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PERCEPTIONS OF HEALTHCARE WORKERS REGARDING PATIENT SAFETY INCIDENT REPORTING SYSTEM: A SYSTEMATIC REVIEW

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Abstract:

Reporting errors is fundamental to error prevention. Therefore, the HCWs' response to accidents and injuries is one of the most crucial aspects of the incident reporting system (IRS**). Our study aims to** synthesize the literature on HCWs' perceptions of the IRS to influence health policy regarding building a culture of safety in healthcare organizations**. Methods**: Following the PRISMA statement, we searched CINAHIL, PubMed, and Scopus databases to perform a systematic review. **Reviews on hospital settings**, published from January 2017–January 2022, were considered. The quality of the studies selected was assessed using the qualitative quality assessment instrument. This tool was taken directly [15.]**Results**: Ten studies met the selection criteria and were included in the study. Positive perceptions of the importance of IRS to patient safety were reported, but these perceptions varied by specialty, hospital, and between senior and healthcare workers. Stress, anxiety, individual work, documentation, devices and equipment, resource constraints, employee turnover, dynamic imbalance, the burden of working conditions, lack of responsibility, psychological safety, and the behavior of workers in closed units are all risk factors that compromise patient safety and IRS. **Conclusion&recommendation**: To improve patient safety and IRS learning, hospital and health care administrators should implement no punitive reporting procedures to increase HCW compliance. Inadequate infrastructure, low-quality materials, outdated equipment without routine maintenance, and increased work load must be addressed to increase IRS compliance.

Index Terms: Perceptions, HealthCare Workers, Incident Reporting System

INTRODUCTION:

Patient safety events (PSEs) are unwanted or unexpected events that occur during medical care, and include near misses, where the incident does not reach the patient; no harm events, where the incident reaches the patient but does not cause harm; and adverse events, where the incident reaches the patient and results in injury, harm, disability, or death [31].

Healthcare management encourages health care providers to report patient safety incidents [6]. Despite receiving training on the importance of reporting, nurses and physicians remain apprehensive about the consequences and lack of reporting systems [7]. Hospitals have historically lacked a robust reporting culture, as healthcare professionals frequently fail to report incidents in which they play a role or witness the occurrence.[8] Systems for reporting patient safety incidents have presumably been in place for many years, but they have not yet been utilized to their full potential [9].

A common strategy for promoting a safety culture is the use of incident reporting systems, or (IRS). IRS refers to the collection of information about healthcare incidents in order to improve patient safety and care delivery. By understanding hazards, it is possible to adopt

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measures that reduce risks and mitigate harm. [4] The IRS, whose main goal is to learn from errors, is one of the most crucial tools for enhancing patient safety. The incidence reporting system includes the recognition of mistakes and unfavourable occurrences as well as a thorough investigation to ascertain their underlying causes in order to prevent them in the future [5].

Hospitals in low- and middle-income nations (LMICs) endure 134 million adverse events annually as a result of suboptimal patients care, which results in 2.6 million fatalities.[1] Clinical effectiveness is directly proportional to safety performance. Obviously, hospital interventions should not only improve patients' health, but also safeguard them from harm. Personnel are also directly at risk, necessitating a robust organizational structure to protect them.[2] As a key performance indicator for hospitals, safety refers to the capacity to avoid, prevent, and reduce harmful interventions or risks to patients and the environment.[3].

The perception and Intention of health care workers to report adverse events are crucial to the success of this program.[10] Healthcare workers (HCW's) are involved in a variety of aspects of patient care, including comfort and hygiene, medication administration, medical record maintenance, and the management of certain therapeutic and diagnostic procedures. The variables that influence HCWs' work have been linked to a number of patient safety outcomes.[11, 12] .The manner in which HCW's respond to accidents and injuries is one of the most crucial aspects of IRS. IRS variations between hospitals are significantly impacted by HCWs' perspectives on patient safety[13].

Staff must submit incident reports, as defined in the Disclosure of Patient Safety Incidents policy, to PSLS per the Incident Management policy [32, 33]. Training and reporting guidelines are available on the staff Intranet. After clinicians submit reports, supervisors are responsible for reviewing and coordinating the investigation of incidents, including following up with the reporter either one-on-one, in meetings, or through group communications to close the loop on reporting [33].

The primary objective of this study was to explore the perceptions of healthcare workers regarding patient safety incident reporting system. The suggestions for improving the system. Through responding to specific research questions:

1. What are the professional distributions of HCWs' who work in the patient safety incident reporting system for a general hospital?
2. What are the specific HCWs' perceptions of IRS?
3. And what are the organizational barriers to the patient safety of IRS among general hospital nurses?

The results can be used to aid in the design and implementation of an effective patient safety event reporting system. as well as recommendations for its improvement.

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Material and methods:

Search strategy:

Scopus, PubMed, and CINAHIL were searched for articles published between 2017 and 2022 on patient safety and the perception of medical staff (nurses and physicians). The following Mesh words have been used: “Patient’s” {major} AND “safety” (ALL fields) AND “incident” (ALL fields) OR “perception” [MeSH Terms] OR “patient safety” [ALL Terms] AND “incident report” (ALL fields) OR “Perception” (ALL fields) “risk management” (ALL fields).

Studies have been select based on the following: The study chosen in English language. It was taken into account that the studies were taken from 2017 to 2022. The studies eligible for inclusion were conducted in all countries of the world. The Inclusion/exclusion criteria were Only English-language, full-text articles published between January 1, 2017 and January 30, 2022 on the perception of HCWs toward the IRS were considered. Observational studies (cross-sectional, cohort, and case-control) and interventional studies were included.

The included articles were required to classify the perceptions and ideas of HCWs regarding the implementation of IRS and to identify any barriers to the implementation of the system. Reasons for excluding records: out of scope, inadequate study design description, irrelevant outcome, duplication, and systematic reviews.

Data synthesis:

The selection of the articles followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement [14]. The outcome articles were initially screened by their titles and abstracts, and then by their full texts. When a question arose, a consultant was questioned. For the purpose of synthesis, the authors, titles, purposes, designs, procedures, participants, settings, and outcomes of the selected articles were extracted and organized in a table using excel. The data were analyzed using a qualitative synthesis. Due to the heterogeneity of the data retrieved, a quantitative synthesis was not conducted.

Quality appraisal:

The quality of the selected studies was evaluated using the qualitative quality assessment instrument. This tool was taken directly from [15] (Appendix D), it consists of nine questions, each of which can be answered as "good," "fair," "poor," or "very poor." After applying the tool to the studies, we converted it into a numerical score by assigning 1 (very poor) to 4 (good) points to the responses. This generated a minimum of 9 points and a maximum of 36 points for each study. High quality (A), 30–36 points; medium quality (B), 24–29 points; and low quality (C), 9–24 points were utilized to determine the overall quality grades. Table 1 displays the quality of nine qualitative studies, where five were of high quality (A), three were of medium quality (B), and one was of poor quality (C) (table 1).

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Reporting:

All sections of the study were composed according to the PRISMA recommendations.[14]

Results:

From the search, 724 records were identified in Scopus, 553 in Pub Med, and 2 in CINAHIL. Using Endnote, duplicate articles have been removed and a total number of 1000 records were subsequently screened for title and abstract using Rayyan software. In full article screening, 290 studies were assessed for eligibility. Ten articles were finally included in the qualitative synthesis **(Figure 1).**

The ten studies are summarized in **Table 2**, which includes the reference, purpose, design, procedure, participant, setting, measurement, analysis, and study result. Sample sizes ranged from 7 to 424 as they included different categories of participants (nurses, health care practitioners, medical words, organizations, and hospitals. Eight qualitative studies were conducted in the following countries: Korea, Sweden, Australia, Brazil, Indonesia, United Kingdom, and France. These studies employed qualitative survey and semi-structured interview designs that were qualitative (phenomenological, exploratory, descriptive, and case study) and mixed-method (quantitative and qualitative). There were various types of participants (nurses, health care practitioners, medical terminology, organizations, and hospitals). These studies investigated the perception of patient safety incident reporting using qualitative methodology.[16–23] Only one study[13] was conducted using a quantitative research design, while another used a mixed design.[24] All reviewed studies were approved by the ethical review committees.

In accordance to HCWs' perceptions of IRS .The results in table 2 indicated a favourable perception toward improving patient safety and maximizing safety culture by IRS. Reporting the incident in the medical field has a major role in achieving a culture of patient safety and minimizing harm to the patient and the health worker on the other hand. This enhances the credibility of medical professionals.[16, 18, 21] In addition, it was discovered that positive trends in patient safety vary between specialties and hospitals, as well as in relation to seniority and juniority.[17, 23, 24].

A patient safety incident reporting system becomes increasingly important, in order to prevent the deterioration of relationships with patients and the occurrence of undesirable outcomes. Hospital management should develop non-punitive reporting systems for adverse events and use them as learning opportunities.[13, 19, 20].

In addition, research indicates the significance of education and training regarding the necessity of reporting incidents, as this will improve the culture of hospital organizations and reduce fears of reporting patient safety incidents.[13, 18, 19] Atwal et al. recommend the incorporation of a patient safety culture into educational curricula as well as its incorporation into clinical practice.[17] **(see table 2).**

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Regarding IRS enhance safety culture. The researches highlighted the importance of developing interventions to mitigate the risks and minimize harm to patients and staff, it is necessary to identify the safety risks associated with a patient safety culture. The majority of researchers recommend adhering to a system for reporting dangerous accidents as well as the training and education system associated with these accidents, and that an individual's awareness of these benefits will reduce the likelihood of an accident occurring.[16, 18, 22, 24].

In accordance to barriers towards IRS. The Stress, anxiety, individual work, documentation, devices and equipment, resource constraints, employee turnover, dynamic imbalance, the burden of working conditions, lack of responsibility, psychological safety, and the behaviour of workers in closed units, in addition to the clinical condition of patients, are all risk factors that compromise patient safety and IRS.[9, 18, 19, 21].

Discussion: Principal findings

Because unsafe medical care is one of the ten leading causes of death and disability, hospital administration should prioritize the provision of a safe and healthy environment. The IRS is a fundamental indicator of safety.[3] However, HCW, particularly physicians, are hesitant to report adverse events.[25] Given the concerns about the mental and emotional health of healthcare professionals exposed to clinical incidents, and the possibility that this could affect reporting,[26] this study examined the perceptions of providers regarding the IRS and the factors impeding its full implementation.

Positive perceptions of IRS as a foundation for patient safety culture were found to vary among HCW professions, organizations, and senior and junior HCWs. In terms of roles and responsibilities, the perspectives of senior and junior nurses on accident reporting differ; junior nurses only used it to vent their dissatisfaction.[23] on other hand, different roles in the organizational structure as well as the requirement to recognize preventable injuries were found to influence clinicians' perceptions.[17]

The HCWs' intent to report adverse events is affected by their attitudes.[10] Studies revealed the need for collaborative training to ensure that HCWs’ have a common understanding of how to file incident reports to ensure patient safety,[17] whereas studies highlighted the significance of educating nurses to report patient safety issues.[16].

Creation of a desirable organizational climate, the need for staff participation at various levels of decision-making, and the development of an error-reporting culture are observable factors that contribute to a strong safety culture.[27] Building a learning environment that leads to learning from mistakes rather than blaming others or a non-punitive response to mistakes are cornerstones of "organizational learning-continuous improvement,"[28, 29] as reflected in HCWs' perceptions of the IRS. Also, It is essential to differentiate incidents based on severity and frequency in order to produce a better report by organizing and classifying symbols.[18] In addition, staff training, collaboration, and communication are essential for enhancing the IRS and patient safety culture.[19] IRS was also perceived to be affected by the need to implement patient safety incident

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reporting training programs, include them in the curriculum, develop them, and link them to clinical practice.[13].

Perceptions of HCW regarding patient safety were contingent on achieving a "dynamic balance" between the current workload and the clinical status of patients. Risk perceptions influenced the propensity of professionals to assume personal responsibility for contacts outside the unit at work.[22].

Reported barriers to IRS include inadequate incident reporting systems and a lack of interdisciplinary and interdepartmental cooperation were also impediments. Insufficient training prevented nurses from comprehending the significance of incident reporting and the meaning of error. In addition, there was a pervasive culture of assigning blame and an absence of constructive criticism or encouragement.[30] We reported increase in work load, inadequate infrastructure, low-quality materials, out-dated equipment without routine maintenance,[21, 23] learning and cultural challenges,[18] closed organizational culture, fear of damaging patient relationships, and concerns about more work responsibilities [16] as additional barriers towards IRS.

Strengths and limitations:

In this study, we synthesized the literature on HCWs' perceptions of IRS in an effort to influence health policy regarding building the culture of safety in healthcare organizations. Due to the fact that studies differ in terms of sample size, methodology, and design, comparison presents numerous difficulties. Moreover, in some cases, outcomes refer to different dimensions or factors; lack of knowledge, impressions, perceptions, and interventions to reduce harm, while in others, they refer to the content or outcome. Some studies focused on a single category, and despite their consistency, the results were not thoroughly reviewed, and a number of them were susceptible to the first type of error. Some studies have small sample sizes, rendering their findings unrepresentative. Also, the majority of the data included in this analysis originated from countries with diverse healthcare systems, cultures, and economies. Due to insufficient quantitative data, it was unable to conduct a statistical analysis to search for connections and correlations between some of them.

Implications for policy practice and research:

The hospital administration must exert more effort to cultivate leadership with positive attitudes toward patient safety, which will then be reflected in clinical practice. To improve the IRS's practice, the hospital administration should address the obstacles to reporting, particularly nurses' perceptions, which impact the reported patient safety. It is suggested that longitudinal and experimental studies be conducted to assess the impact of cultural changes on the IRS and patient safety.

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Conclusion& recommendation:

- Hospital and health care administrators should implement no punitive reporting procedures to increase HCW compliance, thereby allowing the IRS to learn from them and improve patient safety.
- it is necessary to address obstacles To increase IRS compliance, such as inadequate infrastructure, low-quality materials, out-dated equipment without routine maintenance, and an increase in work load.
- Continuous nursing education and other health education and training programs should incorporate a culture of patient safety, as should nursing schools and hospital administration.

Abbreviations:

- **PSEs:** Patient Safety Events.
- **LMICs**: Low- and Middle-Income Nations.
- **IRS**: Incident Reporting Systems.
- **HCW's**: HealthCare Workers.
- **PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

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Conflict of interests:

The authors declare that they have no competing interests.

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Systematic reviews and Meta-Analyses (PRISMA) statement:

Table 1: Results of the quality assessment for the qualitative studies (*n* = 9).

Study	Abstract/ title	Introduction /aims.	Data collection	Sampling	Data analysis	Ethics/bias	Results	Generalizability	Implications	Total	Grade
McGrath, M. et al. [23]	4	4	4	3	4	1	4	2	4	30	A
Tomazoni A., et al.[21]	4	4	3	3	4	4	4	2	2	30	A
Carlfjord, S.,et al.[18]	4	4	4	4	4	3	4	2	4	33	A
D'Lima DM, et al. [22]	2	2	4	4	4	3	4	3	4	30	A
Choi, E. Y., et al.[16]	4	4	4	2	4	3	4	2	2	29	B
Draganovic, S., et al.[19]	2	2	3	2	2	3	4	2	2	22	C
Dhamanti, I.,et al.[20]	4	2	4	2	2	3	4	3	3	27	B
Scott, J.,et al.[24]	4	4	4	4	4	3	4	3	3	33	A
Atwal, A., Et al.[17]	4	4	4	2	2	3	3	3	4	29	B

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Table 2 Characteristics of the reviews included.

1st author, Year, Country	Purpose	Methodology (Design, Procedure, Measure)	Participants And setting	Results
McGrath M., (2017), Australia[23]	Examine how doctor's view practice improvement initiatives for preventing harm to older adults during acute hospitalization.	A qualitative exploratory descriptive design. focus groups and individual interviews utilizing a semi-structured interview guide	clinicians with direct responsibility for the implementation of practice improvement strategies to prevent harms to older people in their hospital, and included executives, managers and direct care clinicians	- The wards in which the participants worked and the specific needs of the patient groups in their care appeared to have an impact on their perceptions of preventable harms. - Participants' recognition of specific preventable harms appeared to vary according to their discipline and specialty. - Whether or not clinicians utilized the standard Clinical Risk Management tools depended on which tools they deemed most relevant to their work area or specialty. - The participants' views on practice improvement initiatives differed depending on their position in the organization's hierarchy. - Compliance influenced by work pressures

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Tomazoni A., (2017), Brazil[21]	**To express how nurses and medical professionals in neonatal critical care units feel about patient safety.**	**A qualitative technique was used in this exploratory and descriptive study.**	**From 2013 to 2015, twenty-eight nursing and medical experts from three newborn intensive care units in Florianópolis, Santa Catarina, took part in the study. 23 nurses and 5 physicians**	**- Professionals acknowledge the significance of patient safety They note, however, that patient safety may not be a priority for some professionals. The following categories emerged: patient safety perceptions and methods; risk factors that compromise patient safety; and problems in communicating health-care errors. - Inadequate infrastructure, low-quality materials, outdated equipment without routine maintenance, and an increase in work load as a result of a decrease in employee numbers are all risk factors that impede compliance.**
Carlfjord, S., (2018), Sweden,[18]	**To identify health-care safety risks and, as a result, devises strategies to mitigate these risks and prevent harm.**	**Qualitative approach A semi-structured interview**	**Ten of the 45 qualified department heads from the three hospitals were invited to participate in an interview.**	**Two main themes: - "Incident reporting has come to stay" building on the categories entitled perceived advantages, observed changes and value of the IR system, - "Remaining challenges in incident reporting" including the categories entitled need for action, encouraged learning, continuous culture improvement, IR system development and proper use of IR.**

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D'Lima DM, (2018), United Kingdom[22]	**The researchers wanted to 1) look into individual experts' judgments of staffing risks and safe staffing in intensive care, and 2) look into the cognitive processes that underpin these beliefs.**	**Qualitative study. A purposive sample of nurses, doctors, and other professionals participated in semi structured interviews.**	**A total of 44 ICU team members with various professional backgrounds and levels of seniority.**	**The importance of achieving a "dynamic balance" determined by the load of current circumstances and the clinical status of patients was crucial to patient safety perceptions. Professionals' risk perceptions had an impact on their willingness to accept personal responsibility for contacts outside of the unit at work.**
Choi, E. Y., (2019), Korea[16]	**The goal of this study was to find out how nurses felt about disclosing patient safety incidents (DPSI), which has been shown to reduce medical lawsuits and improve medical professionals' trustworthiness.**	**Qualitative approach Phenomenological Focus group discussions**	**Twenty nurses participated in three focus group talks utilizing semi structured guidelines.**	**- Most nurses agree Disclosure of patient safety incidents (DPSI) is ethically and effectively necessary. Although DPSI should be performed when a patient is harmed, participants had mixed opinions depending on the patient safety incident. Nurses conducted DPSI even when they weren't responsible for medical errors and felt burdened when accompanied by a doctor or superior. - Barriers to DPSI have been identified as a closed organizational culture, fear of damaging patient relationships, and concerns about more work responsibilities.**

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				However, the creation of DPSI rules and the improvement of hospital organization culture were mentioned as DPSI facilitators.(not part of our defined outcomes)
Draganovic , S., (2019), Austria[19]	**to see if the risk manageme nt technologie s that were introduced actually enhanced patient safety culture**	**Qualitative Semi-structured interviews. 32 medical personnel Hospitals in Austria**	**Not defined.**	**The findings indicate that hospitals still have room to improve in terms of employee education, coordination, and communication.**
Abu-El-Noor, N. I., (2019) Palestine[13]	**The goal of this study was to analyze the attitudes of nurses working in Gaza Strip government hospitals regarding patient safety.**	**A cross sectional descriptive design. Survey using the modified version of the Attitudes to Patient Safety Questionnaire III (APSQ III).**	**The study included a convenience sample of 424 nurses from four Gaza Strip government hospitals.**	**Nurses in government institutions had only a marginally favorable view toward patient safety in general. They believed that errors are inherent to humanity and teamwork can reduce errors. On the other hand, the department and the place of work significantly influenced the reported patient safety attitudes. There was a negative response to the statement that my training has prepared me to understand the causes of medical errors.**

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Dhamanti, I., (2019), Indonesia[20]	**determining if Indonesia's patient safety incident reporting system adheres to WHO parameters for successful reporting**	**Qualitative approach. Interview informants from different organizations involved in patient safety implementation**	**Not defined.**	**Informants demanded the implementation of a non-punitive system for patient safety, questioned the IRS's confidentiality, requested expert analysis and timely reporting, and demanded system orientation and responsiveness.**
Scott, J., (2019), United Kingdom[24]	**to assess the feasibility of implementing a patient safety survey that assesses patients' perceptions of their own safety in relation to care transition.**	**The research used a mixed-methods approach, collecting data from both quantitative (surveys for patients) and qualitative (semi-structured interviews, focus groups for staff and reviewing incident reports)**	**The research was carried out in two NHS Trusts in England, in four hospitals (two general hospitals and two teaching hospitals).**	**- The findings are provided in regard to the feasibility testing's three main areas of focus: limited-efficacy testing, acceptance, and integration. - Staff interviews also revealed a systematic focus on unsafe or negative care experiences, consistent with their perception of a deficient safety strategy. - They believed that sharing best practices could result in quality enhancement.**
Atwal, A., (2020) United Kingdom[17]	**To have a better knowledge of senior nurse ranking and junior nurse impressions of incident reporting.**	**Qualitative study. Four focus groups explored senior nurses' perceptions of risks identified by nurses from a live incident reporting database**	**Senior and junior nurses. Participants in focus groups ranged from 7 to 11 people.**	**Five themes emerged, reflecting differences in opinion between senior and non-senior nurses regarding the categorisation of incidents. Some junior nurses, according to senior nurses, record incidents to'vent irritation.'**

Figure 1: Flowchart depicting literature search and study selection