Original Research Article

Medical and Medication errors incidence and its relation to psychological stressors among nurses in Jeddah

ABSTRACT

Aim: This review aimed to assess the correlation between nurses' exposure to psychosocial stressors and the occurrence of medical errors in some hospitals of Jeddah and its correlation to other hospitals. **Methods:** The study utilized a range of approaches. To conduct a thorough literature search, a total of five databases were employed. ~~The notion of health literacy has been comprehensively delineated, for the main psychological factors that affect nurses to cause more medical errors~~. **Results:**Using date filters, we ensured that the literature we retrieved was accurate and up to date for the last 5 years across all databases to ensure updated deep analysis evidence to find that from total 6019 studies, only seventeen studies were relevant to this review to be analyzed and discussed.**Conclusion:** Research has demonstrated that medical errors constitute the most widespread kind errors, posing a significant risk to patient safety. Many psychological factors are concerned with raising rates of errors among nurses. The implementation of proactive methods has been shown to be a successful approach in mitigating medical errors within healthcare settings.

Keywords: Medical errors – Mediation errors – Psychological stressors - Nurses – Jeddah - Saudi Arabia

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1. INTRODUCTION

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The occurrence of medical errors presents a substantial threat to the safety of patients and is widely acknowledged as a pervasive concern within the healthcare industry (Schroers *et al*., 2021). Around 10% of patients encountered harm during their hospitalization due to medical errors, with approximately 7% of these incidents culminating in a fatal outcome (Abbas *et al*., 2021). There was a significant increase in the occurrence of negative outcomes attributed to medical errors, with the ranking shifting from the eighth to the third main cause of mortality between 1999 and 2008. Based on a study published in 2016, it has

been shown that medical error ranks as the third leading cause of mortality in the United States, following cardiovascular disease and cancer (Goodwin *et al*., 2019).

There is a diverse array of medical errors that encompasses a spectrum of severity, ranging from minor to catastrophic (Ozer *et al*., 2019). According to research by the Institute of Medicine, hospitals in the United States experience around 400,000 occurrences of preventable patient damage each year, which can be attributed to medical errors. Furthermore, it has been projected that a substantial proportion of individuals receiving care in hospitals, estimated to be between 44,000 and 98,000, have fatal outcomes annually as a result of medical errors (Mekonen *et al*., 2020). The yearly financial outlay associated with these mistakes totals 3.5 billion dollars, leading to an average expense of 8,000 dollars each instance of error. Medical errors possess the capacity to not only lead to patient mortality but also contribute to extended hospital stays and increased healthcare expenditures (Isik *et al*., 2012). Moreover, all elements have the ability to contribute to the incidence of pharmacological failures, which may ultimately lead to adverse consequences for the overall health and welfare of the patient (Kwon *et al*., 2021).

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Medical errors can arise as a result of both human errors and systemic deficiencies. However, the impact of these factors on healthcare professionals is highly significant. Human error has been identified as the cause of around 80% of adverse occurrences that transpire within intricate health-care systems (Harrison *et al*., 2015). Numerous research investigations have revealed a significant association between work-related stress and an increased vulnerability to various mental and physical health conditions among employees (Mekonen *et al*., 2020). The career of medical staff, specifically nurses, requires a high level of attention to the needs of patients and their families, which adds to the inherent stress connected with their role (Ünver and Yeniğün, 2020). The potential consequences of stress on cognitive processes may result in a decrease in an individual's overall performance (Alharbi *et al*., 2020).

The primary factor contributing to medical errors is commonly ascribed to defective systems and improperly planned processes, rather than inferior practices or inept healthcare practitioners. Furthermore, it is crucial to recognize that stress primarily manifests as a psychological issue (Kakemam*et al*., 2019). The investigators utilized a theoretical framework to measure and evaluate the psychological consequences of the workplace setting. There are two distinct models available for assessing stress that arises from psychosocial factors. These models are known as the demand-control model and the effort-reward imbalance (ERI) model. The ERI model lays considerable attention on the allocation of effort and the configuration of rewards within the work context. Efforts refer to the job demands and obligations that are imposed on the employee (Schuster and Dwyer, 2020; Al Balushi *et al*., 2021).

2. methodology

Protocol

All the collected studies were selected according to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines that were set and revised before ~~for~~ formulating systematic reviews, asking a specific question based on the Participants, Intervention, Control, Outcome (PICO) model and its framework was as listed:

- (P) Participants: nurses who are eligible for psychological stressors.
- (I) Intervention: performing and implementing programs to investigate medical errors.
- (C) Control: Well assessed reducing medical errors with positive results.
- (O) Outcome: Perfect and efficient nurses with less medical errors.

The elements of the review targets were defined in this review: "nurses", "nursing profession", "psychosocial stressors", "stress", "burnout", "fatigue", and "medical errors" were all included in the medical subject headings (MeSH). More Synonymous key words had been utilized. In the WOS, the search terms were: nursing stress and psychological stressors and medical errors.
Selected articles were published from 2011- 2023.

The following table presents the database search terms in this systematic review.

Inclusion criteria:

- English Language only (not translated)
- Past 12 years.
- Topics relevant to this search terms and related to nursing stress ~~and~~ psychological stressors and medical errors.
- Topics relevant to nursing and medical errors.

Exclusion criteria:

- Studies in contexts other than nursing stress ~~and~~ psychological stressors and medical errors.
- Studies in prenatal period.
- Studies in contexts other than original papers of English language, and past 12 years except for five studies.
- Any review articles, systematic, scoping, or narrative reviews.

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I relied on the following databases as the main data sources: Medline, CINAHL, Psych info,Saudi Digital Library, Science Direct, Cochrane Central Register of Controlled Trials (CENTRAL), and PubMed, using the Boolean operators (AND, OR, NOT) which included: 6109 citations, it were2145 from Medline, and 1906 from CINAHL, 1059 from PubMed, 612 from CENTRAL, 114 from Psych info, and 273 from Science Direct.

Then, screening the results, papers other than English and duplicates, and systematic review, meta-analysis were removed and revealed that 83% (5070) of these retrieved studies had been neglected, with filter of date 16.4% (983) studies were excluded. 101 papers retained for further observation.

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Data Extraction and Analysis

The data were extracted and analyzed via the reviewer who effectively and firstly extracted data from full texts of the included and selected articles, involving general information, introduction, site of studies, and criteria of choosing the quality management system and authority that relied on during the whole study, analytical methods, type of guidelines used, discussion of these data conclusions, future perspectives, and studies limitations. Discussion between the two reviewers cleared up the confusion about the studies' eligibility to get the most reliable and eligible results to be discussed later as revised by Clendon and Gibbons (2015) Assessment.

Risk of Bias of Articles

The author employed the Agency for Healthcare Research and Quality (AHRQ) checklist for RioB assessment in Comparative Effectiveness Reviews. This checklist was utilized to acknowledge and consider assumptions and limitations when evaluating the validity and generalizability of the research findings.

3.Results

About 5070 excluded for full text not available, which were then reviewed for relevance, with 983 articles were evaluated for quality after screening, then they were evaluated for relevance. 134 excluded as not relevant to search terms, while 808 excluded on final, and full screening due to methodological, and design problems. A total of 17 articles were reviewed for relevance after being narrowed down to those with titles that most closely resembled the original search term.

Prisma Flow Diagram

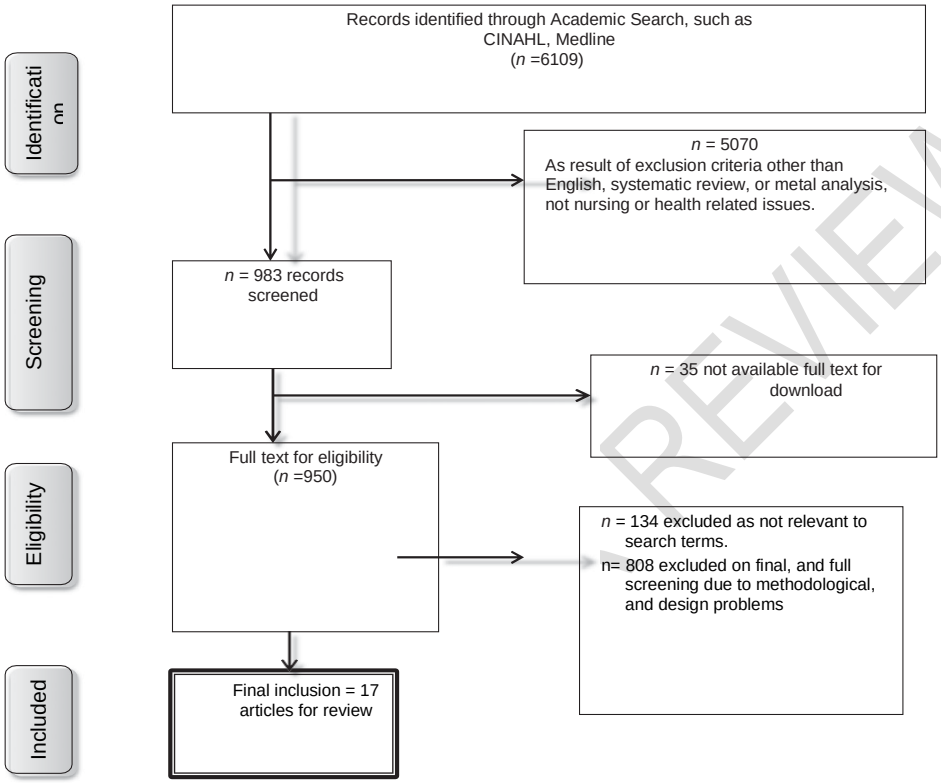

Figure 1 The PRISMA chart tool used in this scoping review

The following table summarizes the total seventeen studies matrix to illustrate the main findings and aims included in this review,

Table 1. The six study results' matrix

Comment [AS10]: ?

Author	Aim of the study	Location	Main findings
Alandajani*et al*. (2022)	This study examines the knowledge and attitudes of nurses in Saudi Arabia regarding medication errors and the factors that are connected with them.	Jeddah, Saudi Arabia	It was also shown that individuals who had not attended a medication error reduction (MER) training course, possessed inadequate knowledge, and held a negative attitude were more likely to be related with medication errors. The data indicate a significant occurrence of medication errors among nurses in Saudi Arabia, and the highlighted factors could be taken into account to address this crucial health issue.
AL Qrishah (2017)	To examine the parameters correlated with the incidence of medication errors (ME) at Ministry of Health institutions in Saudi Arabia.	Saudi Arabia	Multiple variables contribute to ME, with unclear or illegible drug orders or prescriptions being the most relevant. This study has found various additional elements in Saudi Arabian hospitals that contribute to medication errors. Subsequent research should focus on developing suitable solutions to mitigate these errors.
Sabanciogullari*et al*. (2021)	to assess the degrees of compassion among clinical nurses and examine the potential correlation between their compassion levels and the occurrence of medical errors.	Turkey	The occurrence of medical errors among nurses exhibited a decline in correlation with an elevation in their levels of compassion. Furthermore, the degree of compassion demonstrated by nurses emerged as a significant predictor of their likelihood to commit medical errors.

ESKİCİ and BAYDIN (2023)	to elucidate the perspectives, encounters, and dispositions of nursing students regarding medical errors.	Turkey	The findings of this study demonstrate that there is a significant level of knowledge among students regarding medical errors and the criticality of reporting such errors. Furthermore, in the survey conducted, a significant number of students said that they did not commit any medical errors throughout their clinical practise. However, these students also indicated that the primary culprits responsible for the majority of medical errors were doctors and nurses.
Garrouste-Orgeas*et al*. (2015)	they conducted an evaluation to determine the potential impact of burnout, symptoms of depression, and safety culture on the occurrence of medical errors and adverse events. The selection of these events was based on the utilisation of Delphi methodology.	France	The presence of symptoms related to depression was identified as a distinct and autonomous factor contributing to the likelihood of medical errors. There was no observed correlation between burnout and medical mistakes. The impact of the safety culture score on medical errors was found to be restricted. Additional independent risk factors for medical errors or adverse events were found to be associated with the organisation of the intensive care unit (ICU), specifically with 40% of ICU staff being absent from work on the preceding day.
Isik *et al*. (2012)	identifying medical errors in hospital services and exploring potential preventive approaches to mitigate these errors,	Turkey	Possible reasons of medical errors include healthcare professionals such as physicians and nurses, the work environment, and issues related to communication.

	specifically from the viewpoint of nurses.		
Bam *et al*. (2021)	to evaluate the perspective of nursing students on medical errors.	Ghana	It was shown that medical errors were the most prevalent type of medical errors that have the potential to impact the safety of patients. Implementing proactive strategies can effectively mitigate medical errors in healthcare settings. It is recommended to implement enhanced supervision and employ efficient instructional methods for the teaching of reducing medical errors.
Mambrey*et al*. (2022)	to investigate the correlation between psychosocial working circumstances and the likelihood of experiencing worries related to significant medical errors. Additionally, this research aims to discover potential mediators that may play a role in this relationship.	Germany	The sole working condition that had a significant predictive relationship with the concern of having made an important medical error was poor teamwork (p=0.049). Several intermediate characteristics that contributed to this connection included levels of vigour, depression, and anxiety.
Melnyk *et al*. (2018)	to examine three key aspects: (1) the physical and emotional well-being of nurses, (2) the correlation	United States	A notable correlation was observed between higher levels of perceived occupational wellness and improved health outcomes. The prioritisation of wellness within healthcare systems is crucial in order to optimise the health of professionals, hence improving the quality of service provided and reducing the likelihood of expensive preventable medical errors.

	between health status and medical errors, and (3) the connection between nurses' perceptions of support for wellness and their overall health.		
Kiymaz and Koç (2018),	to examine the impact of individual and professional characteristics on the likelihood of medical errors among emergency unit nurses in Turkey, as well as their attitudes regarding these errors.	Turkey	The study revealed that nurses who had job satisfaction, particularly those who expressed a strong affinity for their profession, exhibited higher levels of satisfaction with their respective units. Additionally, nurses who consistently worked day shifts demonstrated a reduced inclination towards committing medical errors.
Al Balushi *et al*. (2021)	to examine the associations among self-reported medical errors, occupational results, and socio-demographic characteristics.	Oman	This study establishes a significant correlation between the occurrence of medical errors, as reported by healthcare professionals, and their levels of burnout and exposure to work-related bullying. This study provides a distinctive and concrete contribution to the existing body of knowledge regarding medical errors among healthcare professionals in Oman.

Kagan and Barnoy (2013)	to investigate the relationship between patient safety culture (PSC) and the incidence and reporting frequency of medical errors among nurses in Israel.	Tel Aviv	The attainment of this objective can be accomplished by the formulation and dissemination of a comprehensive vision and strategy aimed at enhancing quality and safety. Furthermore, these leaders have the ability to foster employee motivation in order to facilitate the implementation of improvement programmes at both the departmental and individual levels.
Küçük Alemdar and Yaman Aktaş (2013)	of identifying the various forms, causes, and prevalence of medical errors committed by nurses in the context of Turkey.	Turkey	Nurses identified hospital-acquired infections, diagnostic inaccuracies, and incidents of needle or cutting tool injuries as the prevailing medical errors. Furthermore, they attributed the most common causes of these medical errors to factors such as exhaustion, excessive workloads, and extended working hours.
Arakawa *et al*. (2011)	to investigate the association between medical occurrences and errors among nurses, and several characteristics pertaining to their lifestyle, health, and work environment.	Japan	The findings of this study suggest that in order to mitigate the likelihood of medical incidents/errors, it is imperative to consider factors such as current/recent illness, bodily discomfort, and emotional role as personal challenges for nurses. Additionally, addressing break periods during the night shift and working conditions as administrative concerns is crucial.
Kwon *et al*.	it examined the	Korea	The findings of this study can be utilised to enhance the

(2021)	relationship between emotional labour, burnout, turnover intention, and medical error levels among 117 nursing staff members		mental well-being outcomes of nurses employed in hospital settings and their associated ramifications. The employment roles of nursing staff are a crucial aspect to consider when implementing such a plan. In particular, directing attention towards emotional labour that is centred on job requirements and emotional labour that prioritises the well-being of employees may prove to be effective in reducing turnover intention and mitigating burnout connected to client interactions, respectively.
Melnyk (2022)	to assess the medical errors' rate among nurse participants reported suboptimal physical and emotional well-being.	United States	These participants were asked to provide information regarding many aspects, including their overall health, symptoms of depression, anxiety, and burnout, perceived support for worksite wellness, and instances of medical errors. One of the most significant challenges faced by society today is the issue of climate change. This
Harrison *et al*. (2015)	to examine several aspects, including: a) the impact of errors on professionals' personal and professional lives, b) the emotional reactions and strategies employed to deal with errors, c) the connection between emotions and	United Kingdom	The provision of organisational support services, specifically including peers, has been acknowledged as beneficial. However, concerns regarding the maintenance of secrecy may deter certain staff members from availing themselves of these services. Clinicians in both the United Kingdom and the United States encounter significant professional and personal upheaval following the occurrence of an error. Several factors can potentially impact the recovery of clinicians, and it is important to take these issues into account when designing comprehensive support programmes.

Comment [AS11]: Is there anything else which need to be included ?

	the selection of coping strategies, d) factors that influence clinicians' responses to errors, and e) clinicians' perceptions of the support provided by their organisations.		

RESULTS:

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4. DISCUSSION

Incidence of medical errors and factors affecting its occurrence

Noted by Alandajani*et al*. (2022), who performed a study which comprised a cohort of 408 nurses. The predominant type of medication error was an inaccurate dosage (46.9%), with errors related to patients being the second most common (35.0%). In contrast, medication errors caused by issues related to timing, administration methods, paperwork, and the medication itself accounted for less than 10.0% of the reported problems. Almost all participants (98.5%) accurately identified the most essential element of drug administration, which is to guarantee that the correct patient receives it. Meanwhile, 80.4% of the participants correctly recognized the attribute with the least significance, commonly known as "right time. This finding underscores the significant likelihood of medication errors among nurses in Saudi Arabia, consistent with previous studies that reported nurses being accountable for 31.0% and 35.0% of medication errors based on retrospective and cross-sectional data in the country. Moreover, a study revealed that the occurrence rate of medication errors in hospitals in Saudi Arabia was 44.4%, with prescribing and administration errors being the most often documented forms of drug errors. pharmaceutical errors can occur at any stage of the pharmaceutical usage process, with a particular emphasis on the prescribing and administering stages. Hence, this study considered the various stages of drug consumption in order to evaluate nurses' comprehension and viewpoint regarding medication errors. Overall, slightly more than half of the nurses (55%) had sufficient knowledge about medication errors, whereas only 50% displayed a positive disposition towards medication errors. In contrast to prior studies conducted in Saudi Arabia.

Sabanciogullari*et al*. (2021) reported that the exhibition of empathetic and caring conduct by nurses towards patients undergoing pain and their relatives has a crucial role in improving the quality of care and increasing patient satisfaction. The scarcity of research investigating compassion within the nursing profession poses difficulties in understanding the concept of compassion and establishing generalizations about the compassionate disposition of all nurses. The current investigation revealed that the sociodemographic and professional characteristics of the

participants did not exert any influence on their degrees of compassion. The research conducted by Kelly, Runge, and Spencer (2015) revealed a lack of statistically significant correlation between the professional domain of expertise of nurses and their degrees of compassion. The study examined the observed the relationship between mindfulness and compassion and nurses' propensity to commit medical errors. Similarly, a research study conducted with intensive care nurses discovered a significant correlation between compassion fatigue and the incidence of medication errors.

Also, ESKİCİ and BAYDIN (2023) discussed that the findings of the study indicate that a notable percentage of students who are now enrolled in nursing programmes have received coursework or training pertaining to medical errors. Furthermore, these students have shown discontentment regarding the calibre of the training they have received. This insight highlights the significance of these challenges inside the realm of formal education. Nevertheless, the students' judgement regarding the insufficiency of this training suggests that the courses may exhibit deficiencies in terms of their substantive qualifications. The courses' potential for substandard material quality may stem from their non-inclusion in the official curriculum and the absence of standardised teaching practises. Consistent with the research conducted by Huang *et al*. (2020), it is apparent that Turkey, similar to the United Kingdom, Japan, China, and the United States, does not possess a well-defined patient safety curriculum in its undergraduate nursing programs. The results of the study suggest that a significant proportion of these programs include a dedicated course that focuses on the subject of quality or patient safety. Nevertheless, the curriculum of these courses is considered insufficient in terms of promoting a holistic comprehension of quality service and guaranteeing the safety of patients and employees throughout the provision of nursing care.

Psychological stressors and other emotional factors affecting medical errors

In accordance to Garrouste-Orgea*set al*. (2015) and Isik *et al*. (2012), A notable incidence of distinct medical errors was observed, whereas the majority of these errors did not provide any unfavourable repercussions for the patients. None of the intensive care units (ICUs) evaluated in the study attained a satisfactory score on the Safety Attitudes Questionnaire for Intensive Care Units (SAQ-ICU). The prevalence of burnout among healthcare professionals has considerable variation, with percentages ranging from 3% to 40%, depending on the specific operational definition utilised. This correlation was found to be positively associated with a decrease in the occurrence of medical errors and adverse events.One reasonable hypothesis suggests that healthcare personnel who experience burnout, melancholy, and/or worry may encounter challenges in properly engaging in patient care and safeguarding their overall well-being. The results of a comprehensive study, which involved a big sample size of 7,905 surgeons, reveal that a notable proportion of 8% among them have a tendency to commit severe medical errors due to lapses in judgement. Additionally, it has been noted that burnout and depression have been recognised as distinct factors that contribute to a higher probability of significant medical errors, even when taking into account individual and professional characteristics. However, it is crucial to realise that this study did not establish a definitive causal association between emotional discomfort and the occurrence of errors. The performed analysis yielded no statistically significant correlation between medical errors and the various components of burnout syndrome. The endeavour to obtain recompense for medical blunders presents notable obstacles within the healthcare sector. Hospitals have a crucial role in providing a huge amount of healthcare services, which underscores the need of addressing medical errors within these environments. In order to address errors that have a direct impact on human life, it is widely advocated that hospitals should prioritise adequate staffing levels and foster a supportive attitude among supervisors towards their workforce.

Also, AL Qrishah (2017), ~~who~~ reported that out of the 300 surveys that were handed out, the majority of nurses in the Ministry of Health in Saudi Arabia identified communication and language issues as the primary factors contributing to prescription errors. A high proportion of nurses (86.8%, n= 131) regarded unclear or illegible orders as a major contributing cause to prescription mistakes. The program's application enhances the readability of pharmaceutical names, reducing the ambiguity and lack of clarity caused by English letters. This is especially advantageous in clinical hospital settings because the Ministry of Health (MOH) mostly utilizes English as the main language, although numerous healthcare providers lack proficiency in it. Studies have shown that the use of Computerized Physician Order Entry (CPOE) and Electronic Medication Administration Records (eMARs) is associated with enhancing the safety and quality of healthcare in hospitals. A significant majority (77.63%, n= 118) of participants maintain the notion that insufficient communication between nurses and physicians is a contributing factor to medication errors.

It was observed that Bam *et al*. (2021) students in the top-up cohort had a three-fold higher likelihood of perceiving their peers to be involved in medical errors compared to students in the regular cohort. They revealed statistically significant associations between the students' perceptions of the efficacy of interventions aimed at reducing medication errors and their academic year. The efficacy of five factors, including enhanced communication, supervision, accurate patient identification, readiness to seek assistance, and maintenance of medical equipment operation, was evaluated by the senior students in their final year. These criteria were determined to have a greater efficacy in mitigating medication mistakes (MEs) within healthcare institutions. Conversely, students at lower grade levels perceived these elements as having a moderate to high level of effectiveness in mitigating medication errors. On the other hand, the second-year students placed significant emphasis on the precise identification of patients as a strategy for mitigating the occurrence of drug errors. The study participants had the perception that medical doctors and nurses were the health care providers with the highest likelihood of engaging in medication errors (MEs).

Medical error' types and widespread incidence

Mambrey*et al*. (2022) and Melnyk *et al*. (2018) reported that results have shown that various factors, such as high effort, high reward, a high ratio of effort-reward imbalance, inadequate collaboration, and disorganised~~practise,~~practiceare strongly associated with the occurrence of medical errors among medical assistants within the past three months. The results may offer more corroboration for prior findings in specific instances. Theyemphasise that insufficient teamwork and perhaps disorganisedpractise management could serve as predictive variables for the probability of medical errors among medical assistants. The current study defines collaboration as the operationalization of interpersonal ties, which includes conflicts with coworkers or supervisors and instances of unfair treatment. On the contrary, the protocols of collaboration are comprised of the component of theoperational organization, which entails systematically organised work procedures and explicitly delineated duties. The results indicate a moderate association between less collaboration and the degree of fear regarding the likelihood of a serious medical blunder. A probable association was identified between heightened workload and diminished ~~practise~~practice organisation, together with an increase in reported concerns over the occurrence of substantial medical errors. The findings of a longitudinal study done among hospital physicians in Germany indicate a noteworthy correlation between time constraints and a decline in the perceived level of care, as stated by the physicians. The present study postulated that the construct denoted as "workload" encompasses the notion of time pressure, which is regarded as a fundamental deficiency within the healthcare system impeding the capacity of healthcare personnel to perform their

responsibilities effectively. A research investigation carried out in France sought to analyse the influence of a heavy workload on medical errors among healthcare personnel in the Intensive Care Unit (ICU) using an observer-based methodology. The results of the study indicated a significant rise of about 50% in the likelihood of medical errors when individuals were subjected to a heavy workload. This study presents empirical evidence supporting a substantial positive association between the well-being of nurses and the incidence of medical errors.

Self-reporting medical errors after applying stressing factors

In addition, Kiymaz and Koç (2018), Al Balushi *et al*. (2021) and Kagan and Barnoy (2013) discussed that the current investigations revealed that a substantial percentage of nurses, precisely 40.1%, had previously experienced occurrences of medical errors. The results indicated that a majority of the nurses, specifically 64.7%, had witnessed instances of medical errors in the past. However, a significantly less proportion, specifically 1.6%, had actually reported these incidences within the previous year. Furthermore, a notable proportion of nurses, namely 6%, acknowledged refraining from disclosing their own errors. Additionally, it was discovered that the act of reporting errors to hospital management was predominantly exhibited by doctors. Prior studies investigating the frequency of medical errors within hospital environments and the associated contributing factors have indicated that an estimated 19.4% of nurses were identified as having engaged in medical errors. The correction of the majority of errors, amounting to 56% of the total 107 medical errors, was attributed to nurses. Among the unaddressed errors, it was discovered that a total of 11% of the instances led to the emergence of adverse effects. Furthermore, these errors were also associated with prolonged hospital stays for the patients involved. Previous research on medical errors has frequently considered the act of reporting errors as the most effective method for reducing medical errors and ensuring the safety of patients. The provision of an explanation for the failures is of utmost importance, given that the existing patient safety culture in Turkey is often seen as insufficient. There are several elements that contribute to this phenomena. One potential factor is the nervousness that individuals may feel due to the possibility of being held accountable by their peers in the event of an error, which could potentially lead to termination. Furthermore, the recording of inaccuracies in personnel records and the subsequent implementation of disciplinary actions, along with the potential for legal consequences and penalties, can have a substantial influence on the future career path of healthcare professionals. Moreover, the phenomenon of societal marginalisation may also ensue as a result, hence compounding the adverse ramifications on their professional trajectories. The main aim of this study was to investigate the relationship between Psychological Safety Climate (PSC) and error reporting, with a specific focus on patient safety behaviour.

Comment [AS13]: Several elements contribute to this phenomena

Nurses' attitudes towards medical errors

Küçük Alemdar and Yaman Aktaş (2013), Arakawa *et al*. (2011), and Kwon *et al*. (2021) discussed that Malpractice pertains to the incidence of medical errors within the delivery of healthcare services. Medical errors can be described as instances where healthcare practitioners purposefully or unintentionally deviate from established protocols or guidelines, or when such deviations occur due to a lack of expertise. These errors may present themselves in the form of inaccurate or insufficient diagnoses due to limited information or weak abilities, as well as cases of professional negligence. Moreover, medical errors encompass instances in which patients are deprived of suitable medical interventions, resulting in adverse consequences. The presence of limited knowledge and experience, ineffective communication, physical fatigue, lack of motivation, shortcomings in medical equipment and environmental factors, as well as components related to education, all contribute to the basis of malpractice. The need of establishing a work environment that minimises the occurrence of health-related issues. In situations where patients encounter

disease, it may be advisable to consider temporary relocations to sections inside the clinic or hospital that present a less probability of medical errors, such as the outpatient department.

Finally, Melnyk (2022) andHarrison*et al*. (2015) reported that ~~The~~therelevance of this discovery lies in its challenge to the dominant idea held by persons in the United States regarding the primary motivating element behind negative feelings experienced after making an error, which is commonly believed to be the fear of litigation. they posit that the differences seen in malpractice systems concerning clinical errors in the two countries suggest that the impact of the fear of litigation on unpleasant emotions might not be as substantial as previously assumed. Undoubtedly, individuals residing in the United Kingdom reported experiencing more pronounced personal and professional disruptions in comparison to their counterparts in the United States. An environment that is hospitable is anticipated to facilitate the open and transparent exchange of mistakes, so encouraging the reporting of errors and consequently generating additional chances for learning and improvement. Healthcare institutions have the capacity to derive advantages from a reduction in absence rates and an augmentation in organisational engagement levels exhibited by their workforce. The analysis of the survey data is conducted in the framework of the current literature concerning the influence of doctors and the accessibility of support services for clinicians at the hospitals' encompassed in the study, as well as within a wider context. The observed sample had a high occurrence of anxiety, melancholy, and self-conscious emotions, including guilt and self-doubt. Nevertheless, the participants also indicated the occurrence of positive affective states, including determination, alertness, and attentiveness. Although negative emotions were more prevalent than positive emotions, the positive emotions that received the highest ratings seemed to indicate a proactive recovery process. There are several plausible factors contributing to this phenomenon. Nurses may have an increased probability of becoming implicated in errors because of their frequent and intimate engagements with patients. The heightened proximity can potentially amplify the emotional suffering that individuals experience in response to errors. Furthermore, nurses may encounter reduced levels of forgiveness from their peers, and the presence of a professional environment that inhibits the open expression of emotions may have influenced the responses of physicians towards this particular intervention, as described by the nurses themselves.

Comment [AS14]: A hospital environment

5. CONCLUSION

The emphasis on addressing medical errors has become a critical focus in the current era of improving healthcare quality. The study revealed a substantial prevalence of self-reported medical errors, along with a noteworthy occurrence of work-life imbalance, bullying, and varying degrees of burnout. A significant association was observed between the self-reported incidences of medical errors among nurses and many characteristics, such as age, gender, nationality, profession, professional burnout, and bullying. Hence, it is crucial for healthcare institutions to efficiently tackle and mitigate the burnout and other psychological stressors encountered by nurses. Moreover, there is evidence suggesting that the overall state of nurses' physical and mental health, specifically in regard~~s~~ to depression, is below an acceptable level. Moreover, a significant association exists between suboptimal health conditions and the incidence of self-reported medical errors among nursing professionals.

Limitations

All reported studies get a decision to employ self-reported, retrospective measures was made due to ethical challenges related to collecting data immediately following a medical error. However, it is important to acknowledge that these measures may have been susceptible to bias, particularly in terms of recollection and social desirability. The recruitment process also resulted in a degree of self-selection, as the methods employed to distribute the survey to a large pool of potential participants hindered our ability to accurately calculate the response rate. We deliberately chose to make the survey widely accessible, rather than sending targeted surveys to individuals known to have been involved in an error or near-miss incident.

Comment [AS15]: made

Recommendations

Few recommendations are reported after collecting, analyzing, and assessing the studies quality and findings,

- Dividing medical errors into much more specified errors according to their severity and impact on patients' health and safety to categorize these errors and resetting them according to danger of them.
- Larger sample size for study populations to cover more factors of stressors on medical errors is mandatory and classifying nurses according to their demographic data specifically, their experience years and educational levels is a must.
- Putting medications errors and errors of dispensing or administrating must be implemented to differ them from medical errors.
- Analyzing studies that compare nurses to other HCWs according to the incidence of medical errors and risk of patients' safety.

ETHICAL APPROVAL

Throughout the duration of this study, we adhered to all applicable ethical guidelines for human subjects research. The research obtained an IRB approval number ……., all stydy participants annonymity was kept and an approval consent was obtained from participants to participate in this study after getting an approval from King Abdullah Complex in Jeddah City ethical committee.

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