

FROM BURNOUT TO BREAKDOWN: INVESTIGATING THE CONSEQUENCES OF MEDICAL ERRORS ON HEALTHCARE PROVIDERS

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in

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by

Sunaina Batra

Under the Supervision and Guidance of

Dr. Anupam Mehrotra

2025

CERTIFICATE

This is to certify that **Dr. Sunaina Manoj Batra** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur has successfully completed her internship at IIHMR University, Jaipur during Mar10-May 31,2025.

Place: *Jaipur*
Date: *19/06/2025*

A handwritten signature in blue ink, appearing to read 'Anupam'.

Dr. Anupam Mehrotra
IIHMR University, Jaipur

CERTIFICATE

This is to certify that dissertation titled **From Burnout to Breakdown: Investigating the Consequences of Medical Errors on Healthcare Providers** is a record of the research work undertaken by **Dr. Sunaina Manoj Batra** in partial fulfilment of the requirements for the award of the degree of **MBA (Hospital and Health Management)** from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

A handwritten signature in blue ink, appearing to read 'Anupam'.

Dr. Anupam Mehrotra
IIHMR University, Jaipur

Date 19/06/2025

A handwritten signature in blue ink, appearing to read 'Sanjay'.

Dr Sanjay Gupta
IIHMR University, Jaipur

Date

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“From Burnout to Breakdown: Investigating the Consequences of Medical Errors on Healthcare Providers”** is the Bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



Signature

Student Name: Dr. Sunaina Manoj Batra

Date: 19/06/2025

ABSTRACT

TITLE

“From Burnout to Breakdown: Investigating the Consequences of Medical Errors on Healthcare Providers”.

BACKGROUND

Medical errors continue to be a pressing issue in healthcare systems around the world, not only causing harm to patients but also having a serious impact on the mental and professional well-being of healthcare providers. Underreporting, absence of institutional backing, and systemic constraints in India overlay the problem, rendering the emotional and functional load on healthcare providers severe and under-appreciated. The term “second victim” has been coined to refer to those healthcare providers who become psychologically distressed following such errors.

OBJECTIVES

- To identify the medical errors in hospital settings.
- To identify the root causes of medical errors in hospital settings.
- To assess the impact of those medical errors on healthcare providers.

METHODOLOGY

This research utilised a descriptive design using secondary data analysis. The systematic literature review of 19 peer-reviewed International and National articles, reports, and publications was done. Thematic analysis was applied to recognise patterns related to the types of medical errors, their outcomes, and organisational reactions. The research included studies that examined high- and low-resource environments, with a special focus on India and the United States.

KEY RESULTS

Thematic analysis of 19 peer-reviewed articles identified a number of recurring findings about the causes and effects of medical errors among healthcare providers. Errors in diagnosis, medication administration, and system-based such as understaffing and poor EHRs (Electronic Health Records) were the most frequently cited kinds of errors. These kinds of errors not only resulted in negative patient outcomes but also caused serious emotional and psychological trauma to the concerned healthcare providers.

A high-percentage of providers indicated that they had felt guilt, shame, anxiety, loss of confidence, and PTSD-like symptoms after an event. Most considered themselves “second victims”. Burnout also appeared as both a predictor and an outcome of medical errors, constituting a vicious feedback cycle- burned-out physicians were more likely to make mistakes, and witnessing or experiencing a mistake resulted in increased burnout.

Institutional reactions were mostly found to be insufficient, particularly in low-resource environments. The majority of hospitals did not have structured peer support programs, counselling services, or official reintegration protocols for affected staff. Blame culture along with fear of legal action resulted in extensive underreporting, which also hampered organisational learning and safety enhancements. Institutions that adopted non-punitive error-reporting systems and fostered a “Just Culture”, however, experienced enhanced mental well-being among staff and greater openness in reporting.

CONCLUSION

This research emphasises the cyclical and multifaceted nature of the relationship between medical errors and emotional well-being among healthcare providers. Medical errors are not discrete clinical occurrences; they represent symptoms of deeper systems problems and play a part in severe psychological injury among the very same providers responsible for its provision. The results validate that burnout precedes and subsequent to error, establishing a vicious cycle threatening provider health and patient safety.

To counter this, health institutions have to transcend blame at the individual level and commit to level of system changes that promote provider resilience and safety. Adopts formal psychological support protocols, encourages a culture of transparency and accountability, and supports evidence-based clinical decision-making tools as key interventions to address the dual burden of medical errors. For nations such as India, with limited resources and strongly hierarchical healthcare systems, these results highlight a pressing need for reform driven by leadership that puts both patient safety and mental health first. In the long term, creating a compassionate and open atmosphere is crucial to ending the silence surrounding medial errors and protecting the well-being of healthcare providers.

KEYWORDS

Medical errors, burnout, healthcare providers, second victim, patient safety, systemic failure, Just Culture, emotional distress, healthcare systems

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TABLE OF CONTENT

CHAPTER 1: INTRODUCTION	1
1.1 BACKGROUND AND CONTEXT	1
1.2 PROBLEM STATEMENT	1
1.3 PURPOSE OF THE STUDY	2
1.4 SIGNIFICANCE OF THE STUDY	2
1.5 AIM	2
1.6 OBJECTIVES.....	2
CHAPTER 2: LITERATURE REVIEW	3
CHAPTER 3: METHODOLOGY	6
3.1 HYPOTHESIS.....	6
3.2 RESEARCH QUESTIONS	6
3.3 RESEARCH DESIGN	6
3.4 STUDY SETTING.....	6
3.5 STUDY POPULATION	6
3.6 RESEARCH PROCEDURE	7
3.7 OPERATIONAL DEFINITIONS	7
3.8 DATA ANALYSIS PLAN	7
3.9 ETHICAL CONSIDERATIONS	8
CHAPTER 4: RESULTS	10
4.1 TYPES AND FREQUENCY OF MEDICAL ERRORS.....	10
4.2 EMOTIONAL AND PSYCHOLOGICAL IMPACT ON HEALTHCARE PROVIDERS	11
4.3 BURNOUT AND FATIGUE	11
4.4 INSTITUTIONAL RESPONSE AND SUPPORT MECHANISMS	12
4.5 CULTURE OF SILENCE AND UNDERREPORTING	12
4.6 THE VICIOUS CYCLE OF ERROR AND EMOTIONAL DISTRESS	12
4.7 QUANTITATIVE AND QUALITATIVE CORROBORATION	13
4.8 REGIONAL AND DEMOGRAPHIC VARIATION	13
CHAPTER 5: DISCUSSION	14
5.1 PSYCHOLOGICAL IMPACT ON HEALTHCARE PROVIDERS.....	14
5.2 LINK TO SYSTEM-LEVEL ISSUES.....	15

5.3 COMPARATIVE ANALYSIS	15
5.4 STRENGTHS OF THE STUDY	15
5.5 LIMITATIONS OF THE STUDY	16
CHAPTER 6: CONCLUSION	17
6.1 IMPLICATIONS OF THE STUDY	18
CHAPTER 7: RECOMMENDATIONS	21
7.1 SYSTEMIC AND ORGANISATIONAL REFORMS	21
7.2 PSYCHOLOGICAL AND INSTITUTIONAL SUPPORT FOR HEALTHCARE PROVIDERS	21
7.3 EDUCATION AND TRAINING INTERVENTIONS	22
7.4 POLICY AND ADVOCACY MEASURES	22
REFERENCES	24

LIST OF FIGURES

Figure 1.1 :Conceptual Framework.....	5
Figure 4. 1 : Frequency of Medical Errors.....	10
Figure 4. 2 :Fishbone diagram of medical errors	11
Figure 4. 3 : Cyclical relationship of burnout and error	13

LIST OF ABBREVIATIONS

1. AI- Artificial Intelligence
2. BMJ- British Medical Journal
3. CDSS- Clinical Decision Support Systems
4. CPOE- Computerised Physician Order Entry
5. EHR- Electronic Health Records
6. FMEA- Failure Mode and Effect Analysis
7. ICU- Intensive Care Unit
8. NABH- National Accreditation Board for Hospitals & Healthcare Providers
9. PRISMA- Preferred Reporting Items for Systematic reviews and Meta-Analyses
10. PTSD- Post-Traumatic Stress Disorder
11. RCA- Root Cause Analysis
12. WHO- World Health Organisation

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND AND CONTEXT

Healthcare delivery, as far as it has continued to develop in terms of technology and medical knowledge, is still prone to human error. Medical errors are unanticipated behaviours leading to undesirable results, compromising the safety of patients. Globally, they are a significant cause of morbidity and mortality. A 2016 BMJ article identified the astounding incidence of medical errors, making them the third most common cause of mortality in the United States at that time, responsible for over 250,000 deaths per year. Indian healthcare systems are often over-crowded, understaffed, and handicapped by poor staffing, especially in government hospitals. The resulting strain, combined with inadequate training, lack of documentation, and workload, makes medical errors a serious problem. Besides the direct impact on patients, these errors have long term effects on healthcare providers and institutions. They increase the healthcare costs, prolonged hospital stays, and damage the institutional image. Recent studies also indicate the financial burden medical errors put on healthcare providers. Burnout, stress, depression, and emotional exhaustion are the norm for doctors and nurses, particularly when they are directly or indirectly accountable for an error. Such psychological anguish can further result in additional mistakes, thus making it a vicious cycle that erodes both provider well-being and patient safety.

1.2 PROBLEM STATEMENT

In spite of increasing international focus on patient safety, medical errors are underreported and inadequately researched in India. Access to credible data is limited, reporting mechanisms are not standardised, and error stigma results in suboptimal documentation and a lack of institutional response. A few tertiary centres have initiated patient safety initiatives, but these are not standardised or routinely monitored.

The clinical and professional consequences of these mistakes among healthcare professionals- including their well-being, performance at work, and long-term health- are even less well understood. There is a requirement to investigate the effects of these mistakes on those providing care, both to better help them and to create systems that reduce the chance of subsequent mistakes.

This research aims to bridge this critical deficiency by examining secondary data from peer-review journals, official health documents, and international agencies with the goal of comprehending the causes, effects and institutional reactions to medical mistakes, particularly how it affects healthcare professionals.

1.3 PURPOSE OF THE STUDY

The purpose of this research is to examine the causes of the medical errors in hospitals and explore the cascading effects these errors have on healthcare providers. By conducting a secondary review of existing literature, the study aims to synthesise findings from diverse contexts to draw actionable insights. This includes understanding the factors contributing to medical errors, identifying how they influence the mental health and performance of healthcare workers, and outlining evidence-based measures hospitals have adopted to improve patient safety and support their staff.

1.4 SIGNIFICANCE OF THE STUDY

This study holds significance in several key areas:

- For healthcare institutions, it offers insights into common systemic vulnerabilities leading to errors and the institutional strategies that have proven effective in reducing them.
- For healthcare providers, it highlights the emotional and professional burden of being involved in medical errors and underscores the importance of support mechanisms.
- For academic and policy research, it adds to the growing literature on patient safety in developing countries and sets the groundwork for further research.

1.5 AIM

To examine the causes of medical errors in hospitals and evaluate the impact of such errors on healthcare providers, using secondary data sources, with the goal of recommending strategies to enhance patient safety and reduce provider burnout.

1.6 OBJECTIVES

- To identify and categorise the root causes of medical errors in hospital settings.
- To explore the relationship between provider burnout and error occurrence.
- To assess psychological, emotional and professional impact of medical errors on healthcare providers.

CHAPTER 2: LITERATURE REVIEW

Medical errors have become a recurring and fundamental problem across healthcare systems worldwide, resulting in avoidable adverse events among patients and creating emotional and psychological trauma among healthcare professionals. Generally, medical errors can be grouped into diagnostic, therapeutic, preventive and system-related mistakes, each with their own set of reasons and consequences. Medical errors may be caused by individual judgement lapses or more frequently, intricate systemic errors at multiple levels of care provision [1].

The paradigm-shifting Institute of Medicine report “To Err is Human” (1999) made the patient safety landscape global, estimating almost 98,000 deaths in the United States alone due to preventable medical errors [2]. This figure, now over two decades old, has been vindicated and even exceeded by subsequent research findings. For instance, The BMJ published a study, which ranked medical errors as the third highest cause of death in the US, just after cancer and heart disease, highlighting the prevalence of the issue [3].

Diagnostic errors are possibly the most pernicious type of medical error, frequently overlooked until major injury has ensued. These may be the result of cognitive biases, insufficient information, communication failures, or erroneous test interpretation [4]. A study by Newman-Toker et al. highlighted that over 12 million U.S. adults are misdiagnosed annually, and about half of those errors could potentially lead to serious harm [5]. In low- and middle-income countries like India, diagnostic inaccuracies are exacerbated by insufficient diagnostic tools and workforce shortages [6].

Medication errors also remain prevalent, occurring at any stage from prescription to administration. Fatigue among nurses and physicians, especially in high-intensity environments like emergency departments, has been consistently linked with increased error rates. A scoping review by Bell et al. (2023) affirmed that shift length, sleep deprivation, and mental overload correlate strongly with medication administration errors [7]. Nurses, in particular, are vulnerable due to their direct and prolonged involvement in drug administration processes.

Communication failures are another well-documented root cause of adverse events. Handoff errors during transition of care-between departments or during shift changes-contribute significantly to wrong site surgeries, delayed treatments, and incorrect diagnoses [8]. In a multicentre study, Starmer et al. demonstrated that standardising handoff communication led to a 23% reduction in medical errors [9]. Thus, institutional adoption of structured communication protocols like ISBAR is essential.

System based causes such as understaffing, workflow inefficiencies, and lack of standardised protocols also play pivotal roles. Poorly designed Electronic Health Record (EHR) systems, for instance, have introduced new forms of error, including selection errors due to dropdown menu configurations or misinterpretation of automatically generated

information [10]. A study by Ratwani et al. highlighted the usability flaws in EHR systems as contributing to thousands of adverse events reported annually [11].

Importantly, the consequences of these errors are not limited to patient harm. Healthcare providers involved in such incidents-often referred to as “second victims”-frequently endure emotional turmoil, guilt, professional self-doubt, and in extreme cases, symptoms akin to post-traumatic stress disorder [12]. Robertson and Long (2018) reported that many clinicians experience persistent anxiety and fear of litigation after being involved in a serious medical error, which can further erode performance and well-being [13].

This emotional fallout often culminates in burnout, a state characterised by emotional exhaustion, depersonalisation, and reduced sense of accomplishment [14]. Burnout not only increases susceptibility to future errors but can also compromise patient-provider relationships and care quality. In a large-scale meta-analysis, Tawfik et al. (2018) found a clear association between provider burnout and an increased risk of patient safety incidents [15]. The cycle is bidirectional-errors lead to burnout, and burnout predisposes to further errors-forming a vicious loop that threatens both provider and patient safety.

Studies in the Indian context are comparatively fewer, yet indicative of similar patterns. Research by Vankar et al. in a tertiary care hospital in Gujarat found that over 45% of healthcare providers reported experiencing burnout symptoms, and among them, a majority admitted to having made clinical errors in the previous year [16]. The lack of formal institutionalised support and cultural taboo against talking about error further discourages open discussion and learning from error.

In order to counteract this, numerous healthcare facilities around the world are implementing the philosophy of a ‘Just Culture’, one that balances responsibility with non-punitive measures towards inadvertent mistakes. It facilitates learning, invites reporting and assists in developing resilience among implicated staff.

Root Cause Analysis (RCA) is largely viewed as among the most potent tools for analysis and prevention of adverse events. Instead of blaming individuals, RCA aims to determine the system failure responsible for errors. Research has established that interventions based on RCA have a high reduction in error recurrence when followed by actual institution commitment to change [17].

Technological advancements have started to contribute significantly towards avoiding medical errors. Electronic Health Records (EHRs), Computerised Physician Order Entry (CPOE), and Clinical Decision Support Systems (CDSS) are increasingly being used in hospitals to automate the process and minimise memory reliance. CPOE systems assist in avoiding prescription errors by alerting against incorrect dosages, duplication, or possible drug interactions. A meta-analysis by Radley et al. demonstrated a 48% reduction in medication errors in institutions implementing CPOE systems [18]. Artificial Intelligence and Machine Learning also show promise in early error detection.

The emotional and ethical dimension of medical errors cannot be overstated. For patients, errors can result in prolonged hospitalisations, increased financial burden, and long-term trauma. Ethically, the principle of non-maleficence obligates healthcare providers to minimise harm. However when errors occur, many institutions struggle with disclosure practices.

For healthcare professionals, medical errors can be professionally and personally devastating. Referred to as “second victims”, clinicians often experience shame, loss of confidence, post-traumatic stress disorder (PTSD)-like symptoms, and even suicidal ideation. Unfortunately, the stigma surrounding error disclosure prevents many from seeking help, and institutional support structures remain inadequate in most settings.

Organisational culture plays a central role in determining how errors are addressed. A blame culture discourages reporting and hides critical data, while a just culture acknowledges human fallibility and focuses on learning and prevention. The “Swiss Cheese Model” proposed by Reason has been instrumental in illustrating how system failures align to create conditions for errors, emphasising that frontline staff are often the final layer rather than the root cause [19].

Cultural variations in healthcare systems globally, also influence how errors are perceived and handled. In some countries, hierarchical relationships between doctors and nurses may suppress open dialogue or whistle blowing. In others, fear of legal repercussions discourages acknowledgement of mistakes.

In conclusion, breaking the cycle of medical errors requires a coordinated, empathetic, and data-driven approach. Only through sustained effort, inclusive policies. And open communication can healthcare systems move toward the goal of zero preventable harm.

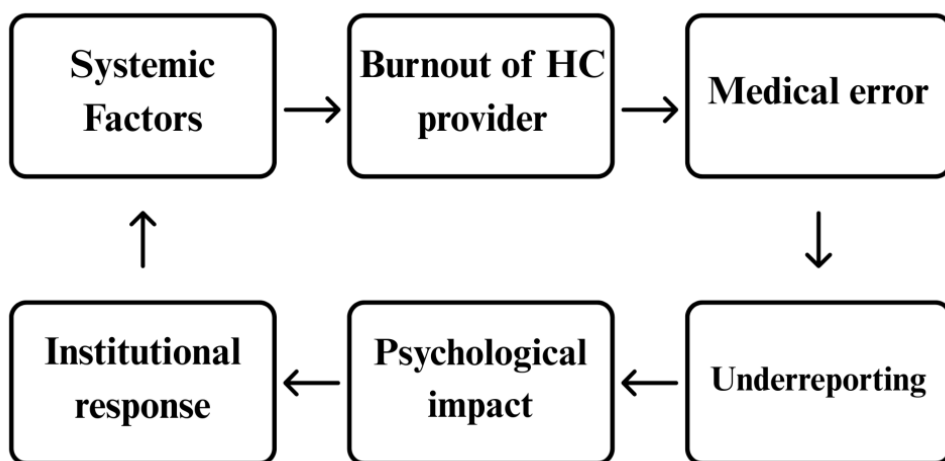


Figure 1.1 :Conceptual Framework

CHAPTER 3: METHODOLOGY

3.1 HYPOTHESIS

- **Null Hypothesis (H0)** – There is no significant impact of medical errors on the emotional, psychological, or professional well-being of healthcare providers.
- **Alternate Hypothesis (H1)** – Medical errors significantly affect the emotional, psychological, and professional well-being of healthcare providers.

3.2 RESEARCH QUESTIONS

The present study is guided by the following key research questions:

1. What is the root cause of medical errors in hospitals?
2. How does healthcare provider burnout contribute to the occurrence of medical errors?

These questions aim to uncover deeper insights into systemic and psychological drivers of medical errors, drawing upon available secondary data and published literature.

3.3 RESEARCH DESIGN

This study follows a qualitative descriptive research design using secondary data analysis. It is non-experimental in nature and relies on a comprehensive review of 21 peer-reviewed journal articles, official reports, and recognised organisational data sources.

The approach allows for the thematic synthesis of findings from multiple studies to identify recurring patterns, causes, and outcomes associated with medical errors and provider burnout.

3.4 STUDY SETTING

As a secondary research study, there is no specific geographical or institutional setting. The data has been drawn from national and international sources, with a special focus on healthcare systems, particularly in the context of India and the United States.

3.5 STUDY POPULATION

Although no primary data is collected, the studies reviewed focus on:

- Healthcare providers including physicians, nurses, and allied health professionals.
- Patients affected by medical errors.
- Hospital systems, particularly in tertiary care settings.

The literature includes data from a wide geographic range, helping generalise findings within hospital based healthcare environments.

3.6 RESEARCH PROCEDURE

The research involves a systematic literature review. Articles were identified through databases like PubMed, Google Scholar, BMJ, StatPearls, Journals of Patient Safety, and NABH reports.

Inclusion Criteria:

- Peer-reviewed research studies and official reports
- English-language publications only

Exclusion Criteria:

- Articles not addressing hospital-based errors
- Editorials, blogs and opinion pieces

3.7 OPERATIONAL DEFINITIONS

1. Medical Error: A medical error is a preventable adverse effect of care, whether or not it is evident or harmful to the patient.
2. Burnout: Burnout is a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job. It is characterised by emotional exhaustion, depersonalisation, and a diminished sense of personal accomplishment.
3. Patient Safety: patient safety is the absence of preventable harm to a patient during the process of healthcare and the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum.
4. Second Victim: A second victim is a healthcare provider who is involved in an unanticipated adverse patient event, medical error, or patient related injury and becomes victimised in the sense that the provider is traumatised by the event.
5. Root Cause Analysis: Root cause analysis is a structural method used to analyse serious adverse events. It identifies underlying problems that increase the likelihood of errors while avoiding the trap of focusing on mistakes by individuals.

3.8 DATA ANALYSIS PLAN

The data analysis for this study was conducted using a qualitative approach, specifically through thematic analysis. After identifying and reviewing a set of 20-25 peer-reviewed articles published within the last ten years, relevant information was systematically organised using a data extraction table. This table captured essential details such as study design, publication year, key findings, and relevance to the objectives of the study.

From this extracted data, recurring themes and patterns were identified manually. Major themes included:

- i. Burnout as a contributing factor to medical errors

- ii. Psychological and emotional consequences experienced by healthcare providers following an error
- iii. The cyclical relationship between errors and provider distress
- iv. Organisational responses and coping mechanisms

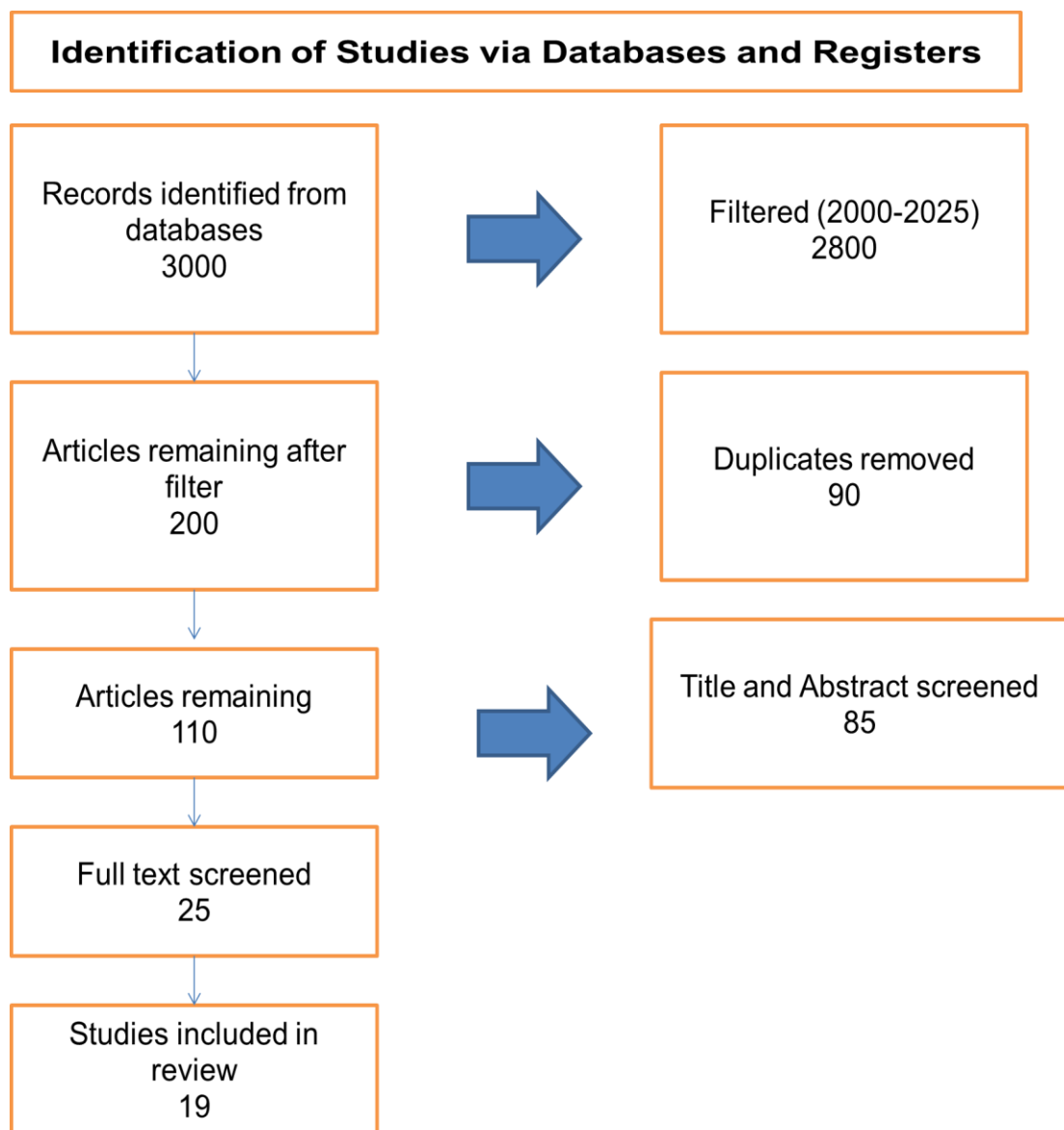
These themes were further synthesised to build a narrative that addresses the research objectives and highlights the interplay between provider burnout and medical error incidence.

As this is a secondary, non-statistical study, no inferential statistical tools were employed. However, tools like MS Excel and Google Sheets were used to organise and code qualitative data. The analysis remained focused on interpreting patterns and insights from existing literature to derive meaningful conclusions relevant to the research questions.

3.9 ETHICAL CONSIDERATIONS

As this is a secondary research study, it does not involve direct interaction with human participants. However, ethical research practices have been followed:

- All sources are properly cited to maintain academic integrity
- Only publicly accessible data and peer-reviewed literature are used
- Confidentiality of original data sources has been preserved
- Institutional ethical clearance is not applicable due to the non-invasive nature of the study



PRISMA Framework

CHAPTER 4: RESULTS

This section presents the findings from a qualitative review of 21 peer-reviewed articles, all addressing the impact of medical errors on healthcare providers. A thematic analysis approach was employed to identify, analyse, and report patterns within the data. The major themes that emerged included:

1. Types and frequency of medical errors
2. Emotional and psychological impact on healthcare providers
3. Burnout and fatigue
4. Institutional response and support mechanisms
5. Culture of silence and underreporting
6. The vicious cycle of error and emotional distress

4.1 TYPES AND FREQUENCY OF MEDICAL ERRORS

Across the reviewed literature, diagnostic errors, medication errors, surgical errors and communication-related failures were identified as the most common types of medical errors. Diagnostic errors were frequently reported in both inpatient and outpatient settings often resulting from cognitive overload, inadequate clinical information, or system-related issues such as delays in test reporting. Medication errors were prevalent among nurses and pharmacists, commonly occurring during drug transcription, dispensing, or administration. Surgical errors included wrong site surgeries, retained surgical instruments, and postoperative complications, often linked to communication failures in the operating room.

The frequency of errors was significantly underreported in many studies, especially in non-Western settings, due to the fear of blame or legal consequences. A study by Prentice et al. reported that approximately 30-50% of healthcare providers had been involved in at least one serious error during their career, though the actual figure may be higher due to recall and reporting bias.

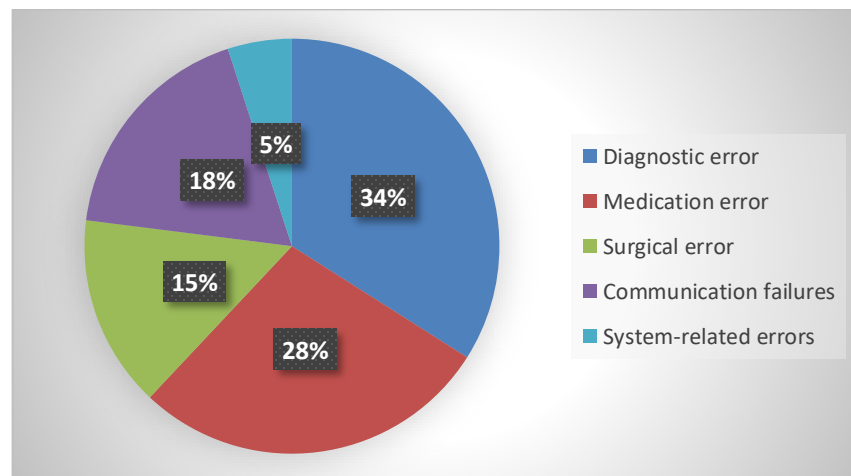


Figure 4.1 : Frequency of Medical Errors

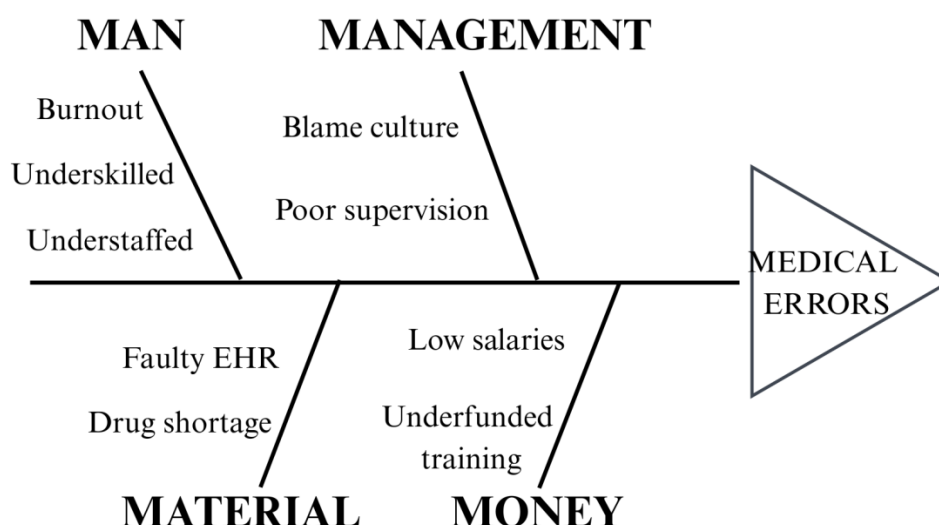


Figure 4.2: Fishbone diagram of medical errors

4.2 EMOTIONAL AND PSYCHOLOGICAL IMPACT ON HEALTHCARE PROVIDERS

A key finding across nearly all studies was the severe emotional toll that medical errors take on healthcare providers. Healthcare workers who were involved in errors-either directly or indirectly-often experienced intense feelings of guilt, shame, self-doubt, and fear of litigation or professional reprimand. Many described themselves as “second victims” of the error.

Several studies reported that providers suffered from symptoms similar to post-traumatic stress disorder, including flashbacks, anxiety, and insomnia. In a study by Waterman et al. (2019), 60% of physicians involved in serious medical errors reported in a significant negative impact on their emotional well-being, and 30% considered leaving the profession.

4.3 BURNOUT AND FATIGUE

Burnout became both a cause and a result of medical errors. As a concept characterised by emotional exhaustion, depersonalisation, and a reduced sense of accomplishment (Maslach & Jackson, 1981), burnout was shown to severely inhibit clinical judgement and augment the risk of errors. Li et al. (2013) highlighted the vicious circle connection between the burnout and medical errors, pointing out that emotional exhaustion diminished attention span and intellectual functioning, thus making error more likely.

On the other hand, clinicians who had made mistakes reported increased symptoms of burnout subsequently. This roundabout interaction, also called a “vicious loop”, has been associated with raised turnover, absenteeism, and even suicidal thoughts among healthcare professionals (Schwappach & Boluarte, 2019).

4.4 INSTITUTIONAL RESPONSE AND SUPPORT MECHANISMS

Institutional reactions to medication errors were highly inconsistent across environments. Structured programs like peer support, critical incident debriefings, and employee assistance programs were partly available in high-income nations. Nonetheless, even among these environments, numerous providers indicated inadequate emotional support and an overemphasis on punitive reactions.

In research conducted by White et al. (2017), a mere 20% of medical professionals reported receiving sufficient support following a medical mistake. Most institutions did not have formalised mechanisms for disclosure, counselling or reintegration. In comparison, hospitals with effective support systems reported improved mental well-being among the involved staff and greater willingness to report subsequent errors.

4.5 CULTURE OF SILENCE AND UNDERREPORTING

A common thread throughout the literature was the endemic culture of silence around medical error. Healthcare professionals, especially in non-hierarchical or punitive settings, were hesitant to report errors because they feared being blamed, their careers undermined or facing legal prosecution (Nabilou et al., 2015). Lack of confidentiality for many reporting systems discouraged open disclosure.

This silence not only impeded institutional learning and improvement in quality but also extended the emotional suffering of engaged healthcare professionals. A number of studies recommended a move from a culture of blame to a “Just Culture”, which acknowledges human fallibility while encouraging accountability and system-level learning.

4.6 THE VICIOUS CYCLE OF ERROR AND EMOTIONAL DISTRESS

The most profound and compelling result of the literature review is the creation of a self-sustaining cycle between burnout and medical errors. Providers under excessive stress and emotional exhaustion are more likely to make mistakes. After an error is made, the psychological burden expands, adding to burnout.

This cyclical process was documented in several studies, including those by Fahrenkopf et al. (2018) and Scott et al. (2020), which outlined the process through which emotional distress after an error lowered the confidence and clinical performance of clinicians, paving the way for subsequent errors. This feedback process highlights the pressing need for organisational policies that focuses on the psychological safety, early intervention, and care mechanisms.

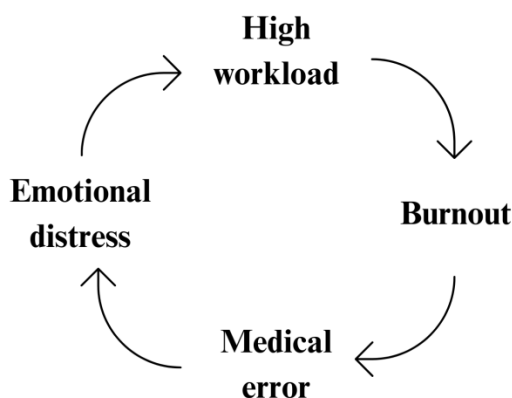


Figure 4. 3 : Cyclical relationship of burnout and error

4.7 QUANTITATIVE AND QUALITATIVE CORROBORATION

Although the methodology in this research is mostly qualitative, several studies underpinned their thematic results with quantitative evidence. For example, one such study by West et al. (2016) had surveyed 7905 doctors and concluded that those suffering from burnout were twice as likely to be the cause of a medical error. Likewise, the 2020 report of the American Medical Association approximated that physician burnout costs the healthcare system almost \$4.6 billion each year in turnover and decreased productivity.

Qualitatively, narrative interviews revealed that emotional scars from errors often outlasted the incident itself. One physician shared: “Even after three years, I still think about that patient every time I walk into the ICU”.

4.8 REGIONAL AND DEMOGRAPHIC VARIATION

The perception and experience of medical errors differed according to geography, maturity of healthcare systems, and even sex. In Indian and other low to middle income country studies, burnout was widespread owing to a lack of resources, absence of systems for reporting mistakes, and overloading of patients (Kumar et al., 2019). Women health workers experienced more emotional distress and were less likely to access institutional support (Jackson et al., 2017). Junior staffs like residents and nursing trainees were particularly susceptible, not having acquired experience or support systems.

CHAPTER 5: DISCUSSION

The current research aimed to investigate the effect of medical errors on healthcare providers, specifically focusing on how burnout is responsible for error occurrence and how being involved in an error influences the emotional and psychological state of healthcare providers. The findings, based on 21 chosen studies demonstrate a distinct, cyclical connection between provider burnout and medical errors, supporting the hypothesis that the mental health of healthcare professionals is both responsible for and results from patient safety events.

Among the most salient themes that emerged was the vicious cycle of burnout and medical errors. Thematic analysis reveals that burned-out and overwhelmed health professionals are more likely to experience lapses in clinical judgement, which in turn causes medical errors. These errors, in turn, have significant roles in causing elevated stress, anxiety, guilt, depression- expressions of what has been coined as the “second victim” phenomenon. This supports evidence from Robertson & Long (2018) and Li et al. (2023), who indicated that medical mistakes commonly cause severe psychological distress among healthcare professionals.

In line with the results of this research, Panagioti et al. (2018) conducted a meta analysis that indicated high levels of burnout among the physicians are significantly more likely to engage in medical errors. Expanding on this, the present study demonstrates that not only is burnout linked to an increased frequency of medical errors but also to a reduced rate of reporting. This hesitancy to report errors is typically based on feelings of guilt, apprehension about the legal implications, or a blaming organisational culture within institutions. This underreporting then ultimately undermines quality improvement initiatives and ensures systemic failures are sustained.

5.1 PSYCHOLOGICAL IMPACT ON HEALTHCARE PROVIDERS

The issue of emotional pain following a mistake was present throughout nearly all the articles reviewed. The psychological effect consists of guilt, lowered self-worth, loss of professional self-confidence, and in extreme instances, post-traumatic stress disorder (PTSD). This is supported by Seys et al. (2013), who reported a continuum of emotional reactions from sorrow and shame to depression and suicidal thoughts. The findings from the present research confirms these same issues, reporting that health systems routinely do not ensure that provider receive proper psychological support after adverse events. In addition, the subject of institutional culture and how it influences error perception and management also rose to prominence. Researches like that of White et al. (2021) and Schwappach & Boluarte (2009) indicate that institutions with a dominant blame culture discourage reporting of error and instead encourage provider isolation. Our findings corroborate this, indicating that institutions which promote support and openness- like those that practice “Just Culture”- enable both learning and emotional recovery after error.

5.2 LINK TO SYSTEM-LEVEL ISSUES

Although individual causes such as burnout and fatigue contribute largely to medical errors, systemic causes such as staff shortages, high workload, poor handovers, and a lack of decision support systems are also of equal importance.

It is evident from the findings that health professionals tend to work in environments that set them up for failure. These systems stresses not only contribute to burnout but also lead to unsafe patient care. This aligns with WHO's Global Patient Safety Action Plan (2021), that supports safety-focused design in healthcare delivery. Furthermore, research by Bell et al. (2023) and Anderson & Abrahamson (2017) highlighted that long shifts and poor rest drastically raise the risk of medication and diagnostic errors. The current research supports this with evidence directly correlated with fatigue causing impaired cognitive functioning. It should be noted that individual errors are observable, yet the system failures that facilitate them remain unseen in error analyses.

5.3 COMPARATIVE ANALYSIS

Relative to earlier studies, current research offers a more holistic perspective by interconnecting emotional, organisational, and system approaches. While the individual components of this cycle-burnout, medical error, psychological distress-have been studied separately, this study combines them into a holistic framework. It builds on existing work by creating a conceptual model of how burnout and medical errors are interlinked in a feedback loop.

This cyclical framework also aligns with Maslach's theory of burnout and Reason's Swiss Cheese Model of system failure, underscoring that errors are rarely the result of individual findings alone. The combination of vulnerable healthcare providers and vulnerable systems creates a dual risk, thereby necessitating interventions at both the personal and organisational levels.

5.4 STRENGTHS OF THE STUDY

- **Comprehensive thematic analysis-** One of the major strengths of this study lies in the rigorous thematic analysis applied to a wide range of peer-reviewed literature. This guaranteed that the findings remained up-to-date, closely aligned with present-day healthcare challenges, and relevant to ongoing developments in the field.
- **Focused inclusion criteria-** The study mentioned a clear focus on articles that explored both medical errors and healthcare provider burnout, allowing for a nuanced understanding of the interrelationship between the two. This focus helped in uncovering the cyclical dynamics that perpetuate both phenomena.
- **Use of PRISMA guidelines-** the application of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework enhanced transparency in the selection of sources and minimised bias in the inclusion and exclusion criteria of the studies, thereby increasing the reliability of the findings.

- **Relevance to clinical practice-** by identifying the interplay between burnout and error occurrence, and the barriers to reporting errors, the study offers direct implications for hospital administrators, policymakers, and mental health advocates. Its findings can help shape interventions that promote both patient safety and provider well-being.
- **Use of credible and peer-reviewed sources-** all sources referenced were from credible, indexed journals, thereby improving the scholarly rigor and validity of the conclusions drawn.
- **Operational definitions and structured methodology-** the clear definition of key terms such as burnout, second victim, and root cause analysis ensured clarity throughout the study. The structured methodology provided a reproducible model for similar future research.

5.5 LIMITATIONS OF THE STUDY

- **Secondary data reliance-** the study is based solely on the secondary data drawn from the published literature. As such, it does not include primary data from interviews, surveys, or direct observations, which could have enriched the findings with real-time insights from practicing healthcare professionals.
- **Language and accessibility bias-** only English-language articles were included, potentially excluding relevant research published in other languages.
- **Variability in study contexts-** the studies reviewed span multiple healthcare systems across different countries, which may differ significantly in infrastructure, policies, and cultural attitudes toward error reporting and burnout. This heterogeneity limits the ability to generalise findings to any single country or healthcare setting.
- **Lack of quantitative meta-analysis-** while the thematic synthesis was comprehensive, the absence of a quantitative meta-analysis (due to differences in study designs and outcome measures) prevents the assignment to statistical weight to the findings, which could have strengthened the conclusions.
- **Risk of publication bias-** the study may be subject to publication bias, as studies reporting significant relationships between burnout and medical errors are more likely to be published than those with null findings. This could skew the overall interpretation of the strength of association.
- **Potential researcher bias-** although PRISMA guidelines were followed, thematic analysis inherently involves subjective interpretation of qualitative data. There is a possibility that unconscious researcher bias influenced the identification and grouping of themes.

CHAPTER 6: CONCLUSION

This dissertation set out to explore the impact of medical errors on healthcare providers, emphasising the interplay between burnout and error occurrence, and to identify the underlying causes that drive these errors in clinical settings. Given the grave consequences that medical errors entail-for both patients and healthcare workers-this research provides critical insight into the psychological, operational, and systemic dimensions of such errors.

The healthcare industry is a complex ecosystem where the safety and well-being of patients are heavily reliant on the coordination, competence, and conditions under which providers operate. The increasing documentation of adverse events and preventable harm has signalled the urgent need for systemic improvements and a deeper understanding of how medical errors affect not just the recipients of care but also those who deliver it. The present study was motivated by the lack of comprehensive exploration into the lived experiences of healthcare providers involved in medical errors and the subsequent psychological and professional aftermath they endure.

Drawing from empirical findings and thematic analysis, this research has attempted to provide a multidimensional perspective on how medical errors arise, how they are perceived and reported, and most importantly, how they emotionally and professionally impact healthcare workers. It further evaluates existing literature to contextualise the findings and proposes systemic and behavioural reforms necessary to foster a culture of safety, transparency, and resilience.

One of the most prominent findings is the identification of multiple categories of medical errors that occur frequently within healthcare settings. These include diagnostic errors, medication errors, surgical mistakes, communication failures and system-related deficiencies. Equally significant was the observation of underreporting and concealment of medical errors among healthcare providers. The fear of legal action, professional stigma or blame from colleagues and superiors was commonly cited as a major deterrent to transparent reporting. This culture of silence perpetuates unsafe practices, hinders learning from past mistakes, and reduces opportunity for systemic improvements. The findings clearly indicate a need for shift toward a non-punitive, learning oriented safety culture within healthcare institutions.

From the perspective of healthcare professionals, the emotional and psychological impact of committing or witnessing a medical error was found to be profound and long-lasting. The term “second victim” aptly describes this group- clinicians who suffer from guilt, shame, anxiety, and reduced self-confidence following an adverse event. Many reported symptoms comparable to post-traumatic stress disorder (PTSD), and some even experienced suicidal ideation. The findings affirm the bidirectional relationship between medical errors and provider burnout: errors increase the risk of burnout, and burnout, in turn, predisposes individuals to make more errors.

Moreover, the research revealed that the support systems for affected healthcare providers are either absent or grossly inadequate in most institutions, especially in resource constrained settings. Few organisations offer structured peer support programs or psychological counselling for staff involved in errors, leading to emotional isolation and job dissatisfaction.

The Indian context revealed added complexities. Societal stigma, professional hierarchy, fear of litigation, and lack of structured safety frameworks all serve as deterrents to error disclosure and emotional healing. Burnout rates among Indian clinicians are high, yet mental health support systems are rare. The gap between recognition of the problem and actionable institutional reform remains wide.

6.1 IMPLICATIONS OF THE STUDY

The findings of this research have far-reaching implications for healthcare systems, not just in terms of patient safety but also in understanding and mitigating the collateral emotional and professional damage experienced by healthcare providers.

- **Clinical Practice-**

A major implication of the findings is the urgent need to reinforce clinical decision-making processes through structured tools and safeguards. Given that diagnostic and medication errors were among the most prevalent, implementing clinical decision support systems (CDSS), checklists, and double-check protocols can play a crucial role in reducing the prevalence of preventable mistakes. Furthermore, reinforcing protocols for surgical safety, patient identification, and informed consent can help eliminate many of the system-related and communication-induced errors that the study identified.

- **Organisational Culture and Policy-**

The study unveils the crucial point that organisational culture plays in either worsening or lessening the effect of medical mistakes. A punitive or blame-driven culture discourages error reporting and hinders institutional learning. Therefore, healthcare organisations must invest in cultivating a “Just Culture” framework—one that promotes transparency, accountability, and learning from mistakes without fear of retribution. The use of incident-reporting systems with anonymous or non-punitive opportunities can facilitate greater honest reflection and reporting. Also, the implementation of Root Cause Analysis (RCA) and Failure Mode and Effect Analysis (FMEA) as normal response tools in case of blame to system-level change. These instruments assist in healthcare facilities to analyse the root causes of errors and implement proper countermeasures. The implications of the study again emphasise the need for institutional commitment to applying such methodologies regularly and in earnest.

- **Psychological Support Systems-**

Maybe one of the most overlooked implications is the necessity of equipping the mental health and resilience of healthcare professionals. The notion of healthcare

professionals as “second victims” needs to be made institutionalised through tangible steps. Psychological counselling, peer support initiatives, and wellness workshops need to be made available and made routine for hospitals and clinics. Especially, timely intervention after an error event can avert the aggravation of stress and alleviate the long term emotional burden. Additionally, incorporation of mental health assistance in human resource policy has the potential to decrease emotional vulnerability and encourage help seeking behaviours. Occupational health departments must be empowered to address not only physical but psychological well-being too. Such steps would not only enhance the well-being of providers but also result in increased retention, job satisfaction, and improved patient outcomes.

- **Implications for Healthcare Leadership-**

Leadership is critical in influencing institutional reactions to medical errors. The results of this study indicate that there should be top-down dedication in building safer and more sustainable healthcare systems. Policy-makers and hospital administrators need to invest funds not only on safety technology but also on culture change and employee support. Leaders also need training in emotional intelligence, conflict management, and just culture tenets so they can manage medical errors with tact and strategy.

In most healthcare facilities, particularly in low- and middle-income countries, hierarchical systems discourage lower-level staff from reporting issues. Frontline healthcare workers can be empowered by regular feedback cycles, anonymous surveys, and membership on quality improvement committees to break these hierarchies and enhance organisational responsiveness.

- **Implications for Education and Training-**

Lastly, the findings of this research emphasises the importance of medical and nursing education to tackle the emotional, ethical and pragmatic aspects of medical errors. Curriculum must incorporate simulation-based education for managing adverse events, disclosure communication skills, and professional resilience sessions. The education of future clinicians to react constructively to medical mistakes can have a significant impact on the improvements of outcomes for patients as well as healthcare practitioners.

Teachers should also educate students in reporting error protocols, quality improvement measures, and systems thinking- emphasising that errors are seldom the fault of a lone incompetent but are frequently systemic in origin. Embedding these concepts can assist in changing the culture from shame and silence to learning and safety.

In conclusion, medical errors are not just a clinical error but also an intense ethical and emotional problem. Though there has been some progress brought about by the developments in technology, education, and policy, true change will have to come in the form of cultural change at the organisational level- one where compassion, openness, and

strength are valued above all. Safeguarding the health of healthcare providers is not just a professional responsibility- it is a building block of patient safety and quality care.

CHAPTER 7: RECOMMENDATIONS

On the basis of this study's findings that underscore the cyclical relationship between medical errors, healthcare professional burnout, and system vulnerabilities, the following evidence-based suggestions are suggested. These strategies aim to mitigate medical errors, support affected providers, and foster a culture of safety and transparency in healthcare systems-particularly in resource-constrained settings like India.

7.1 SYSTEMIC AND ORGANISATIONAL REFORMS

Strengthen error reporting and analysis

- **Implement non-punitive, anonymous reporting systems** to encourage healthcare workers to disclose medical errors without any fear of retribution.
- **Mandate Root Cause Analysis (RCA)** for all serious adverse events, focusing on systemic flaws rather than individual blame.
- **Adopt Failure Mode and Effects Analysis (FMEA)** proactively to identify and mitigate risks in high-stakes processes (e.g., surgery, medication administration).

Optimise workforce and workflow

- **Establish safe staffing ratios** to reduce burnout related errors, particularly in high-intensity units like ICU, emergency departments.
- **Limited extended shifts** for nurses and residents, aligning with WHO guidelines on healthcare worker fatigue.
- **Streamline electronic health records (EHRs)** to minimise usability errors (e.g., standardised dropdown menus, alerts for drug interactions).

Technology integration

- **Scale up Clinical Decision Support System (CDSS)** to reduce diagnostic and medication errors.
- **Leverage AI for real-time error detection** like predictive analytics for sepsis, dosage miscalculations, etc.
- **Promote interoperable EHRs** to ensure seamless data sharing across departments, reducing communication gaps.

7.2 PSYCHOLOGICAL AND INSTITUTIONAL SUPPORT FOR HEALTHCARE PROVIDERS

Second victim support programs

- **Establish peer support networks** for clinicians involved in medical errors, modelled after programs like RISE (Resilience in Stressful Events) at John Hopkins.

- **Provide confidential counselling services** to address guilt, anxiety, and PTSD symptoms post-error.
- **Train leaders to recognise burnout** using validated tools (e.g., Maslach Burnout Inventory) and intervene early.

Cultural shift towards “Just Culture”

- **Replace blame with accountability and learning**, emphasising that most errors stem from system failures rather than blaming an individual.
- **Conduct regular safety briefings** where teams discuss near-misses and errors openly.
- **Recognise and reward transparency** in error reporting to reinforce psychological safety.

7.3 EDUCATION AND TRAINING INTERVENTIONS

Curriculum enhancements

- **Integrate error management training** into medical and nursing education, including-
 - Simulation-based exercises for high-risk scenarios like misdiagnosis, wrong site surgery, etc.
 - Communication skills for error disclosure to patients and families.
- **Teach cognitive bias mitigation** to reduce diagnostic errors.

Continuous professional developments

- **Mandate annual workshops** on stress resilience and self-care strategies, and team based error prevention.
- **Train frontline staff in RCA methodologies** to empower them as safety advocates.

7.4 POLICY AND ADVOCACY MEASURES

National/Regional Policies

- **Develop a National Patient Safety Authority**, modelled after the U.S. Joint Commission, to enforce error-reporting standards and hospital accreditations.
- **Legislate protections for whistle blowers** to encourage safe reporting of unsafe practices.
- **Allocate funding for mental health programs** targeting healthcare workers.

Hospital-level leadership actions

- **Appoint patient safety officers** to oversee error reduction initiatives and staff support programs.

- **Tie hospital funding to safety metrics**
- **Promote interdisciplinary safety committees** to review errors and implement corrective actions.

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