for decision-making on matters of patient safety culture.

4. RESULTS

4.1. Results

A comprehensive database search yields a considerable number of scholarly articles regarding the culture of patient safety within the context of Saudi Arabian healthcare, where, initially, a total of 876 articles have been yielded. Very broadly, such a collection of scope underlined vital

interests and the extensive, ongoing research currently being taken up in the field of patient safety culture, more so in the detailed context of Saudi Arabia. From Figure 1 and Table 1, the systematic review describes vital dimensions that the patient safety culture focuses on in Saudi Arabia. The latter will include broader dimensions, such as the general status of patient safety culture in the country, the critical role played by leadership and communication toward fostering a safety culture within healthcare settings, the perceptions of the safety culture that patients have gone through, and the identification of best practices related to patient safety culture, specifically in Riyadh, Saudi Arabia.

Through a rigorous screening process, 12 studies were meticulously selected for inclusion in this review. All these studies contribute valuable insights to at least one of the study's research questions, thus ensuring such relevance and contribution to the general research objectives of the study. This is unique in these studies: They target a patient safety culture that holds the essence of all the components of delivering safe and quality healthcare services. Noting, therefore, is the focus on geography that these works place—Saudi Arabian and primarily reported in the English language, hence accessible and relevant for the wider international research community.

Many such studies focus on the capital and one of the biggest cities in Saudi Arabia, Riyadh. This is by no means a focus on Riyadh in the sense of coincidence but more so mirrors how this city is essential to the country's mosaic of health, with many of the best hospitals and medical institutions being based there. The literature in this review begins with studies analyzing interviews with health providers of Riyadh hospitals and a broader examination of the practices in patient safety culture inside the city. This focused lens will help us derive essential insights into specific challenges and opportunities currently available in Riyadh—a microcosm, to a certain extent, for reading broader trends in the patient safety culture across the balance of Saudi Arabia.

The Joanna Briggs Institute (JBI) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) tool guided the review's methodological rigor in the systematic review. It was argued that JBI assessment tools have more comprehensive criteria and allow only high-quality studies. At the same time, the PRISMA approach is a more structured and transparent guide for reporting systematic reviews. Figure 1 below clearly shows methodological rigor in the review process and gives a concise, exact brief on how the review moved from an initial 876 articles to include 12 studies.

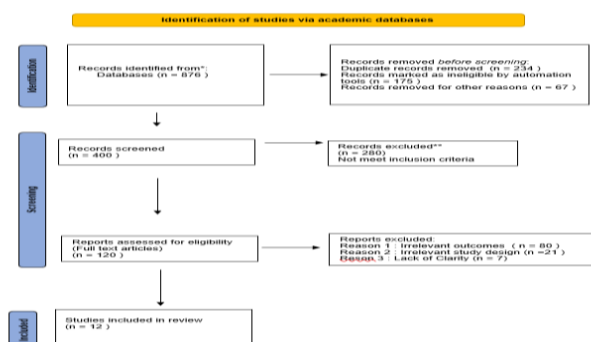


Figure 1: PRISMA Flow Diagram for the Identification of Studies.

Table 1 below shows the JBI assessment, which was used in analysing the methodologies of the studies chosen. These are the 12 studies that were included in the systematic review.

JBI Checklist

Table 1: JBI cross-sectional appraisal checklist for the outcomes of the critical appraisal of the literature (Y=Yes, N=No, NA=Not Applicable)

| Citations | Q1 | Q2 | Q3 | Q4 | Score |
|-----------------------------------|----|----|----|----|-------|
| Ahsan et al. (2019) | Y | Y | N | Y | 75% |
| Al-Amri and ALMendeil (2020) | Y | Y | Y | Y | 100% |
| Al-Surimi et al. (2021) | Y | Y | Y | Y | 100% |
| Albaalharith and A'aqoulah (2023) | Y | Y | Y | Y | 100% |
| Aljadhey et al. (2016) | Y | N | NA | Y | 50% |
| Almutairi et al. (2023) | Y | Y | N | Y | 75% |
| Alnasser et al. (2020) | N | Y | Y | Y | 75% |
| Alotaibi et al. (2020) | Y | Y | Y | Y | 100% |
| Alquwez et al. (2018) | Y | Y | Y | Y | 100% |
| Alsulami et al. (2022) | Y | Y | Y | Y | 100% |
| Alswat et al. (2017) | N | Y | Y | N | 50% |
| El-Jardali et al. (2014) | Y | N | Y | Y | 75% |

The outcomes of the critical appraisal offer insights into the methodological strengths and weaknesses of each of the studies, providing a firm foundation for subsequent synthesis and interpretation of the results. Table 2 below shows the general characteristics of the studies included in the systematic review.

Table 2: General Characteristics of the Studies Included in the Systematic Review

| No# | Title | Author | Date | Country | Study Type | Sample size | Source | Study Approach | Results | Limitations |
|-----|---|---------------------|------|---------------------|-----------------------|-------------|----------------|----------------------------|--|---|
| 1 | A comparison of patient safety culture at two campuses of Riyadh based dental college | Ahsan et al | 2019 | Riyadh-Saudi Arabia | Cross-sectional study | 149 | PubMed | Questionnaire-based survey | The study found a variation in the perception of patient safety culture among professionals, with significant differences in teamwork, staffing, and management's responsiveness to safety suggestions between the two campuses. | This study's limitations include potential response bias due to its subject-based design, a small sample size, absence of comparison between respondents' general characteristics like gender and their perceptions, and the inability to conduct a multi-center study. |
| 2 | Nurses' Perceptions of Patient Safety Culture at King Khaled Nurses' Perceptions of Patient Safety Culture at King Khaled University Hospital, Saudi Arabia | Al-Amri & ALMendeil | 2020 | Riyadh-Saudi Arabia | Descriptive Study | 199 | BioMed Central | Questionnaire | Teamwork was found to significantly improve nurse perception of patient safety culture. | This pioneering study examines patient safety at KKHU in Saudi Arabia. Broader research is needed to assess the findings' accuracy. Riyadh was chosen for this study because of its hospital concentration and limited time and money for data collection. Covering Saudi Arabia's vastness is difficult. Thus, the findings should be applied cautiously to a wider context. |

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| 3 | Level of Patient Safety Culture Awareness Among Healthcare Workers | Albaalharith & A'aqoulah | 2023 | Riyadh-Saudi Arabia | Descriptive cross-sectional quantitative study | 204 | PubMed | Questionnaire | The study indicated a low overall awareness of patient safety culture among healthcare workers, with moderate scores only in teamwork, organizational learning, and communication about errors. | The survey was done in Riyadh, Saudi Arabia, and may not be representative of the country's general tendency. Another constraint is that all participants were from the same city in Riyadh, which restricts the generalizability of the results. Online data collecting often presents distinct obstacles, including low response rates and difficulty in reaching older age groups. |
| 4 | Culture of Safety among Nurses in a Tertiary Teaching Hospital in Saudi Arabia | Aljadhey et al. | 2016 | Riyadh-Saudi Arabia | Cross-sectional study | 418 | Scopus | Questionnaire | Out of 492 nurses surveyed, 418 responded (84.9%). Most were staff nurses with ≥ 20 years of experience. Job satisfaction was the top safety culture aspect, followed by working conditions, safety, and teamwork. Stress recognition and management perception were least common. | The data only pertained to nurses in a specific academic practice scenario, hence the findings may not be applicable to nurses in different hospitals in Saudi Arabia. |
| 5 | Saudi Nurses Perception regarding Patient Safety in a Major Tertiary Hospital | Alotaibi et al. | 2020 | Riyadh-Saudi Arabia | Cross-sectional study | 215 | Scopus | Survey | The study revealed a moderate perception of patient safety among nurses, with the highest scores in "Hospital Management Support for Patient Safety" and the lowest in "Teamwork Across Hospital Units." | The study focused solely on nurses, but include other participants like physicians and healthcare professionals could yield valuable data, as patient safety is a shared responsibility among all healthcare providers. |

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| 6 | Patient safety culture awareness among healthcare providers in a tertiary hospital in Riyadh, Saudi Arabia | Alsulami et al. | 2022 | Riyadh, Saudi Arabia | Cross-sectional study | 409 | PubMed | Questionnaire | The study found a moderate level of awareness of patient safety culture among healthcare professionals. | Saudi Arabian tertiary hospitals hosted the study. Thus, Saudi Arabia's healthcare industry is not fully covered by the findings. Healthcare practitioners who are not active on social media and the internet were excluded from the study. |
| 7 | Improving patient safety culture in Saudi Arabia (2012–2015): trending, improvement and benchmarking | Alswat et al. | 2017 | Riyadh, Saudi Arabia | Descriptive Study | 1 | BioMed Central | Survey | In 2015, "Teamwork within Units" and "Organizational Learning" were strengths, needing improvement were "Non-Punitive Response to Error" and "Staffing." Compared to 2012, there was progress in some areas, but "Non-Punitive Response to Error" and "Staffing" still scored lowest. | The authors of this study do not identify its limitations. |
| 8 | Patient safety culture in a large teaching hospital in Riyadh: baseline assessment, comparative analysis and opportunities for improvement | El-Jardali et al. | 2014 | Riyadh, Saudi Arabia | Cross-sectional study | 2572 | BioMed Central | Questionnaire | Areas of strength included teamwork, organizational learning, and continuous improvement. Areas that required improvement included hospital non-punitive response to errors, communication openness, and staffing. | This study is the first to compare outcomes in the region and the comparative analysis component highlights similarities and differences between findings in KSA, Lebanon, and the USA. The comparative analysis necessitated collecting comprehensive data from each country regarding the percentage of |

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|----|---|-----------------|------|---------------------|-----------------------|-----|--------|---------------|--|--|
| | | | | | | | | | | affirmative answers and the sample size. Comprehensive data was provided for the sample sizes of the composites in Lebanon and KSA, but not for the USA. |
| 9 | Nurses' Perceptions of Patient Safety Culture in Three Hospitals in Saudi Arabia | Alquwez et al. | 2018 | Riyadh-Saudi Arabia | Cross-sectional study | 351 | PubMed | Questionnaire | This study's findings elucidate the present state of patient safety culture in three hospitals in the Kingdom of Saudi Arabia. Only two out of the 12 patient safety areas were rated positively by nurses. Implementing suitable interventions, like staff-to-patient safety culture orientation and an efficient incident reporting system, can significantly impact nurses' opinions of patient safety culture. | The study employed convenience sampling, potentially restricting the study's generalizability. The unequal distribution of samples from each hospital is attributed to the poor response rates in two hospitals, potentially impacting the study outcomes. The study used self-reported questionnaires, perhaps leading to biased results. The study did not explore potential connections between the predictor variables as it focused solely on the influence of these variables on patient safety. |
| 10 | Patients' knowledge, awareness, and attitude regarding patient safety at a teaching hospital, | Alnasser et al. | 2020 | Riyadh-Saudi Arabia | Cross-sectional study | 412 | PubMed | Questionnaire | The study identified a flaw in the error reporting system that patients were unaware of how to utilize. Many patients were found to have insufficient information of their medication , with 47.8% attributing this to inadequate counselling. The current study's | This study was carried out in a single teaching hospital, thereby limiting its generalizability to the intended group. Three qualified patient safety consultants validated our questionnaire, but |

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|----|---|------------------|------|---------------------|-----------------------|-----|--------|--------|---|---|
| | Riyadh, Saudi | | | | | | | | findings indicate that involving patients in the healthcare delivery process can enhance patient safety. | several questions were subjective. |
| 11 | Road towards promoting patient safety practices among hospital pharmacists | Alsurimi et al. | 2021 | Riyadh-Saudi Arabia | Cross sectional study | 384 | PubMed | Survey | The grades obtained by pharmacists in Riyadh for the domains of patient safety culture are below the expected standard, as indicated by our data. Teamwork received the best scores, while staffing, work pressure, and pace received the lowest scores. Pharmacists working in government hospital settings generally have a more favorable view of patient safety compared to pharmacists in other settings. Gender has no impact on the sense of patient safety. | The survey did not consider the participants' personal experiences of pharmaceutical adverse events and how these relate to their assessment of the safety cultural environment. Although participants did not express any apprehension regarding completing the survey ,they may have encountered challenges in providing responses. |
| 12 | Analyze and identify the patient safety culture and possible predictors and areas for improvement related to patient safety culture of Saudi Arabia | Almutairi et al. | 2023 | Riyadh-Saudi Arabia | Cross sectional study | 100 | Scopus | Survey | The survey revealed that the most positive response rates were for teamwork, patient counselling, and physical surroundings. The factors with the lowest favourable reaction rates were staffing, job pressure, and speed, followed by communication openness. The Positive Response Rate varies based on several patient safety factors and shows the overall findings for the patient safety grade reported by the community pharmacies in the study. | The authors of this study do not identify its limitations. |

5. DISCUSSION

This section engages with the results of the synthesis of the research articles included in the systematic review to provide a detailed account of patient safety culture in Riyadh, Saudi Arabia. The fourteen studies provide important knowledge by addressing the state of patient safety culture, the impact of leadership and communication on patient safety culture, patient perceptions of patient safety culture, and the best practices for promoting a patient safety culture in healthcare organizations.

5.1. Patient Safety Culture

The pursuit of a robust patient safety culture in Riyadh, Saudi Arabia, presents a nuanced landscape, as evidenced by various studies that offer a multi-faceted view on the strategies and current status of patient safety within the region. Research provides some of the effective strategies and commendable progress made toward cultivating a culture of patient safety [12]. These studies underscore the importance of systematic approaches, including continuous training, transparent reporting mechanisms, and the integration of patient safety into the core values of healthcare institutions [12]. Such measures are pivotal in fostering an environment where safety protocols are not only adhered to but are also continuously evaluated and improved upon.

Conversely, findings by [10] and [12] highlight the formidable challenges that impede the advancement of a patient safety culture. These challenges range from limited resources, insufficient training, and a lack of awareness about patient safety protocols, to deeper systemic issues such as hierarchical organizational structures that may deter open communication and reporting of near-misses or adverse events [12]. The discrepancy in these findings underscores the complexity of instilling a patient safety culture, emphasizing that it is a multifaceted endeavor requiring unwavering commitment from healthcare leaders and the implementation of targeted, strategic interventions.

Patient safety, defined as the mitigation and prevention of medical errors that could potentially harm patients during the provision of healthcare [3], stands as a cornerstone of high-quality healthcare services. A significant proportion of patient harm incidents are preventable, pointing to a critical need for healthcare systems to prioritize the identification of error-prone areas and the implementation of preemptive measures to curb such incidents [7]. This necessitates a paradigm shift towards a proactive approach in managing patient safety, moving away from a reactive stance that addresses issues post-occurrence.

Cultivating a patient safety culture is recognized as a pivotal element in this endeavor. A strong safety culture is characterized by collective values, attitudes, competencies, and behaviors that prioritize safety in every healthcare operation [12]. It involves the active participation of all stakeholders, including healthcare providers, administrative staff, and patients themselves, in a concerted effort to uphold safety standards [14]. Such a culture promotes an environment where healthcare professionals feel empowered and obligated to report safety concerns without fear of retribution, thereby facilitating open dialogue and continuous learning.

The journey toward a pervasive patient safety culture in Riyadh necessitates a comprehensive strategy that encompasses education and training, policy development, leadership engagement, and the establishment of a non-punitive environment that encourages reporting and transparency [12]. Moreover, leveraging technology and data analytics to monitor patient safety indicators can provide invaluable insights for targeted improvements [3]. As Riyadh continues to navigate these challenges, the commitment to patient safety must remain paramount, with ongoing evaluation and adaptation of strategies to ensure that healthcare delivery is safe, effective, and patient-centered.

5.2. The Impact of Effective Leadership and Communication on Patient Safety Culture

Effective leadership and communication are cited as some of the most important factors influencing a culture of patient safety in healthcare organizations in Saudi Arabia. [15] conducted a study to examine the factors contributing to a culture of patient safety in Saudi Arabia. They identified leadership and effective communication as key determinants, with ineffective leadership and poor communication stifling efforts at achieving a culture of safety in Saudi healthcare organizations. The findings of this study show that healthcare organizations in the kingdom need to ensure that they have effective leadership and open communication channels between healthcare providers to enhance the quality of care and promote patient safety. The research points to leadership as a pivotal factor that influences patient safety culture. Studies [6]; [11] place an emphasis on the role leadership plays in shaping organizational culture and creating a conducive environment for the development of a patient safety culture. Effective communication has been shown as an essential factor in promoting accountability and transparency [2], [18], contributing to the development of a patient safety culture. When communication is encouraged between members of the multidisciplinary healthcare team, near misses and errors can be easily reported, allowing for actions to be taken to address them to improve patient safety. In this manner, effective communication creates an enabling environment for a patient safety culture to thrive. [11] state that leadership training programs and fostering effective communication are essential strategies for promoting a patient safety culture.

In this respect, the study brings out that the health leader should be the one who not only listens, responds, and adapts with feedback and concerns from the health team but also gives direction and guidance. This dynamic, responsive style of leadership would, in a sense, encourage an environment in the workplace where the staff was comfortable and secure enough to report concerns of possible risks without fear of retribution [15]. In effect, mental models form mutual understanding built on the patient's safety goals but do not exchange information [14]. The integration of regular safety briefings, multidisciplinary team meetings, and transparent incident reporting systems in the fabric of healthcare organizations is with the aim that these theoretical concepts of leadership and communication translate themselves into very concrete actions that not only protect the patient but also empower the provider of health care [3]. This is an important translation from theory into practice in order to develop a pervasive culture of patient

safety, wherein every member is constantly trying to provide the safest care possible.

In synthesizing these insights, it becomes evident that the interplay between astute leadership and effective communication forms the bedrock of a robust patient safety culture. Healthcare organizations in Saudi Arabia are thus impelled to prioritize the development of leadership competencies and the establishment of open, transparent communication channels [14]. Such strategic focus not only promises to advance patient safety outcomes but also contributes to the overall improvement of healthcare delivery systems [3]. As these studies collectively suggest, the path to a pervasive patient safety culture is intricately linked with the quality of leadership and the efficacy of communication within healthcare settings.

5.3. Patient Perspectives on Patient Safety Culture

The insights gained on patient perceptions of safety culture in Riyadh, Saudi Arabia, reveal that patient perceptions are a complex phenomenon. Some studies [7], [8] indicate that patient perceptions of safety culture are positive, while [10] show that patients perceive safety culture to be grossly lacking in Riyadh hospitals, showing that healthcare leaders in these hospitals still have a lot of work to do in promoting a patient safety culture to promote patient safety and satisfaction [13]. Understanding the perspectives of patients is fundamental because they are the consumers of healthcare services [9]. Therefore, they are the most effective people to assess the level of patient safety culture in healthcare organizations. Healthcare organizations in Riyadh, Saudi Arabia, must engage patients and seek their feedback to continue improving a culture of safety within their Organizations.

The high prevalence of adverse medical events in the Kingdom of Saudi Arabia greatly impacts patient outcomes. Many patients have reported experiencing harm during healthcare delivery in healthcare organizations in the kingdom. A study by [15] examined patient perceptions of safety culture in healthcare organizations in Saudi Arabia. There were various categories of patient-related problems. The researcher surveyed 730 patients. 11% of the participants reported that they experienced vaccine-related adverse medical events, while 27% stated that their safety problems were related to wrong diagnoses. The study also showed that 26% of the patients reported mental health problems due to healthcare services they received, while 40% experienced financial problems. The highest rate of safety problems as perceived by patients is related to diagnosis. Diagnosis is an essential task in healthcare because it allows healthcare providers to determine the healthcare problems they need to address. A misdiagnosis can be detrimental because the patient would be treated for a medical condition they are not suffering from, while the problem they have is left unaddressed [15]. Nevertheless, diagnostic errors are more prevalent than other error types in healthcare organizations, with most of them being preventable. Diagnostic errors lead to considerable preventable patient harm.

These findings indicate that there is an urgent need for healthcare institutions in Riyadh, Saudi Arabia, to prioritize patient-centric approaches and transparent communication strategies to enhance the safety culture. The divergence in patient perceptions emphasizes the importance of

personalized care and the need for healthcare providers to be more attuned to individual patient experiences and concerns. The disparity in patient experiences suggests a gap in the implementation of safety protocols and patient engagement strategies. By fostering an environment that values patient feedback and actively involves patients in safety initiatives, healthcare organizations can better identify areas for improvement and implement targeted interventions [15]. This approach not only helps in addressing the specific concerns raised by patients but also contributes to building trust and confidence in the healthcare system. Furthermore, enhancing education and awareness among patients about safety practices and their rights within the healthcare system can empower them to be more proactive in their care, leading to improved health outcomes and a stronger safety culture. Integrating patient perspectives into the development and evaluation of safety protocols ensures that these measures are relevant, effective, and conducive to creating a positive and safe healthcare environment for all.

5.4. Best Practices for Advancing a Safety Culture in Healthcare Organizations

Several healthcare organizations in Riyadh have implemented best practices that have allowed them to develop a patient safety culture successfully. Several studies [2]; [14] show that educational initiatives, the implementation of evidence-based guidelines, and continuous quality improvement are important in advancing a culture of patient safety [13]. Therefore, healthcare organizations in Riyadh can promote a patient safety culture by educating their staff on safety, fostering effective communication, and having effective leaders who can guide the organization toward the shared vision of achieving a patient safety culture.

Continuous assessment emerges as a linchpin in this endeavor, allowing for tracking progress and identifying areas demanding attention within the healthcare system [12]. Within this context, the nursing perspective proves to be of particular importance. Nurses' perceptions of patient safety culture, with a specific emphasis on aspects like teamwork, organizational learning, and feedback regarding errors, play a pivotal role in shaping the culture of safety [7]. Furthermore, demographic factors significantly impact healthcare providers' awareness of patient safety culture, underlining the importance of targeted training and awareness programs, particularly for specific age groups and genders [2]. Despite notable progress, areas such as nonpunitive response to error and staffing remain in need of improvement, indicating that there is still ground to cover in enhancing patient safety practices [12].

Furthering the culture of safety within organizations in healthcare, much less in a place like Riyadh where most establishments are only beginning to have fruits born out of such efforts, is a multi-pronged approach grounded in continuous learning, good communication, and leadership with unflagging commitment to precepts of safety [7]. This will prepare professionals to be able to navigate effectively and safely within complex healthcare environments through such educational efforts [13]. This, therefore, ensures that whatever is done on a daily basis in practice as health professionals is guided by the most current and reliable research [9]. The organization further places in position the continuous quality improvement processes to adapt and evolve in a manner that they are consistent with keeping

patient safety preeminent in organizational operations [14]. This would call for visionary leadership and, at the same time, very inclusive in such a way that there is a definite assurance that every team member is bound to feel valued and empowered in contributing toward this culture of safety [13]. Such leading leadership and role-modeling such leadership are also some of the catalysts to the breakdown of silos in organizations, enabling cross-disciplinary collaboration and making sure the vision of the patient's safety culture as a shared goal lived in reality [10].

Moreover, the place of the worthy continuous assessment and valuable insights of the nursing personnel is not to be left in the pursuit of consolidating a culture of safety within health facilities [6]. These regular assessments give entities the ability to gauge the level of progress made, identify areas where interventions are needed, and focus on improvement [2]. The perspective of the nurse, who is usually at the front of seeing to the needs of patients, could be one critical view from which one could determine if the said initiatives were effective. The opportunities that arise in shaping the safety protocols further and implementing from the organizational learning of the dynamism of teamwork in the frontline experiences [2]. From the above, it is evident that there are differences registered in the perception of patient safety culture according to demographics [13]. This highlights a need to elaborate on the development of particular training programs for health professionals that will take into account divergent personal and professional backgrounds [14]. These challenges now entail ensuring a working environment for the reporting of mistakes without punitive action, and that staffing levels are also in place to give care of good quality [11]. This stage progresses to show these domains as paramount areas that lead to more development and highlights the continued nature of commitment toward a culture of safety in healthcare [6].

5.5. Limitations

One limitation of the study is that it is susceptible to publication bias through its focus on published studies. The study risks overlooking gray or unpublished literature. This bias could impact the representativeness and comprehensiveness of the findings, potentially skewing the assessment of patient safety culture in Riyadh, Saudi Arabia. Besides, the exclusion of studies published in languages other than English introduces language bias and limits the review's scope. Relevant insights captured in studies in Arabic may be omitted, rendering the findings of the systematic review non-generalizable.

6. CONCLUSION

This systematic review comprehensively examines patient safety culture in Riyadh, Saudi Arabia, drawing insights from Eleven research studies. After synthesis, the research points to progress and challenges in achieving a culture of patient safety in Riyadh, Saudi Arabia. The fact that some articles show progress while others show obstacles sheds light on the complexities associated with cultivating a culture of patient safety in healthcare organizations. Effective leadership and communication are shown to be essential in promoting a culture of patient safety. Effective leadership is important to shape organizational culture and align it with the goal of achieving a patient safety culture. Effective communication, on its part, promotes accountability and transparency. Therefore, it is important

for healthcare organizations to implement leadership training programs and communication skills training to advance a patient safety culture.

Patient perceptions of a culture of safety show that there is still work to be done to improve the safety of healthcare and patient satisfaction so patients can perceive a culture of safety within healthcare organizations. Healthcare organizations should engage patients in a dialogue about safety so they can get feedback on the effectiveness of their initiatives aimed at improving a patient safety culture and areas in which they need to improve. Incorporating patient feedback can reduce the cost and increase the speed at which healthcare organizations achieve a patient safety culture. Identifying best practices, such as educational initiatives, continuous quality improvement, and evidence-based guidelines, offers an effective means of advancing patient safety culture in healthcare organizations in Riyadh, Saudi Arabia. Education is an indispensable tool in the efforts to promote a culture of safety. Implementing evidence-based guidelines shows a commitment to continuous improvement.

6.1. Recommendations and Future Directions

Several recommendations can be made based on the ideas obtained from the systematic review of patient safety culture in Riyadh, Saudi Arabia. The first recommendation is for healthcare organizations to invest in leadership development programs. Such programs would give healthcare leaders the skills, knowledge, and abilities they need to lead change toward a culture of patient safety. The training programs should enhance the importance of creating an environment that allows for collaboration and transparency. Second, healthcare organizations should foster effective communication and make it clear that error reporting is meant to provide all healthcare providers with knowledge of areas where errors are likely to occur and not to punish the healthcare provider. In this manner, healthcare providers would feel encouraged to report medical errors and near misses, allowing for the development of effective strategies to prevent them in the future and foster a culture of patient safety. Third, healthcare organizations should implement educational initiatives for their healthcare providers to train them on patient safety. Such programs should teach healthcare providers how they can ensure patient safety in their operations and encourage them to ask questions whenever they are not sure about the procedures they want to perform on patients or the medications they need to administer. Fourth, patient safety should be incorporated into regulatory frameworks. Guidelines and standards that emphasize patient safety culture should be created. Regulatory frameworks should provide incentives to healthcare organizations to invest in initiatives that promote a culture of patient safety.

Future studies should be longitudinal in nature to track the progress of patient safety culture development in Riyadh. Such studies would allow for an understanding of whether patient safety culture is improving or declining. The generalizability of the findings can also be enhanced by conducting cross-regional studies to provide a more holistic understanding of patient safety culture in Saudi Arabia. Unpublished research and gray literature should also be incorporated in future research to ward off publication bias. In this manner, a more comprehensive synthesis of available

evidence would be obtained, thus minimizing the risk of selective reporting.

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