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Assessment of Patient Safety Culture at Al-Ahli Hospital - Hebron.

تقييم ثقافة سلامة المرضى في المستشفى الاهلي في الخليل.

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A thesis submitted in fulfillment of requirements for the Degree of Masters in

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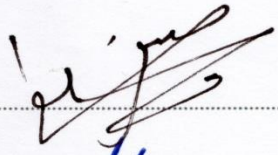
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Dedication

This thesis is dedicated to the following:

The sake of Allah, my Creator and Master, my strong pillar, my source of inspiration, wisdom, knowledge, and understanding.

To the great teacher and messenger, **Mohammed (May Allah bless and grant him)**, who taught us the purpose of life.

To my dear father, **"Aiman,"** who has been a wonderful supporter until my research was completed. To my beloved mother **"Rana,"** who has encouraged me for months. Their words of encouragement and push for tenacity ring in my ears.

To my loving **sisters and brothers** who have never left my side and are very special.

To my many **friends and classmates** who have supported me throughout this journey.

To my second family, my **colleagues at Al-Ahli Hospital,** who always encourage and believe in me.

I dedicate this research to all the people in my life who touch my heart.

Acknowledgements

Abstract

Patient safety is well recognized in the literature and practice as leverage for quality healthcare services. This study aimed to assess patient safety culture among staff at Al-Ahli Hospital in Hebron. This cross-sectional descriptive study distributed 406 clinical and non-clinical staff surveys in May-June 2022. The selection of participants employs a proportional stratified convenient sampling method. Three hundred sixty-two subjects completed questionnaires were returned, yielding an 89.2% response rate.

The data collecting tool is the Hospital Survey on Patient Safety Culture (HSOPSC). It is widely used in the literature as a self-administered questionnaire developed by the Agency of Healthcare Research and Quality (AHRQ) to address patient safety culture issues in hospital settings. HSOPSC comprises 14 dimensions; 12 cultural dimensions and two outcome measures. Data collected were analyzed using SPSS version 26.0.

Findings reveal many relevant strengths and weaknesses at Al-Ahli hospital. Teamwork within units and organizational learning-continuous improvement were areas of strength. While staffing, non-punitive response to errors and the number of events reported were considered areas for potential improvements.

Based on the participant's job title, there is a statistically significant difference in patient safety perceptions among hospital staff related to five patient safety culture dimensions; feedback and communication about errors, teamwork across hospital units, staffing, hospital handoffs, and non-punitive response to errors. Regression findings revealed a significant relationship between the staff's overall perception of patient safety culture and other patient safety culture predictors. These include supervisor/manager expectations, actions promoting patient safety, management support for patient safety, and handoffs and transitions (P-value < 0.05). Finally, despite the few exceptions in this work, the findings were relatively similar to previous local and regional studies.

The findings of this study emphasize the necessity of developing a thorough reporting on adverse events in a just culture far from blaming. An effective reporting system will help monitor and regulate patient safety while providing data on the effectiveness of applied interventions for learning and continuous improvement. The study's findings suggest revising the hospital staffing process to ensure adequate workload and services. A well-structured process for handoffs and transitions while moving patients is also recommended.

Keywords: Healthcare quality; Patient safety culture; HSOPSC; Al-Ahli Hospital, Palestine.

تقييم ثقافة سلامة المرضى لدى العاملين في المستشفى الأهلي في الخليل

ملخص الدراسة

يزداد الاهتمام في البحث العلمي بسلامة المريض كونه رافعة أساسية لجودة الخدمات الصحية المقدمة. هدفت هذه الدراسة إلى تقييم ثقافة سلامة المرضى لدى العاملين في المستشفى الأهلي في الخليل، و التي أجريت خلال الفترة من أيار إلى حزيران من العام 2022م. لتحقيق هدف الدراسة، تم اختيار عينة طبقية مُرضية مكونة من 406 موظف من جميع أقسام المستشفى، وتم استخدام استبيان مطور من قبل "وكالة أبحاث و جودة الرعاية الصحية" في أمريكا مكونة من 14 بعداً لتقييم ثقافة سلامة المرضى.

بلغت نسبة الاستجابة 89.2%. أظهرت نتائج التحليل الاحصائي بأن "العمل الجماعي" داخل القسم الواحد و"التعلم التنظيمي– التحسين المستمر" هي أبرز نقاط القوة في المستشفى، لكن في المقابل تبين بأن "التوظيف"، و"الاستجابة غير العقابية للأخطاء" و"عدد الحوادث" المبلغ عنها في آخر 12 شهر قبل جمع البيانات هي نقاط ضعف وبحاجة إلى تحسين.

أظهرت النتائج أيضا وجود اختلافات تبنى على أساس المسمى الوظيفي بين العاملين في نظرتهم نحو خمسة من أبعاد ثقافة سلامة المرضى: التغذية الراجعة والتواصل حول الأخطاء الطبية، والعمل الجماعي بين الأقسام، والتوظيف، والاتصال ونقل المعلومات عند تسليم المرضى بين مقدمي الخدمة الصحية.

أظهرت نتائج الانحدار الخطي وجود علاقة ذات دلالة إحصائية بين التصور العام للموظفين حول ثقافة سلامة المرضى وأبعاد ثقافة سلامة المرضى التالية: توقعات وإجراءات المشرف/المسؤول التي تعزز ثقافة سلامة المرضى، ودعم الإدارة لسلامة المرضى، والاتصال ونقل المعلومات عند تسليم المرضى بين مقدمي الخدمة الصحية.

خلصت الدراسة إلى عدة توصيات أبزها ضرورة وجود نظام متكامل للتبليغ عن الأخطاء الطبية في المستشفى ضمن بيئة عادلة تدعم الانفتاح في مناقشة الأخطاء الطبية بعيدا عن التركيز على لوم الأفراد أومعاقبتهم، حيث يساعد هذا النظام على التعلم من الأخطاء من أجل التحسين المستمر لخدمات الرعاية الصحية المقدمة.

وأوصت الدراسة بضرورة إعادة النظر في سياسات التوظيف والتأكد من ملائمتها لعبء العمل وطبيعة وجودة الخدمات الصحية، أكدت الدراسة على أهمية وجود سياسة واضحة لعملية تسليم ونقل معلومات المرضى بين مقدمي خدمات الرعاية الصحية.

الكلمات المفتاحية: جودة الخدمات الصحية، ثقافة سلامة المرضى، HSOPSC، المستشفى الأهلي، فلسطين.

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List of Abbreviations

AHRQ	Agency for Healthcare Research and Quality
HRO	High-Reliability Organization
HSE	Health and Safety Executive
HSOPSC	Hospital Survey on Patient Safety Culture
ICPS	International Center for Patient Safety
ICU	Intensive Care Unit
IHI	Institute for Healthcare Improvement
IOM	Institute of Medicine
JCI	Joint Commission International
JCR	Joint Commission Resources
MAPSAF	Manchester Patient Safety Assessment Framework
MoH	Ministry of Health
MSI	Modified Stanford Patient Safety Culture Survey Instrument
NAM	National Academy of Medicine
OPT	Occupied Palestinian Territories
PSC	Patient Safety Culture
PSCHO	Patient Safety Culture in Healthcare Organizations
SAQ	Safety Attitudes Questionnaire
SOS	Safety Organizing Scale
UNRWA	United Nations Relief and Works Agency
USA	United States of America
WHO	World Health Organization's
WHO EMRO	World Health Organization's Eastern Mediterranean Regional Office

Chapter One: Introduction

This introductory chapter overviews the core role of patient safety culture in enhancing the quality of healthcare services. It introduces the research problem, purpose, and significance. The chapter introduces assessing patient safety culture from the staff perspective at Al-Ahli Hospital to identify opportunities for improving patient safety and quality.

1. Overview.

2. Research problem and purpose.

3. The significance of the research.

4. Research questions.

5. Research hypotheses.

6. Research scope.

7. Research structure.

8. The healthcare sector in Palestine / Al-Ahli Hospital profile.

1.1 Overview

Healthcare organizations continually strive to improve service quality and patient safety by attracting qualified staff and professionals and keeping pace with modern technologies. However, the essence of improvement lies in the adequate organizational culture supporting improvement efforts—the so-called "patient safety culture" in healthcare organizations that guides healthcare cadres as patient-centered workplaces.

Therefore, the quality of care has become a global concern and an essential factor in assessing the effectiveness of different healthcare initiatives (Haj et al., 2013). So patient safety is a critical element of healthcare quality, and it's a mistake to separate safety from quality, where both are equally important in healthcare settings (Stelfox et al., 2006).

The benefits of healthcare services are expressed in terms of achievable outcomes while considering the resources available and current social values (Silva-Batalha & Melleiro, 2015). The Institute of Medicine (IOM) defines the quality of care as " the degree to which healthcare services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Chassin et al., 2013).

Quality in healthcare has been the interest of practitioners and academics for a long time. However, quality dimensions have been discussed heavily in the literature. The IOM report "Crossing the Quality Chasm" mentioned the most expected quality aspects. The report lists many performance indicators that, if handled and enhanced, would contribute to more excellent quality improvement results. For that purpose, the report proposes six key quality improvement goals which should be considered in healthcare (Baker, 2001):

(1) Safe care: preventing patient harm resulting from the care that intends to benefit them.

(2) Effective care: delivers evidence-based services to all who may benefit while excluding those unlikely to gain.

(3) Patient-centered care: entails respecting and responding to unique patient choices, requirements, and values and assuring that patient values are at the forefront of all therapeutic decisions.

(4) Timely care: minimizes wait periods and potential delays for patients and caregivers.

(5) Efficient care: includes preventing waste, specifically waste of equipment, materials, ideas, and energy.

(6) Equitable care: entails that it is of equal quality regardless of personal attributes such as gender, race, geographic region, or socioeconomic level.

1.2 Research Problem and Purpose

It is unacceptable for patients to be mistreated by the healthcare system designed to treat and comfort them. People should not have to worry about the health system harming them, whether they are ill or just trying to stay healthy (Kohn et al., 1999). Quality in healthcare is defined as the patient gaining higher benefits while posing fewer risks.

According to the "To Err Is Human" report in 1999, the percentage of adverse events is 2.9 - 3.7% of hospitalization, and over half of these events are preventable (Kohn et al., 1999). Several studies have revealed that 10-12% of hospitalized patients encounter adverse events; around half can be avoided (AHRQ, 2019b).

Also, as mentioned by WHO, it is commonly known that 10% of inpatient hospitalizations result in adverse events worldwide. Up to 18% of hospital admissions in the Eastern Mediterranean Region are linked to adverse events. Around 3% of those admissions are related to an adverse event severe enough to result in death or lifelong disability. It is estimated that 83% of all adverse events are preventable.

Recently, there has been a clear trend within Palestinian healthcare organizations to emphasize healthcare quality. They look for international accreditation and certificates related to quality (Hamdan & Saleem, 2013, 2018). The accreditation process focuses on improving the culture of

patient safety among organizations' staff, aiming to minimize avoidable patient harm while providing medical services. All these accreditation systems (e.g., JCI accreditation) necessitate a regular assessment of patient safety (Liu, 2019).

Despite these initiatives, hospitals and health officials in Palestine continue to lack the evidence and baseline patient safety data required for developing perspectives and strategies for enhancing patient safety and keeping proper interventions after implementation (Najjar et al., 2013). Evidence shows that one out of every seven patients in Palestinian hospitals has one or more adverse events (AEs), with 59.3 percent of these AEs avoidable.

According to Najjar et al. (2015), reduced adverse events at hospitals in Palestine at the departmental level are related to a more supportive patient safety culture.

Few previous Palestinian studies targeted the hospitals and addressed the patient safety culture issues; for example, Hamdan & Saleem (2013a), but none investigated the realities or the possibilities of safety culture in Al-Ahli hospital in the southern West Bank. It is a non for profit organization that operates 250 beds (relatively large in the Palestinian context). It provides secondary and tertiary medical services. It is vital in a catchment area of more than a million Palestinians in the Southern West Bank (Al Ahli Hospital Records, 2022).

During the last five years, Al-Ahli hospital has been reforming with more emphasis on quality of care and preparing for accreditation; therefore, this thesis aims to investigate the patient safety culture among its caregivers. Data was quantitatively collected by surveying a representative sample of hospital staff. The survey employs the HSOPSC questionnaire to achieve this purpose. The expected results may shed light on strengths and weaknesses to help the hospital management for potential quality enhancement.

1.3 The Significance of the Research

A good hospital safety culture means that the staff members follow best practices for the patients even when no one supervises them. They are all aware of the possibility of making mistakes, so they try to prevent harm or any medical error that may infect the patients and approach the relevant consequences correctly (Gözlü & Kaya, 2014; WHO, 2019).

Safety culture assessment can achieve many purposes, including upgrading staff awareness of patient safety, assessing the current state of patient safety culture within the health organization, and identifying strengths of safety culture and areas of potential improvements. Besides, many international accreditation systems recognize the vital role of patient safety culture and embed it as an essential dimension of the accreditation process AHRQ (Reis et al., 2018; Sorra et al., 2016).

Because Al-Ahli hospital management is developing its quality strategy and because safety culture is essential, from a practical point of view, this study is considered a preparatory step to identify areas of strengths and weaknesses. Results may guide hospital management to reinforce the strengths and identify urgent modifications to overcome weaknesses.

From a theoretical point of view, few studies have tackled the issue of patient safety culture in Palestine like Zabin et al. (2022), Abu-El-Noor et al. (2017, 2019), Najjar et al. (2015) and finally, Hamdan & Saleem (2013). However, this investigation is the first in Al-Ahli Hospital, so this thesis may contribute to a better understanding of the patient safety culture. It will help to fulfill the gap that exists in the literature.

1.4 Research Questions

To achieve the purpose of this thesis, this work tries to answer the following research questions:

The main research question (RQ) is "How does Al-Ahli hospital staff perceive the patient safety culture?"

Other sub-questions will be answered through this research as follows:

RQ1) Does Al-Ahli hospital staff perceive patient safety culture differently?

RQ2) What patient safety culture dimensions significantly affect the overall perceptions of hospital staff?

1.5 Research Hypotheses

The research tested two main null hypotheses:

1   H_01: Based on staff job title, there are no significant differences across staff groups at Al-Ahli hospital in perceiving patient safety culture dimensions.

2   H_02: There is no significant effect of the patient safety culture dimensions on the overall perception of patient safety culture.

1.6 Research Scope

The study focuses on assessing the perceptions of hospital staff about patient safety culture in Al-Ahli Hospital in Hebron-Palestine between May and June 2022 to identify the strengths and weaknesses of safety culture within the hospital from the employees' perspective. The study excludes the policy makers in the Palestinian healthcare system.

1.7 Research Structure

This thesis comprises five chapters; the first introduces this research and includes the research problem and general information about healthcare quality and patient safety in hospitals. Then, the second draws the theory and concepts of patient safety.

Later, the third includes the methodology and introduces research design, data collection techniques, and building and analysis procedures. Finally, the last two chapters analyze and discuss the results concluding and providing recommendations.

1.8 Healthcare Sector in Palestine

The Palestinian Ministry of Health (MoH), the Military Medical Services, the United Nations Relief and Works Agency for Palestine Refugees (UNRWA), the non-governmental and non-profit organizations, and the private sector are the primary providers of healthcare services in Palestine (MoH, 2021). The Ministry of Health is in charge of overseeing all government-run hospitals and medical centers. It's also in charge of drafting and enforcing health policies and registering and licensing providers in the Palestinian healthcare sector (Abdullah, 2018). Accreditation and licensing of health professionals and facilities, such as hospitals and health centers with diverse specialties, and the renewal of licenses to practice the profession for doctors and certain types of health workers, are all part of this process (Abdullah, 2018).

The Palestinian healthcare system classifies the healthcare sector services into three levels:

- Primary health care is the first level of health care that the Palestinian Ministry of Health (MoH) provides. MoH collaborates with nonprofit health organizations to identify healthcare needs and a commitment to health equity as part of social justice-oriented development. It is based on community involvement in establishing and implementing health strategies and initiatives by general practitioners and public health nurses (Abdullah, 2018; MoH, 2021).

There are 749 primary healthcare centers in Palestine; 65.7% are affiliated with the Ministry of Health and Military Medical Services, 8.7 % with UNRWA, and 25.6 % with non-governmental organizations (MoH, 2021).

- Medical specialists provide secondary health services to individuals referred from public health clinics who require specialized doctors' follow-up. Patient examinations, laboratory tests, x-rays, tomography, and magnetic resonance imaging are all used at this level to diagnose. Secondary providers provide early treatments to prevent disease progression and symptoms flare-ups or transfer patients to the tertiary level for the necessary therapeutic interventions (Abdullah, 2018).

- The advanced level of health services (tertiary) providers is specialized consulting health care. They usually treat cases referred from primary and secondary health care doctors to confirm the accuracy of the diagnosis and make the necessary medical interventions to provide the required treatments. General regional or specialized hospitals provide advanced (tertiary) health care with appropriate infrastructure to perform surgical operations and teams of specialized doctors, nurses, health technicians, operating rooms, intensive care resuscitation equipment, and others (Abdullah, 2018).

In the Occupied Palestinian Territories (OPT), 87 hospitals provide secondary and tertiary health care services, with 53 in the West Bank, including East Jerusalem, and 34 in Gaza. Government hospitals account for 32% of the total hospitals, with a bed capacity of 3,590. At the same time, non-governmental organizations run 39 hospitals, accounting for 44.8 %, and the private sector owns 17 hospitals, accounting for 19.5 %. The military medical services also administer two hospitals, accounting for 2.2 %, and one run by UNRWA, accounting for 1.5% (MoH, 2021).

According to Abdullah (2018), since the Palestinian National Authority took over the responsibility of the healthcare sector in 1994, the healthcare sector has made great strides. The development encompassed all disciplines and levels of healthcare, including primary, secondary, and advanced (tertiary) levels, whose scope (services) and reach (access) to Palestinian citizens were significantly expanded. However, it is thought that the concentration on physical capacity and quantity came first before the quality and safety of the services provided (Hamdan & Saleem, 2013). As a developing country, Palestine has lately prioritized providing high-quality healthcare services (Najjar, Hamdan, Euwema, et al., 2013).

Since 2011, the Palestinian Ministry of Health (MoH) has prioritized access to high-quality health care. Improving quality and safety has become one of the critical strategic issues in national health strategy (MoH, 2011). Therefore, the Ministry of Health has expanded its partnership with East Jerusalem hospitals on quality improvement and accreditation initiatives (Najjar et al., 2013).

Despite these initiatives, hospitals and health officials in Palestine lack the evidence and baseline patient safety data required to develop perspectives and strategies for enhancing patient safety and keeping proper interventions after implementation (Najjar et al., 2013).

Moreover, The Ministry of Health seeks to develop the accreditation system in Palestinian hospitals by establishing an accredited national body and starting the institutional accreditation for Palestinian hospitals. The accreditation approach's application guarantees continuous improvement in the quality of health services and patient safety (MoH, 2020).

The Ministry of Health (MoH) has joined the WHO's Patient Safety Friendly Hospital Initiative (Hamdan & Saleem, 2013). The World Health Organization's Eastern Mediterranean Regional Office (WHO EMRO) began this initiative in 2007 to address the region's massive problem of unsafe healthcare. Moreover, this initiative regularly evaluates the safety culture at participating hospitals (Siddiqi et al., 2012).

1.8.1 Al-Ahli Hospital

Al-Ahli Hospital was founded in Hebron in 1988 and is affiliated with the non-profit organization Patient's Friends Society, a non-profit charity organization whose strategic purpose is to raise and improve healthcare services in the Hebron Governorate and in Palestine in general.

Al-Ahli Hospital now has a capacity of 250 beds, but after completing the current development projects, it will expand to more than 300 beds. Al-Ahli Hospital serves about 160,000 people annually (outpatients and inpatients), with over 29,000 admissions to different departments. The hospital employs 987 personnel throughout all medical and non-medical departments (Al Ahli Hospital Records, 2022).

As part of the hospital's efforts to improve the quality of health services and patient safety, the Quality and Infection Control Department was established in 2017. Its goal is to enhance healthcare

quality and develop professional practices without harm, following internationally and locally acceptable guidelines and protocols.

After that, the management in Al-Ahli hospital is integrating efforts with the Quality Department to obtain Joint Commission International (JCI) accreditation. JCI accreditation is vital for enhancing and controlling the quality of healthcare services and ensuring patient safety. Therefore, investigating patient safety culture among Al-Ahli Hospital staff is a necessary prelude to future quality improvement and accreditation initiatives.

Chapter Two: Literature Review

This chapter introduces this thesis's theoretical background and empirical evidence from previous work. Local and international studies tackling the issue of patient safety culture are included in this chapter. The chapter also highlights the research methods of many studies that guide the methodology of this thesis. So this chapter tries to justify the research theory, research gap, and applied methodology. The chapter discusses the following sections:

1. Patient safety.
2. Patient safety culture.
3. Previous studies.

2.1 Patient Safety

A quarter-century ago, there was no such thing as patient safety, and the lack of research and attention to medical accidents could reasonably be described as negligent (C. A. Vincent, 1989). Considerable efforts have improved healthcare safety in the last decade due to widespread acceptance and awareness of medical harm (C. Vincent & Amalberti, 2016,1).

In 1999, the Institute of Medicine (IOM) issued a report titled "To Err is Human: Building a Safer Health System," which advocated for a public attempt to make health care safer (Stelfox et al., 2006). The report significantly boosted the visibility of patient safety and sparked dedicated research funding for this critical part of patient care. It brought the issue of medical errors to the public and demonstrated why every healthcare organization in the United States and globally must prioritize safety (Bates & Singh, 2018). The IOM report raised several vital points: errors are frequent and costly; system-related issues induce errors; mistakes may be avoided, and safety can be enhanced (Kohn et al., 1999).

2.1.1 What is Patient Safety?

"Safety" refers to preventing short- and long-term harm to individuals due to hazardous activities and preventable adverse events (The Joint Commission, 2012).

The publication of "To Err is Human" is considered the beginning of the modern patient safety movement (AHRQ, 2019b). According to C. Vincent & Amalberti (2016), patient safety movements can achieve safety goals in different ways:

1. To lessen physical and psychological damage to patients.

2. To minimize the harm that could be prevented.

3. To decrease medical errors.

4. To boost trustworthiness.

5. To establish a safe system.

Institute of Medicine (IOM) definition of patient safety is "freedom from accidental injury" (Kohn et al., 1999), and according to WHO, patient safety is "to not harm patients," "the prevention of errors and adverse effects to patients associated with health care" (WHO, 2009).

Patient safety is a healthcare discipline that employs safety science approaches to achieve a reliable healthcare delivery system (Emanuel et al., 2009).

Patient safety is another feature of the health care system; it reduces adverse events' occurrence and effects while maximizing recovery (Emanuel et al., 2009).

"Safety science" refers to the techniques for acquiring and using safety knowledge to produce a high-reliability design to prevent the operator from performing the function incorrectly (Emanuel et al., 2009).

To sum up, patient safety is a set of systematic and reliable practices that reduces the likelihood of incidents during care provision.

Patient safety contributions are seen in various fields, including engineering, social sciences, psychology, psychometrics, health services research, statistics, philosophy, ethics, education, computer sciences, and more. Patient safety examines each discipline's merits and selects the best approach for the issue (Emanuel et al., 2009).

2.1.2 Medical Errors and Adverse Events

Shortcomings might arise, and as a result, adverse events can occur at any point during the care process, from diagnosis to treatment to preventive care (Kohn et al., 1999). Adverse events may cause unintended complications, jeopardizing patient safety and posing one of the most significant obstacles to quality improvement in the health industry (Silva-Batalha & Melleiro, 2015).

Although the concept of medical errors has long been known, the current literature on the subject began with a well-known 1956 New England Journal of Medicine study on diseases of medical progress (AHRQ, 2019b). Error is "the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim" (Kohn et al., 1999).

Despite that, safety research remained small and relatively ignored until the 1990s; following the issuance of the IOM report in 1999, people became more aware and concerned about patient injuries throughout the world, and patient safety has become a top priority for the industry (Ehrnsperger, 2016; P. J. Pronovost et al., 2009). People began to think differently about harm because harm could still be dramatically reduced even in a situation with no apparent error (Bates & Singh, 2018).

In the 1990s, the thought started to shift due to new emerging knowledge related to the frequency of medical errors and the recognition that most of these errors were judged as avoidable (Emanuel et al., 2009).

Generally, adverse events are characterized as harm caused by medical treatment rather than the disease itself (AHRQ, 2019b). It is defined as an accidental incident that is or might be detrimental to the patient during medical care and is unrelated to the disease or condition for which the patient sought treatment (Tot et al., 2022).

Medication error is defined by The Joint Commission (2012) as an avoidable incident that may result in improper medication usage or patient injury when the medication is in the hands of a healthcare practitioner, patient, or consumer. These occurrences may be connected to professional practice, healthcare products, processes, and systems, such as prescription, order communication, product labeling, packaging, nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and usage.

A recent study by Wilson et al. (2012) examined the frequency and nature of adverse events in Egypt, Jordan, Kenya, Morocco, Tunisia, Sudan, South Africa, and Yemen. According to the

findings, 8.2 % of the records evaluated had at least one adverse event, ranging from 2.5 % to 18.4 % in each country. 83% of these adverse events were preventable (55% -93%). Approximately 30% of adverse events resulted in the patient's death. These findings translate to about 2% of patients in hospitals across the eight countries experiencing an adverse event that resulted in their death (Wilson et al., 2012).

It was traditionally assumed that well-trained, diligent practitioners do not make errors. This traditional view paired error with incompetence and considered punishment as both reasonable and beneficial in motivating people to be more cautious (Emanuel et al., 2009). The spreading of such a view has a negative impact, where patients and supervisors were commonly kept out of the loop because practitioners rarely disclosed errors. Due to this lack of reporting, learning from mistakes was practically impossible (Emanuel et al., 2009).

James Reason (1990) demonstrated the reason behind medical errors. Punishing people for such errors seems to make little sense because errors will reoccur unless the main reasons are addressed. He confirmed that errors are defects in the system organization management, training, and equipment design are the root causes of errors (Reason, 1990).

- **Categories of patient harm:**

According to James Reason, two types of failures lead to errors: either the proper action does not go as planned (execution error), or the initial intended step is incorrect (planning error) (Kohn et al., 1999).

There are different subcategories of adverse events which describe patient harm related to the medical care process rather than from the disease itself (AHRQ, 2019b):

1. Preventable adverse events result from mistakes or failures to follow a proven preventive plan.

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2. Ameliorable adverse event: incidents that, while unavoidable, may have been less detrimental if care had been provided differently.

3. Adverse events due to negligence occur due to care that falls short of the community's expectations for clinicians.

The hazard that doesn't cause harm to patients is referred to in two different terms: (1) near misses, which are similar to preventable adverse events but differ only in their outcome. A patient is exposed to a hazardous situation through luck or early detection without harm. (2) error which is a broader phrase for any act of commission (doing something wrong) or omission (failure to do the right thing) that puts the patient in a potentially dangerous circumstance (AHRQ, 2019b).

Several sorts of patient safety errors can be avoided by utilizing information technology. This includes medication and diagnostic errors, patient identification issues, and a lack of data accessibility for patients and clinicians. Furthermore, using the technology, abnormal test results and essential referrals can be followed up on time (Bates & Singh, 2018).

However, it has become evident that health IT inevitably introduces difficulties. Emerging patient safety priorities are linked to this technology itself. Ensuring the safe use of the technology by physicians, staff members, and patients provides optimal service to promote patient safety. The latter involves using technology to identify and track risks and safety events and intervening before harm occurs (Bates & Singh, 2018).

- **Cost of adverse events:**

Some adverse event costs cannot be measured directly or financially; for example, it causes a loss of trust in the healthcare system and decreases satisfaction among patients and healthcare providers. It also lowers the population's health status in society (Kohn et al., 1999).

But from the financial point of view, preventable adverse events can be so costly if not avoided because lost income, disabilities, and healthcare costs follow them. It's also expensive because

money spent on treating the errors is no longer available for other productive purposes. So it's difficult for hospitals to obtain the best potential value from the money spent on medical interventions since the care provided involves errors and adverse events (Kohn et al., 1999).

Before the IOM report, patient harm and adverse events were considered the cost of doing business (Bates & Singh, 2018).

Moreover, adverse events and errors are not limited to hospitals; patients are served daily by outpatient centers, clinics, pharmacies, home care, and nursing. So medical errors are an issue in every context, not just in hospitals, even though most available research has focused on hospitals (Kohn et al., 1999).

- **Causes of patient harm:**

Bates & Singh (2018) found that the primary roots of patient harm are; infections, medication errors, surgical injuries, and errors during handoffs between units. Besides, failure to rescue, an untreated or potentially treatable complication causes the patient to die, miss identification of patients, pressure ulcers, and falls. While the most common are infections, despite the effective available prevention techniques, infection rates are still too high, and that is due to the inconsistent use of these techniques (Bates & Singh, 2018).

Medication errors are also found to be one of the harmful causes (Bates et al., 1995), which can be solved by computerizing the ordering of medications and using computerized clinical support to the ordering provider. For example, making real-time recommendations to providers about risky interactions or out-of-range dosages in prescription orders, checking for allergies, and barcoding patients and medication reduced error rates(Bates et al., 1998; Kaushal et al., 2003; Poon et al., 2010).

Surgical injuries are also the leading cause of patient harm. A multinational study found that surgical checklists in the operating room decreased the adverse event by 36% and the mortality rate

by 47%. However, errors related to this chick list cannot target human behavior(Haynes et al., 2009).

Errors and harm would be further classified by domain, where they occurred, and a range of health care providers and settings. The following terms are used to describe the root causes of harm (National Quality Forum, 2004):

1. Latent failure: choices that influence work policies, practices, and allocation of resources beyond the practitioner's control.

2. Direct interaction with the patient (active failure).

3. Failure of the organizational system: failures involving management, organizational culture, protocols/processes, knowledge transfer, and external forces.

4. Technical failure: failure of facilities or external resources indirectly.

- **Types of patient harm:**

According to C. Vincent & Amalberti (2016), there are many types of harms patient may suffer from, for example:

1. General harm from healthcare: issues that can impact any patient with severe disease.

2. Treatment – specific harm: harm caused by a particular treatment or the management of a condition that might or might not be avoidable.

3. Negative effects of over-treatment: Patients may be harmed by receiving too much therapy, either by mistake or by well-intentioned but excessive intervention.

4. Negative consequences of failing to offer proper treatment: Many patients do not receive appropriate evidence-based medicine, which causes their condition to advance faster than it otherwise would.

5. Harm due to delayed or insufficient diagnosis: Some harm occurs when a patient's illness is either not recognized or poorly diagnosed.

6. Psychological damage and a sense of unsafe: Unkindness can remain in the minds of vulnerable people, influencing how they approach future interactions with healthcare providers.

In the context of diagnostic error, Bates & Singh (2018) highlighted the importance of accounting for the complex interaction of numerous contributor elements, both systems (such as communication breakdowns, coordination, or teamwork or an absence of rigorous policies and procedures) and human (such as poor data collection or interpretation, or overconfidence in diagnostic judgment, and insufficient knowledge).

Patient safety organizations have made suggestions for tackling diagnostic error that is consistent with other aspects of safety and healthcare improvement: enhancing teamwork and patient engagement; providing sufficient time and reimbursement for cognitive work; reforming malpractice standards; using technologies that support patient care, such as clinical decision support; and offering research grants to accelerate the science of diagnostic error (Bates & Singh, 2018).

There are three types of victims of adverse events. Patients and their families are envisioned as the "first victims." An adverse event can harm patients in two ways: directly as a result of the event itself or indirectly as a result of how the event is treated (C. Vincent, 2011). The "second victims" are healthcare providers such as physicians, nurses, allied clinicians, support personnel, students, and volunteers who have been engaged in a patient-related adverse event and have experienced emotional or physical distress—as a result, becoming victims themselves (Berwick, 2000; Hall & Scott, 2012; Scott et al., 2010). The "third victims" are the healthcare organizations where the adverse event happens. Third-party victims may also suffer significant consequences since adverse events may cause an organizational crisis, resulting in long-term organizational challenges (Conway et al., 2011; MacLeod, 2014).

2.1.3 Improving Patient Safety

Improving patient safety is primarily a result of the intrinsic motivation of healthcare providers, influenced by professional ethics, norms, and expectations (Kohn et al., 1999). Patient safety can be improved by interacting with external factors and those inside healthcare organizations. Regarding the external environment, factors include available knowledge and resources to improve safety, solid and visible professional leadership, legislative and regulatory activities, and actions piper purchasers it and consumers to demand safety improvements. Several factors may aid patient safety within healthcare organizations, including strong leadership for safety, organizational culture encouraging recognizing and learning from errors, and an effective patient safety program.

In 2015, the National Patient Safety Foundation published the study "Free From Harm." The paper presented eight essential suggestions to ensure continuous improvement in safety as follows (AHRQ, 2019b):

- Ascertain that leaders create and maintain a safety culture.

- Establish a centralized and integrated patient safety supervision system.

- Create a standardized set of safety criteria that represent importance.

- Increase fundraising for patient safety studies.

- Ensure patient safety throughout the whole care process.

- Empower the medical workforces

- engagement with patients and their families.

- Guarantee that technology is safe and efficient.

Organizations that prioritize patient safety may be able to provide better care to their patients (Galvão et al., 2018).

2.1.4 Challenges in Patient Safety

Despite the apparent progress in patient safety, rates of preventable harm remain unacceptably high. According to AHRQ, many new challenges have evolved, impeding attempts to enhance safety

1. The information technology revolution has changed the day-to-day practice of medicine but has not necessarily led to better health care. Technological innovations like barcode medication administration and computerized provider order entry have improved safety. Still, on the other hand, the widespread of electronic medical records has often led to alert fatigue, which poses a risk to clinicians and patients alike. Moreover, poorly constructed electronic health records are widely recognized as a source of physician burnout linked to patient safety problems (AHRQ, 2019b).

2. Patient safety research started with studies of hospitalized patients. Still, it is gradually expanding to include issues in other settings, where ambulatory & long-term care studies are beginning to close a significant knowledge gap (AHRQ, 2019b).

3. Safety measurement: The safety area continues to be hindered by a lack of defined measurement standards (AHRQ, 2019b).

Health systems must grow their capacity and infrastructure, respond to policymakers' suggestions, and incorporate newly developed best practices to cope with emerging safety challenges (Bates & Singh, 2018).

Patient safety-related problems come from insufficient communication, poor cooperation, imbalanced workload, employee weariness, and poor adherence to rules, all of which should be avoidable problems (Singh & Nasruddin, 2020).

2.1.5 Patient Safety Proponents (the evolvement of patient safety institutions)

The Institute of Medicine, recently known as the National Academy of Medicine (NAM), was one of the first proponents of patient safety issues, especially after publishing its well-known report in

1999, "To Err is Human." According to the report, improving patient safety entails implementing operational procedures and processes that reduce the possibility of mistakes and increase the chances of detecting them when they happen (IOM, 2001).

The Agency for Healthcare Research and Quality (AHRQ) was designated in 1999 as the federal agency responsible for addressing patient safety and medical error issues. AHRQ encountered problems translating the IOM's direction on safety culture into accurate and feasible programs and projects (Waterson, 2014), p263.

AHRQ has long been the government leader in funding interdisciplinary research in patient safety. It needs to keep the financing of research on new safety hazards and ongoing harm, focusing on understanding the complexity of safety and evaluating interventions (Bates & Singh, 2018). Making Healthcare Safer, published by the AHRQ in 2001, was the first attempt to utilize evidence-based medicine concepts in identifying methods to enhance patient safety (AHRQ, 2019b). In addition, progress has been made to create a climate of safety in which errors are frequently acknowledged & treated as learning opportunities, & physicians engaged in errors are supported rather than blamed (AHRQ, 2019b).

The National Patient Safety Foundation is a nonprofit organization dedicated to improving patient safety. Since its inception in 1997, it has funded many activities to improve patient safety via interdisciplinary collaboration (AHRQ, 2005a).

In 2007, the National Patient Safety Foundation created the Lucian Leap Institute to improve patient safety by establishing a strategic vision with the assistance of a group of safety experts and national leaders (Gandhi et al., 2018; Leape et al., 2009). The Lucian Leape Institute, an annual conference, awards, a certification program, and the patient communication program "Ask Me 3" are among the organization's efforts. In May 2017, the Lucian Leape Institute merged with The Institute for Healthcare Improvement to continue its work to improve patient safety (AHRQ, 2005a).

Five areas of healthcare that need system-level attention and action to enhance patient safety: (1) it's necessary to reform medical education to prepare new physicians and other healthcare professionals to work in a culture supporting patient safety, (2) multidisciplinary teams should deliver care through integrated platforms, (3) healthcare professionals must be able to work safely and find joy and significance in their jobs, (4) all aspects of healthcare design and delivery process must involve patients as full partners, and (5) transparency must be a core value across all activities (Leape et al., 2009).

The AHRQ Making Health Care Safer II report, released in 2013, contributed base for patient safety initiatives, & AHRQ data shows that rates of preventable harm have decreased dramatically in recent years (AHRQ, 2019b).

Patient safety is recognized in many nations thanks to the WHO's World Alliance for Patient Safety, which promotes worldwide awareness (Emanuel et al., 2009). The World Alliance on Patient Safety was launched in 2004 to spread the concept of safer healthcare to every country on earth. It is encouraged an open culture of admitting concerns/faults, investigating, and improving (Edwards, 2005).

The Joint Commission aims to constantly improve health care for the public by reviewing healthcare organizations and encouraging them to excel in delivering safe and effective treatment of the highest quality and value in conjunction with other stakeholders (The Joint Commission, 2012).

In March 2005, The Joint Commission and Joint Commission Resources (JCR) founded the Joint Commission International Center for Patient Safety (Tzeng & Yin, 2007).

In August 2005, JCI launched the world's first WHO collaborating center dedicated solely to patient safety, and it is central imitative –World Alliance for Patient Safety (Tzeng & Yin, 2007).

 The US Joint Commission International Center for Patient Safety (ICPS) established six international patient safety goals in 2006 to promote specific patient safety improvements in

problematic healthcare areas. First, identify patients using two patient identifiers before providing any treatment or procedure. Second, enhancing efficient communication among medical workers and upgrading the safety of high-alert drugs and medication by developing policy procedures to address the identification, location, labeling, and storage of high-alert medicine. Fourth, ensure the correct site, procedure, and patient surgery using a pre-operative checklist or other processes. All needed documentation and equipment are on hand, accurate, and functional. The fifth goal is to lower the risk of health-associated infections by adopting published and generally accepted hand hygiene guidelines. Finally, minimizing the risk of patient harm due to falls (JCI, 2022; Siddiqui, 2018)

2.1.6 Patient Safety Strategies

As the healthcare system expands its scientific approaches to safety, it draws upon disciplines outside traditional medicine. Such as human factors engineering, psychology, the social sciences, patient-centered approaches, culture, themes, and design of the physical environment; by studying these disciplines, the healthcare system has developed new strategies to address safety problems and improved its understanding of safety (Bates & Singh, 2018).

According to C. Vincent & Amalberti (2016), five strategies for improving healthcare safety are related to a group of interventions. These strategies can be used at all healthcare system levels, from the frontline to system regulation and governance. Two of these strategies aim to improve the patient's care, but the other strategies involve risk management and avoiding harm.

Strategy 1: Safety as best practice.

This strategy focuses on enhancing healthcare processes and standards and minimizing specific harms. Those strongly emphasizing a fundamental clinical issue or specific procedure have exhibited the most dramatic safety improvements. They might be intended to reduce a particular

type of harm, such as falls or central line infections, or improve the consistency of clinical processes, such as pre-operative tests (C. Vincent & Amalberti, 2016,61).

Strategy 2: Improving healthcare processes and systems.

This strategy emphasizes assisting people and teams and improving working conditions and organizational procedures (C. Vincent & Amalberti, 2016,62-63).

Strategy 3: Risk management.

This strategy focuses on imposing constraints on performance, demand, or working conditions. Furthermore, risk control does not seek to prevent a well-considered, if dangerous, decision but rather to raise the chances of a successful outcome once the decision has been made (C. Vincent & Amalberti, 2016,64).

Strategy 4: Improving monitoring, adaption, and response capabilities.

When we recognize that errors and failures occur regularly in any system, we can understand the necessity for methods of monitoring, adapting, responding, and recovering from failure. Adapting and reacting to difficulties occurs all the time in healthcare and is equally essential for management as it is for frontline employees (C. Vincent & Amalberti, 2016,65-66).

Strategy 5: Mitigation.

Mitigation is minimizing an incident's severity, seriousness, or suffering. This strategy recognizes that patients and employees may be significantly affected or harmed when receiving healthcare and that the organization in concern is responsible for mitigating such harm (C. Vincent & Amalberti, 2016,67).

According to The Joint Commission (2012) monograph, the following are some recommended strategies and tools for enhancing safety in healthcare settings: (1) leadership strategies, (2) management strategies to support staff engagement in improving patient and worker safety, (3)

tools to enhance communication, (4) tools for risk or hazard identification and adverse event or incident analysis.

(1) Leadership strategies:

Successful improvement initiatives need leadership support and participation exhibited through actions rather than words at all levels of healthcare (Flin et al., 2000; Griffiths et al., 2009).

Storytelling is a support tool that involves sharing real-life examples of safety events to illustrate important health and safety concerns, risks, or outcomes affecting patients and healthcare workers. It is also critical to raise the awareness of all levels of leadership, from the board to frontline managers, about the risks, events, and opportunities for improvement in employee and patient safety (The Joint Commission, 2012).

Another example is engaging senior organizational leadership in "rounds" to interact with frontline employees and patients (The Joint Commission, 2012).

(2) Management strategies to support staff engagement in improving patient and worker safety:

Improving patient safety starts with corporate culture and is carried out via job performance (The Joint Commission, 2012). From support staff like housekeeping to direct care workers like nurses, therapists, and physicians, every employee has some part of their job performance that might jeopardize their own and their patient's safety. Organizations may improve safety by offering positive feedback. When negative occurrences, or even near misses, efforts to aid staff rehabilitation should be used to accelerate their return to full professional function. Finally, workers at all levels are privileged to spot areas for improvement and contribute to creating and executing solutions (The Joint Commission, 2012).

Moreover, the following tools can help engage employees to improve patient safety: providing needed training, time, and recourses; providing incentives and rewards for efforts to enhance safety. Utilizing frontline safety coaches and champions, and finally, analyzing feedback and findings from

patient and worker satisfaction surveys to identify opportunities for improvement (The Joint Commission, 2012).

(3) Tools to enhance communication

Lack of communication is frequently cited as a significant contributor to adverse events, and there are a variety of communication approaches that may be used:

Daily meetings are briefings for the whole organization to discuss concerns, safety events, near misses, and any other safety-related issues in the preceding 24 hours (The Joint Commission, 2012).

One example of a communication approach to enable employees to speak out of fear when they perceive a possible safety issue is CUS—Concerned, Uncomfortable, and Safety Concern. The term "teach-back" is commonly employed in healthcare worker-patient communication. To ensure that the patient understands the content correctly, the patient is requested to repeat or "teach back" the given information (The Joint Commission, 2012).

Situation-Background-Assessment-Recommendation (SBAR) Communication and SHARE use a framework to organize information to create a uniform method for communication. It is a simple structure for organizing communication among healthcare staff, but it is especially useful when clinicians exchange clinical data (The Joint Commission, 2012).

(4) Tools for risk or hazard identification (adverse event or incident analysis).

Several techniques and strategies exist for risk and hazard assessment and adverse event analysis. The section that follows introduces a few of these strategies:

Failure Modes and Effects Analysis (FMEA): IHI defines FMEA as "a systematic, proactive method for evaluating a process to identify where and how it might fail, and to assess the relative impact of different failures to identify the parts of the process that are most in need of change" (Botwinick et al., 2006).

Fault tree analysis is a rational "top-down" approach to organizing events and failures that result in a hazard. A fault tree analysis is a quantitative or qualitative evaluation of all the adverse outcomes that might arise from a specific initiating event (The Joint Commission, 2012).

The tracer technique, which may be used to analyze systems and processes for providing care, treatment, and services, can also uncover performance concerns inside and across healthcare organizations (The Joint Commission, 2012).

The process of determining the primary or causative factor(s) behind the variance in performance, including the occurrence or potential occurrence of a sentinel event, is known as root cause analysis (RCA) (The Joint Commission, 2012).

2.2 Patient Safety Culture

Gathering data related to safety culture is crucial in many safety-critical industries to improve safety performance (Olak et al., 2019). Such data usually help leaders understand that the causes of incidents and errors are not always technical failures or human errors but system errors with cultural aspects such as all levels of management commitment and communication within and across teams. More broadly, the attitudes of the organization staff (Havold, 2015; Oedewald & Gotcheva, 2015; Reiman et al., 2005)

Before the IOM report (1999), most patient safety publications were on malpractice subjects, but after the report, the most frequent subject was organizational culture (Stelfox et al., 2006). Safety culture is a local issue, as perceptions of safety can vary significantly within a single organization (AHRQ, 2019a). Within a hospital, safety culture may be perceived as high in one unit but not in another or high among management but not by frontline workers. These variations may result from interventions intended to improve safety culture and reduce errors but have mixed results (AHRQ, 2019a).

At the hospital, various diverse groups operate, each with its duties, tucks, experiences, and educational background. A common system of meaning will emerge in teams, wards, departments, and even hospitals as they interact with one another and patients. Since these interactions will be intense and frequently emotional, many of the implications for patient safety will be considerable (Waterson, 2014) p36.

Safety culture is a mixture of individual and group beliefs, values, attitudes, perceptions, competencies, and behavior patterns that emphasize the importance of quality and patient safety in an organization (The Joint Commission, 2017).

The term "safety culture" was coined in the late 1980s, following the end of the 1986 Chornobyl nuclear power accident, to indicate what was wrong with the organizational culture that enabled and even encouraged unsafe practices (Waterson, 2014), p67.

Since then, research has been conducted to establish models, metrics, techniques, and instruments for safety culture, notably in nuclear power and aviation. As a result, many safety culture studies have emerged in healthcare, inventing and adapting methods and approaches that have their roots in the industry (aviation, nuclear power, etc.) (Waterson, 2014).

According to the Institute of Medicine (IOM), a culture of safety in health care must have three elements (Tang, 2003):

1. The belief that, despite their high risk, healthcare processes can be tailored to prevent mistakes.

2. An organizational commitment to detecting and learning from faults.

3. A workplace where disciplinary action is only taken when a manager knows the employee has increased the risks to patients and colleagues.

2.2.1 What is Patient Safety Culture?

Safety culture reflects how perceptions and beliefs could influence attitudes and actions related to safety (P. Pronovost & Sexton, 2005).

Patient safety culture: refers to the values and actions of an organization's members and collectively indicates the organization's concern for safety in its procedures and activities (Halligan & Zecevic, 2011).

Another Safety culture definition is individual and group values, attitudes, competencies, and behavior patterns that influence an organization's dedication to its health and safety programs (Halligan & Zecevic, 2011).

"The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management" (Health and Safety Commission 1993, cited by Nieva & Sorra, 2003).

The lasting and shared ideas and behaviors of people in the organization regarding the organization's willingness to recognize and learn from errors are referred to as safety culture (Jones et al., 2007).

Safety culture describes employees' values, beliefs, and attitudes about their organization concerning safety, which influence their commitment to safety (Guldenmund, 2000).

Safety climate is defined as "surface features of the safety culture from attitudes and perceptions of individuals at a given point in time" and "the measurable components of safety culture" (Gaba et al., 2003). At the same time, safety culture is the "product of individual and group values, attitudes, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of an organization's health and safety programs" (Wallis & Dovey, 2011).

According to WHO, Safety Culture is defined "as shared values, attitudes, perceptions, competencies, and patterns of behaviors" (WHO, 2009).

Patient safety culture refers to an organization's attitude toward and action on patient safety as its top priority (Habib et al., 2018).

The most widely accepted definition is the one proposed by the Advisory Committee on the Safety of Nuclear Installations (ACSNI 1993, cited by Waterson, 2014): safety culture is 'the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management.

So we can summarize it as shared backgrounds and attitudes toward better patient safety. According to Schein's (1992) work on organizational culture, safety culture can be conceived as a three-layer structure: (1) 'basic assumptions,' i.e., a core of mainly implicit assumptions taken for granted by the entire organization; (2) 'espoused values,' i.e., values and norms which are accepted and adopted; and (3) 'artifacts,' which also include tangible and explicit items and acts like procedures, inspections, and checklists (as cited by Waterson, 2014).

In healthcare, patient safety practitioners involve everyone, and all organization members must be "patient safety" minded and safety-oriented (Emanuel et al., 2009).

Reason's assertion that a safety culture is informed is derived from the four components of a safety culture. The components of a safe organization are those practices and beliefs that form the foundation of knowing about risks and taking action to be safer. Creating a safe workplace begins with the willingness of frontline workers to report errors and near-misses; organizational practices establish a reporting culture. For workers to report, they must believe that management will support and reward them for reporting and that discipline occurs through risk-taking. These practices support a just culture within organizations (Reason, 2016).

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Employees' propensity to report is also influenced by their view that when safety information is given, authority patterns relax because people in authority value the knowledge of frontline workers; organizational practices foster a flexible culture. Finally, workers' willingness to report is determined by their perception that the organization will examine the information they provide and implement necessary change; organizational practices promote a learning culture. Combining these four components results in a well-informed, safe, and reliable organization (Reason, 2016).

2.2.2 High Reliability and Patient Safety

After the Chornobyl nuclear power disaster in 1988, the phrase "safety culture" was coined. Since then, other sectors have adopted increasing safety, particularly in high-reliability organizations (HRO), also known as highly safe, high-risk organizations such as aviation and nuclear power (Halligan & Zecevic, 2011).

Having the same outcome on subsequent tries is a well-known reliable definition, but the same result does not always imply the correct result (The Joint Commission, 2012).

The term "reliability" in health care and other sectors usually refers to both having the same outcome and getting the proper result (as cited by The Joint Commission, 2012). The Institute for Healthcare Improvement (IHI), for example, defines healthcare reliability as "failure-free operation over time" (Nolan et al., 2004).

High-reliability organizations prioritize safety, from frontline workers to top management (AHRQ, 2019a). Safety culture is present in high-reliability organizations characterized by complex, risky processes but very low error rates (Jones et al., 2007). Such organizations achieve high reliability because they are preoccupied with failure, sensitive to how each team member affects a process, allow those most knowledgeable about a process to make decisions, and resist the temptation to blame individuals for errors within complex processes (Sutcliffe, 2006).

2.2.3 Safety Culture Dimensions (Operationalization)

Dimensions frequently emerge through factor analysis of quantitative safety culture surveys, and these dimension combinations eventually serve to conceptualize safety culture (Halligan & Zecevic, 2011).

Management commitment to safety, open communication based on faith and trust, organizational learning, a non-punitive approach to adverse event reporting, teamwork, and a shared belief in the priority of safety were among the most often mentioned dimensions (Halligan & Zecevic, 2011).

In a recent survey of 113 articles, Halligan & Zecevic (2011) found that the following six dimensions were frequently mentioned: leadership commitment to safety; open communication based on trust; organizational learning; non-punitive approach to incident reporting and analysis; teamwork; and a shared belief in the importance of safety.

2.2.4 Safety Culture Characteristics

According to AHRQ (2019a), the main features of safety cultures are as follows:

1. Recognizing that organizational activities are high-risk

2. Individuals feel free to disclose errors or near misses without fear of punishment or blame.

3. Promoting collaboration across disciplinary and work lines to solve problems related to patient safety.

4. Investing organizational resources in addressing safety concerns.

Communication built on mutual trust shared ideas of the significance of safety, and faith in the efficiency of preventative measures are all characteristics of organizations with a positive safety culture (Halligan & Zecevic, 2011; Nieva & Sorra, 2003).

As cited by Silva-Batalha & Melleiro (2015), safety culture is characterized by mainly five characteristics: (1) a culture in which all employees, including care providers and management, are

responsible for their personal safety. As well as the safety of their coworkers, patients, and family members, (2) a culture that focuses heavily on safety over financial and operation goals, (3) a culture that promotes and rewards the identification, reporting, and solving of safety-related issues. (4) a culture that encourages organizational learning after an incident occurs, (5) offers resources, structure, and commitment to effective safety movement.

The UK Health and Safety Executive (HSE) cites the following characteristics of a "good" organization safety culture as follows: (1) the managers visit the workplace. Regularly to address workplace safety issues with employees. (2) the organization provides comprehensive information about safety issues regularly. (3) safety issues can be raised, knowing that the organization would take it seriously and inform the HSE of their plans to address it. (4) safety is always the organization's top concern, and the work may be stopped if it's not met. (5) The organization reviews all incidents and near misses, takes corrective actions, and provides feedback. (6) the organization stays updated with new safety ideas and initiatives. (7) safety equipment and training can be obtained if needed. (8) everyone in the organization is involved in safety decisions and is periodically polled for feedback. (9) there is almost no shortcut or unnecessary risk-taking in the organization. (10) the organization does not look for blaming when it comes to safety and can be honest and open. (11) the morale of the workforce is generally high (Waterson, 2014).

1.6.1.1   Just Culture

The notion of just culture, which is now extensively employed in healthcare, highlights that most errors are caused by system defects while also defining who should be held accountable (AHRQ, 2019b). Following the publication of "To Err Is Human," there has been a trend toward a "culture of safety" that emphasizes preventive measures rather than punishment and blame (Scott-Cawiezell & Vogelsmeier, 2006).

In previous studies, nurses and other healthcare providers repeatedly voiced displeasure about the lack of a blame-free environment; they also expressed concerns about the organizational commitment to fostering a culture of safety (AHRQ, 2019a).

Individual blame culture, still prevalent in healthcare, hinders progress toward safety culture improvement. However, ' no blame ' is the proper posture for errors; specific errors appear to be blameworthy and necessitate accountability (AHRQ, 2019a).

The concept of just culture is currently extensively employed to bridge the dual demands for no blame and sufficient accountability (AHRQ, 2019a).

A just culture focuses on detecting and fixing systemic problems contributing to individuals engaging in risky behaviors while retaining individual accountability through a zero-tolerance policy for dangerous behavior (AHRQ, 2019a).

In contrast to an overall "no-blame" approach, a just culture approach differentiates between human error, at-risk behavior, and irresponsible behavior (AHRQ, 2019a).

The reaction to a mistake on near-miss in just culture is based on the type of behavior linked with the error, not the severity of occurrence; sometimes, even if no patients were harmed, punitive action is a must (AHRQ, 2019a).

2.2.5 Theories of Safety Culture

Several theories have been proposed for safety culture and patient safety. According to Halligan & Zecevic's (2011) review, 32 theories emerged in articles and studies on patient safety. The most frequently used five theories were: The high-Reliability Organization (HRO) theory; the Model of Cultural Maturity; Donabedian's Process-Structure-Outcome Model; Organizational Theory; and System Theory (Halligan & Zecevic, 2011).

1. **High-Reliability Organization –HRO theory**

The notion of safety culture arose outside of the healthcare industry in studies of high-reliability organizations, which continuously minimize adverse events while doing fundamentally complicated and hazardous work (AHRQ, 2019a).

Operators and managers of complex systems are not sufficiently sophisticated to sense and predict problems caused by the system. Yet, when people, processes, and technology are correctly arranged, difficult and hazardous activities can be handled safely, improving reliability (Halligan & Zecevic, 2011).

2. **Model of Cultural Maturity**

Maturity models entail identifying maturity stages or levels that use a variety of multidimensional criteria to measure the completeness of the inspected items, generally organizations or processes (Becker et al., 2009; Wendler, 2012). Hudson (2007) describes the usage of maturity models in safety culture as a continuum extending from organizations with unsafe cultures to proactively managing safety and those in the middle.

Safety culture passes through five stages of maturation, beginning with the least mature (pathological) and progressing to mature (generative). Between them are the intermediate stages of development (reactive, calculative proactive) called the bureaucratic stage. Each stage describes a step in developing a safety culture (Halligan & Zecevic, 2011).

 This data may help organizations assess their present maturity level, identify areas of strength and weakness, and plan activities to advance to the next level or stage (Halligan & Zecevic, 2011).

Organizations with a pathological orientation are described as controlling and lacking in collaboration. These cultures conceal issues by thinking everything is right, and contradictory information is not accepted. In a bureaucratic organization, cooperation is limited, with a restricted

focus on adhering to rules and regulations. A generative organization has a high level of collaboration and invention, and risks and dangers are identified (Waterson, 2014) p263.

3. Donabedian's Process-Structure-Outcome Model

The structure, process, and outcome can all be used to define healthcare organizations. The conditions in which care is given are called structure (material, human resources, organizational characteristics). Activities for providing care are included in the process. The results or changes that may be traced to care are known as outcomes. Each component is both dynamic and transactional, and they all have the potential to impact safety outcomes (Halligan & Zecevic, 2011).

In 1966, Avedis Donabedian published a significant article, "Evaluating the Quality of Medical Care," known as the father of healthcare quality research (Best & Neuhauser, 2004). His model for understanding the components of healthcare quality is based on the trial of structure, process, and outcome, along with the concept of service embedded within the system (Donabedian, 1980).

The term "structure" refers to the physical infrastructure and biomedical engineering support system and how healthcare services are organized in terms of personnel rostering and the availability of required equipment and supplies (Runciman et al., 2010).

The term "process" relates to the consistency of procedures and interventions. Or how the structure is applied within a system. The term "outcome" relates to how these processes affect patients and the organization (Runciman et al., 2010).

Donabedian did not initially pinpoint patient safety but included all health-related outcomes and attributes under cover of Quality of Care. He was interested in attaining the most outstanding possible results for patients, implicitly adopting the philosophy of patient safety (Runciman et al., 2010).

Brown et al. expanded this model by including workflow representation and segregating management and clinical processes (Brown et al., 2008). Management interventions impact

intermediate factors such as morale, which affects clinical processes. As a result, this model integrates the impact of human behavior and the system-based ideas of safety culture and climate (Flin et al., 2006).

The physical layout of hospital facilities, staff, financial allocations, and equipment contribute to the treatment model's structure. The actions which occur at the hospital are referred to as delivery. The term "outcome" refers to care outputs, such as health outcomes, lifestyle, attitude, and knowledge relevant to life quality (Singh & Nasruddin, 2020).

According to Donabedian, the structure impacts care processes, which impacts outcomes. According to this concept, the hospital's organizational structures and staff characteristics affect patient safety procedures and employee reporting of safety events (Bainbridge et al., 2017; Hansez & Chmiel, 2010).

4. Organizational Theory

One must examine key organizational components to understand corporate cultures, such as common understanding, the workplace environment, everyday language, and employee attitude toward the organization (Halligan & Zecevic, 2011).

5. System Theory

A system's ultimate state can be attained in various ways and from various beginning states. As a result, an organization with one set of cultural characteristics may effectively ensure patient safety, whereas another organization with a different set of cultural traits may also be successful (Halligan & Zecevic, 2011).

Historically, errors in medicine were viewed as shortcomings on the part of individual providers, indicating a lack of knowledge or expertise (AHRQ, 2019b).

Nevertheless, James Reason wrote that catastrophic safety failures are rarely caused by isolated human error; instead, most accidents result from more minor errors in context with substantial

underlying system faults. Then the system approach arose from Reason's work, which holds that foreseeable human failings cause most errors in poorly constructed systems, and he called it the Swiss Cheese Model (AHRQ, 2019b; Reason, 2016).

Professionals in patient safety commonly refer to and adopt the Swiss Cheese Model. This model was developed by Reason to demonstrate how assessment of significant accidents and catastrophic system failures tens to find several more minor failures leading up to the real danger. Each slice of cheese in the model represents a safety barrier related to the specific hazard (AHRQ, 2005b).

According to this model, a sequence of barriers prevents danger from generating human losses in a complex system. Each barrier has unexpected weaknesses or holes, the same as Swiss Cheese, and these weaknesses are irregular; for example, the holes open and close randomly. When all holes align by chance, the danger reaches the patient and causes harm (AHRQ, 2005b).

This model focuses on the healthcare system and randomness rather than on people or deliberate action in the incident of medical errors. Still, at the same time, the Swiss Cheese Model does not free individual physicians from responsibility (AHRQ, 2005b).

2.2.6 Measuring Safety Culture

Assessing safety culture aims to generate an evidence-based understanding of patient safety. The assessment identifies strong and weak areas of safety culture, analyzes trends over time, determines organizational actions needed to improve patient safety, comparison and benchmarking within and across organizations (Blegen et al., 2009; Clay-Williams et al., 2020; Hellings et al., 2010; Profit et al., 2020; Sturm et al., 2019).

Around the world, health policymakers and managers are using hospital safety culture assessment as a management tool. The culture assessment can serve multiple purposes (Sorra et al., 2016):

1. Enhancing employee awareness of patient safety.
2. Assessing the current state of patient safety culture (PSC) in the organization

3. Recognizing strengths of safety culture and areas that need improvement

4. Examining safety culture trends and patterns

5. Examine the effectiveness of initiatives and interventions to improve patient safety in a safety culture

6. Make comparisons within and between health organizations.

According to Qazi et al. (2020), the following are the most commonly used tools to assess safety culture in healthcare worldwide:

1. Safety Attitudes Questionnaire (SAQ).

2. Safety Organizing Scale (SOS).

3. Patient Safety Culture in Healthcare Organizations (PSCHO).

4. Manchester Patient Safety Assessment Framework (MAPSAF).

5. Hospital Survey on Patient Safety Culture (HSOPSC).

Healthcare safety culture is frequently assessed using quantitative questionnaires based on various constructs. The number of constructs usually ranges from 3 to 12 dimensions, with a length of 30 to 79 items. The reliability ranges from 0.63 to 0.86, which differs across these tools (Halligan & Zecevic, 2011).

Also, Halligan & Zecevic (2011) confirmed that (1) AHRQ's Hospital survey of patient safety culture HSOPSC, (2) the Safety attitudes questionnaire, (3) the Patient Safety Culture in Health come to Organizations Survey (PSCHO), (4) Modified Stanford Patient Safety Culture Survey Instrument was the most commonly cited tools in the literature for assessing safety culture.

Although surveys can give insight into staff attitudes and beliefs, numerous researchers propose supplementing quantitative data with deeper qualitative data obtained through interviews, focus groups, and observations to understand the underlying culture better (Halligan & Zecevic, 2011).

Safety culture is studied according to three main approaches: academic, analytical, and pragmatic. The educational approach employs qualitative techniques, resulting in a detailed description of the culture. The analytical method relies on self-administrated questionnaires and allows for comparisons across sub-cultures. Finally, the pragmatic approach that describes cultures using developmental hierarchies is based on experience and expert judgment.

As part of assessing hospital patient safety culture, it is essential to evaluate it at the microsystem and macrosystem levels and do so consistently and effectively (Waterson, 2014) p63

2.6.1 The Hospital Survey on Patient Safety Culture (HSOPSC)

In 2004, the Agency of Health Care and Research for Hospitals established the Hospital Survey on Patient Safety Culture (HSOPSC), which has since been adopted and modified for use in various healthcare settings. It has been used widely in the last 20 years; it has been used by hundreds of hospitals in over 60 countries. It assesses healthcare professionals' attitudes toward safety culture on an individual, unit, and organizational level (Habib et al., 2018). It was pilot tested with over 1400 healthcare staff from 21 different institutions across the United States (Sorra & Nieva, 2004).

HSOPSC, found by AHRQ, publishes yearly up-to-date benchmarking data from the hospital survey (AHRQ, 2019a). The tool was created following a thorough literature study on safety, accidents, medical errors, safety environment and culture, and organizational climate and culture. Surveys and interviews with hospital workers were also conducted (Habib et al., 2018). It has a broad range of applications and has been completed by all hospital staff members, including nurses, paramedical staff, and doctors (Habib et al., 2018).

A variety of initiatives were done to help build the Hospital Survey on Patient Safety Culture. Among the first tasks was a literature review to look at already published culture surveys and other research efforts on safety culture and climate in other sectors (Waterson, 2014) p264.

The literature review was conducted to identify dimensions that should be included in a safety culture construct. Research articles were reviewed in safety management and accidents in the nuclear, aviation, and manufacturing industries, employee health and safety, organizational culture and climate, safety culture and environment, and medical error and event reporting (Waterson, 2014).

The literature review determined the critical dimensions of hospital patient safety culture, and items were designed to assess those dimensions (Waterson, 2014).

Because culture differs by unit, it was critical to direct respondents' attention to their own unit's culture by allowing them to identify and pick their unit first, then answer the survey questions regarding that unit (Waterson, 2014).

However, because specific patient safety culture concerns cut across units, the survey's last section focused on hospital-wide patient safety culture, including handoffs and transitions, management support perceptions, and cross-unit cooperation (Waterson, 2014).

Telephone and in-person interviews were conducted with hospital nurses, staff, and physicians to determine whether the survey dimensions addressed all essential components of patient safety culture or required new dimensions. According to these interviews, there was widespread agreement that the draft dimensions and items looked to measure critical patient safety concepts (Waterson, 2014). The survey was pilot tested with 1,437 hospital staff from 21 hospitals in six states in the United States in 2003 (Waterson, 2014). The analysis aimed to create a shorter, redesigned questionnaire by selecting conceptually significant, independent, and reliable dimensions, measuring three to four items. AHRQ's. The final version of the Hospital Survey on Patient Safety Culture, published in 2004 and supporting toolkit materials, comprises 12 composites and 42 items, and additional background questions (Waterson, 2014).

The HSOPSC dimensions are (1) Unit level dimensions: communications openness, feedback, communication about errors, teamwork within units, non-punitive response to error, organizational

learning-continues improvement, supervisor /manager expectations and actions promoting patient safety, and staffing. (2) Hospital-level dimensions: teamwork across units, handoffs (transitions), and management support for patient safety. (3) Outcome dimensions: frequency of events reported and overall perceptions of patient safety (Sorra et al., 2016).

The Agency for Healthcare Research and Quality (AHRQ) in the United States applies to organizational workers who directly or indirectly impact patient safety, from housekeeping and security to nurses and physicians (clinical and non-clinical staff, such as pharmacy and laboratory staff, as well as administrative and management team) (Reis et al., 2018).

According to Waterson (2014), the AHRQ Patient Safety Culture Surveys are being used locally, nationally, and worldwide. Most users are healthcare organizations and systems, survey vendors who serve healthcare organizations, and healthcare researchers.

The surveys are used to do the following:

1. Increase staff awareness regarding patient safety.

2. Assessment and evaluation of the existing state of patient safety culture

3. Identify patient safety culture strengths and opportunities for development.

4. Investigate how trends in patient safety culture develop over time.

5. Assess the cultural effect of patient safety programs and interventions.

6. To make internal and external comparisons.

2.6.2 Safety Attitudes Questionnaire (SAQ)

Like the Safety Attitudes Questionnaire, several surveys have been developed by patient safety researchers to examine the patient safety culture (Waterson, 2014) P287

According to Sexton et al. (2006), the SAQ was developed to examine six major dimensions of the environment, relying on Donabedian's (1988) and Vincent et al. (1998) .'s frameworks for safety and quality, respectively.

The six dimensions are job satisfaction, management perceptions, safety climate, stress recognition, teamwork climate, and working circumstances (Waterson, 2014).

The SAQ is available in various formats – ambulatory, ICU, labor and delivery, and so on – and has been translated into many languages and conducted in multiple geographic areas (Waterson, 2014).

Furthermore, each dimension consists of several elements ranging from 4 to 7 elements in each one that is answered on a 5-point, Likert-type scale ranging from 1 = disagree strongly, and 5 = agree strongly with an NA = not applicable option.

In a healthcare organization, the SAQ evaluates the quality of safety and teamwork requirements over time (Waterson, 2014).

A total of nine attributes are assessed, including job satisfaction, teamwork climate, perception of the work environment, communication, patient safety, ongoing education, management of the healthcare facility, recognition of stress, and error prevention (Habib et al., 2018).

2.6.3 The Manchester Patient Safety Framework (MaPSaF-20)

The Manchester Patient Safety Framework (MaPSaF) was created to assess safety culture's complex and dynamic character and identify subcultures within a single organization, as subcultures substantially affect error reporting and learning (Kirk et al., 2007).

Furthermore, the tool gives insight into patient safety culture aided by interactive self-reflection about an organization's safety culture. It investigates differences in perception between various staff categories, assists in understanding how mature an organization is regarding safety culture, and assesses interventions designed to improve the safety culture (Habib et al., 2018).

Building on Westrum's organizational communication typology in 1992, the MaPSaF details how various organizations handle information. Parker and Hudson expanded on this typology to describe five stages of gradually maturing organizational safety culture (Habib et al., 2018).

Using the MaPSaF, ten safety culture dimensions are measured, developed based on a literature review on patient safety in primary care, and focused on interviews with healthcare professionals and managers (Habib et al., 2018).

The dimensions are commitment to overall safety, putting safety first, system errors and individual responsibility, documenting incidents and best practices, evaluating incidents and best practices, learning and accomplishing change, staff education and training, and a teamwork approach.

In addition to demonstrating patient safety's complexity and multidimensionality, the tool also provides insights into the strengths and weaknesses of a patient safety culture. As well as providing a framework for understanding what a mature safety culture in health care might look like, it should not be used to evaluate performance or to divide or assign blame when the organization's safety culture is still in its infancy. The tool is best used as a facilitator for educating healthcare providers and managers (Habib et al., 2018).

2.6.4 Safety Organizing Scale (SOS)

Vogus & Sutcliffe (2007) proposed the Safety Organizing Scale (SOS), a viable behavioral assessment instrument for safety culture research. The founders' goal was to develop a safety culture metric that is substantive and methodologically consistent.

The SOS is a nine-question measure built on organizational theory to assess behaviors that transfer into organizational safety culture. This indicates that it has to be behavioral, unit-wide (evidence of communal and shared processes instead of individual actions), and linked to patient safety indicators (Palmieri et al., 2010; Vogus & Sutcliffe, 2007).

The SOS was theoretically developed using thorough case studies of "high-reliability organizations" (HROs) and verified using a sample of registered nurses (RNs) in hospital nursing units (Vogus & Sutcliffe, 2007).

The SOS has the potential to increase businesses' capacity to assess their safety culture using the following dimensions (Palmieri et al., 2010):

1. An obsession with failing

2. Operational sensitivity

3. Reluctance to simplify

4. A dedication to resiliency

5. Expertise is respected.

2.6.5 Patient safety culture in healthcare organizations (PSCHO)

According to Singer et al. (2007), the PSCHO survey was developed at Stanford University as part of a patient safety research effort supported by the Agency for Healthcare Research and Quality. It was done with the aid of a hypothesis based on studies on high-reliability organizations (HROs).

A nine-dimensional model represents the hospital safety culture. Three of these dimensions are concerned with organizational issues, two with work units, three with individuals, and one with report-type inquiries about the actual incidence of harmful treatment (Singer et al., 2007).

The organizational factors are senior managers' participation, organizational resources for patient safety, and general attention to patient safety.

Work unit dimensions include patient safety norms, unit recognition, and support for safety activities. The three individual factors are shame-related fear, blame-related fear, and learning and self-awareness of safety risks (Singer et al., 2007).

2.6.6 Modified Stanford Patient Safety Culture Survey Instrument (MSI)

The Patient Safety Culture in Healthcare Organizations survey was customized for the Canadian context (Singer et al., 2007). The questionnaire assessed 43 items across seven dimensions: senior leadership support for safety (7 items), supervisory support for safety (7 items), threats to safety (9 items), fear of repercussions (4 items), safety learning behaviors (5 items), reporting culture (5 items), learning culture (5 items), and learning culture (5 items) (6 items). Each item was answered on a five-point agree-disagree Likert scale, with the option "not applicable." The questionnaire also included two questions derived from the validated "Hospital Survey on Patient Safety Culture," which offered an overall view of resident safety culture at the unit and organizational levels. These two questions were graded on a range of A (excellent) to F (failed) (Halligan et al., 2014).

2.3 Previous Studies

Upon the publication of the Institute of Medicine (IOM) report "To Err Is Human," there was a significant increase in patient safety articles and research awards in the health sciences literature (Stelfox et al., 2006). After the report, the number of studies that addressed safety gaps increased significantly by more than 250% over several years, and most studies were in areas not previously studied (Bates & Singh, 2018).

Many studies tackle the topic of patient safety assessment internationally.

A patient safety culture assessment was conducted on 32 Chinese hospitals that participated in the study using the HSOPSC tool (Nie et al., 2013). 1160 Chinese healthcare professionals, mostly nurses and internal doctors, participated in the survey. The results showed that the dimensions with the highest favorable ratings were organizational learning—continuous improvement (88%) and teamwork within units (84%), while those with the lowest ratings included staffing (45%) and feedback and communication openness (50%). And based on this Chinese study, different positions, qualifications, and work units may have different responses for different dimensions or items.

Another research assessed patient safety culture in teaching hospitals in Iran from the nurses' point of view (Kakemam et al., 2022). Cross-sectional research was conducted at thirty-two teaching hospitals throughout five Iranian regions. Convenience sampling was used to select 2295 nurses. The results showed that the HSOPSC survey had a 36.4% positive response overall rate. The average percentage of positive responses across all dimensions ranged from 27.1% in "Staffing" to 53.8% in "Teamwork Across Hospital Units." The findings revealed that all 12 dimensions might be regarded as needing improvement, and these findings demonstrated a major deficiency in patient safety culture among the hospitals represented.

In Malaysia, research was carried out at a cluster hospital comprised of one state and two district hospitals (Ismail & Khalid, 2022). The Safety Attitude Questionnaire (SAQ) examined the safety culture. The research included all doctors, pharmacists, nurses, and assistant medical officers who were directly involved with patient care processes and had been working at the institutions for at least four weeks. Individuals who worked in management and were on extended leave were excluded from participating in the research.

Generally, just a minority of healthcare professionals at the cluster hospital have a positive patient safety culture (SAQ score 75%), considerably below the international benchmarking threshold. The majority of the safety culture dimensions should be taken into account: working conditions, management perspective, safety climate, teamwork climate, and stress recognition. No dimension achieved the 75% minimum score required to be identified as an area of strength.

Notably, in the Arab countries, an assessment of patient safety culture was conducted at the general hospital and four district hospitals in Fayoum Governorate, Egypt, among 479 paramedical healthcare workers, using HSOPSC as an assessment tool (El-Sherbiny et al., 2020). The overall score for patient safety was 46.56%. There was no dimension with a score higher than 75%. Organizational learning and continuous improvement had the highest mean composite scores (65.36%), followed by teamwork within hospital units (63.09%). Communication openness had the

lowest recorded score (17.9%). Females perceived more safety aspects than males, as did those who had direct contact with patients and those with fewer than ten years of expertise.

Another assessment of PSC has been carried out in governmental hospitals of Eastern Province, Saudi Arabia (Aboufour & Subbarayalu, 2022). The sample consisted of 781 personnel, including nurses, doctors, other clinical staff, and administrative staff was administered the (HSOPSC) questionnaire. The results revealed that the total composite positive score for all 12 PSC dimensions was 67%. Nevertheless, 79% of Healthcare personnel rated overall patient safety at MOH hospitals as "excellent" or "very good." Nurses have rated overall patient safety as "excellent" or "very good" more than physicians, other clinical personnel, and administrative staff. Among the PSC dimensions, "Teamwork within units" was highlighted as a strength of the selected MOH hospitals. In contrast, shortcomings were identified as communication openness, handoffs and transitions, staffing, and non-punitive response to errors.

A patient safety culture survey was conducted on 12,092 employees from 16 public hospitals in Kuwait using the HSOPSC tool to handle the assessment (Ali et al., 2018). Areas of strength were teamwork within units, organizational learning—continuous improvement, management support for patient safety, supervisor/manager expectations & actions promoting patient safety, and feedback and communication about the error. The area with the lowest percent positive related to the dimension of non-punitive response to error (27.7%), followed by staffing (39.9%) which also emerged as problematic, and finally dimension relating to communication openness was also found to be an area requiring improvement (46.9%). Regression findings highlighted the significant association between patient safety outcomes and composites.

Sixty-eight Lebanese hospitals participated in the study and were assessed for patient safety using the HSOPSC instrument (El-Jardali et al., 2010). The findings revealed that the dimensions with the most positive ratings were teamwork within units, hospital management support for patient safety, and organizational learning and continuous improvement. Those with the lowest ratings were

staffing and non-punitive error response. About (60%) of respondents stated that they had not submitted any event reports in the previous 12 months, while over (70%) rated their hospitals as 'excellent/very good' in terms of patient safety.

In Palestine, little is known about patient safety culture. Hamdan & Saleem (2013) investigated the patient safety culture in all 11 general public hospitals in the West Bank. 1460 clinical and non-clinical hospital staff participated in the study. The patient safety composites with the highest positive scores were teamwork within units (71%), organizational learning and continuous improvement (62%), and supervisor/manager expectations and actions promoting patient safety (56%). The composites with the lowest scores were a non-punitive response to error (17%), frequency of events reported (35%), communication openness (36%), hospital management support for patient safety (37%), and staffing (38%). Although 53.2% of the respondents did not report any event in the past year, 63.5% rated patient safety level as 'excellent/very good.' Moreover, significant differences in patient safety scores and outcome variables were found between hospitals of different sizes, staff positions, and work hours. The study identifies the prevalence of a punitive and blame culture, under-reporting of events, a lack of communication openness, and insufficient management support as critical problems for patient-safe hospital care.

To assess the changes in the patient safety culture between 2011 and 2016 after implementing the patient safety initiative in Palestinian public hospitals, the same researchers conducted another survey on the same 11 hospitals (Hamdan & Saleem, 2018). Patients' safety efforts and initiatives to enhance quality had a beneficial influence on the safety culture in Palestinian public hospitals compared to baseline survey findings.

In Jerusalem's Makassed Islamic Charity Hospital, research was conducted between March and May 2010 to assess the culture of patient safety among medical staff (Surkhi, 2011). The study's findings identified teamwork within units and organizational learning as areas of strength at the

departmental level. Other dimensions, including staffing and non-punitive responses to errors, were recognized as areas for potential improvement.

The hospital handoffs and transitions were considered potential areas for improvement at the hospital level. Although the professional staff provided an excellent rating for the degree of safety in their workplace, it was thought there was potential for enhancement in the frequency and number of event reports.

Another Palestinian study was held to assess the attitudes of nurses working in governmental hospitals in the Gaza Strip toward patient safety by Abu-El-Noor et al. (2019) using The Attitudes to Patient Safety Questionnaire III. The survey findings revealed only slightly positive attitudes toward patient safety, with a score of 3.68 on a 5-point Likert scale, even though only 41.9% had previously received patient safety training. The areas with the most positive attitudes to patient safety were 'working hours as a cause of error' and 'team functioning,' with scores of 3.94 and 3.93, respectively. In contrast, the area with the most negative attitudes was 'importance of patient safety in the curriculum,' with a score of 2.92.

A baseline patient safety culture assessment, was handled in four general public hospitals in the Gaza Strip, Palestine using the Arabic version of the Safety Attitude Questionnaire (Elsous et al., 2016). The data was gathered from a total of 370 physicians and nurses. On a 100-point scale, the mean score of the Arabic Safety Attitude Questionnaire across the six dimensions varied from 68.5 for Job Satisfaction to 48.5 for Working Conditions. The percentage of those surveyed who had a positive attitude toward teamwork climate was 34.5%, 28.4% for safety climate, 40.7% for stress recognition, 48.8% for job satisfaction, 11.3% for working conditions, and 42.8% for management perception.

Zabin et al. (2022) examined the nurses' perception of Patient Safety Culture (PSC) at An-Najah National University Hospital in Palestine using HSOPSC. A convenience sample of 107 nurses were asked by email to complete the Arabic version of (HSOPSC). Organizational learning and

continuous improvement (87%) and teamwork within units (86%), were the dimensions of patient safety that received the most positive responses. Non-punitive response to error had the lowest positive score (22%). Multiple regression analyses found that communication openness predicted overall safety perceptions. Also, the dimension of feedback and error communication predicted the frequency of reported events. In addition, age was shown to be a predictor of PSC.

The literature review shows that the HSOPSC survey has assessed patient safety culture in different healthcare settings. For example, it was used by Salem et al. (2019) to assess patient safety culture among nurses in pediatric and adult ICU departments in Egyptian hospitals. Another study from Turkey by Gözlü & Kaya (2014) used the HSOPSC tool to assess patient safety culture among nurses. In China, a study used the same tool to evaluate patient safety culture among clinical and non-clinical staff by Hao et al. (2020). This tool also has been used by Aboshaiqah & Baker (2013) to assess nurses' perceptions of patient safety culture in Saudi Arabia hospitals. Finally, the previously mentioned Hamdan & Saleem (2013, 2018) study also relied on the HSOPSC tool to assess patient safety culture perception within clinical and non-clinical staff in MoH hospitals in West Bank.

To sum up, for this thesis, the HSOPSC was used and preferred by the author for the multiple studies which employed it. It is more familiar and usable than other assessment tools like SAQ or PSCHO.

As little is known about patient safety in the West Bank, this research contributes to a better understanding of hospital patient safety and fills this literature gap. We employ the HSOPSC survey to assess patient safety culture among employees in Al-Ahli hospital Hebron – Palestine.

2.4 The Conceptual Framework

The thesis tests a conceptual model to predict the effect of patient safety culture dimensions on the overall perception of patient safety culture from a staff perspective. The overall perception of

patient safety culture is conceptualized as a function of the suggested safety dimensions of the HSOPSC. Variables are as follows:

Dependent Variable (DV): the overall perception of patient safety culture (outcome dimension)

Independent Variables(IV): teamwork within units, supervisor/manager expectations and actions promoting patient safety, organizational learning–continuous improvement, management support for patient safety, feedback and communication about the error, communication openness, frequency of events reported, teamwork across units, staffing, handoffs and transitions and non-punitive response to error.
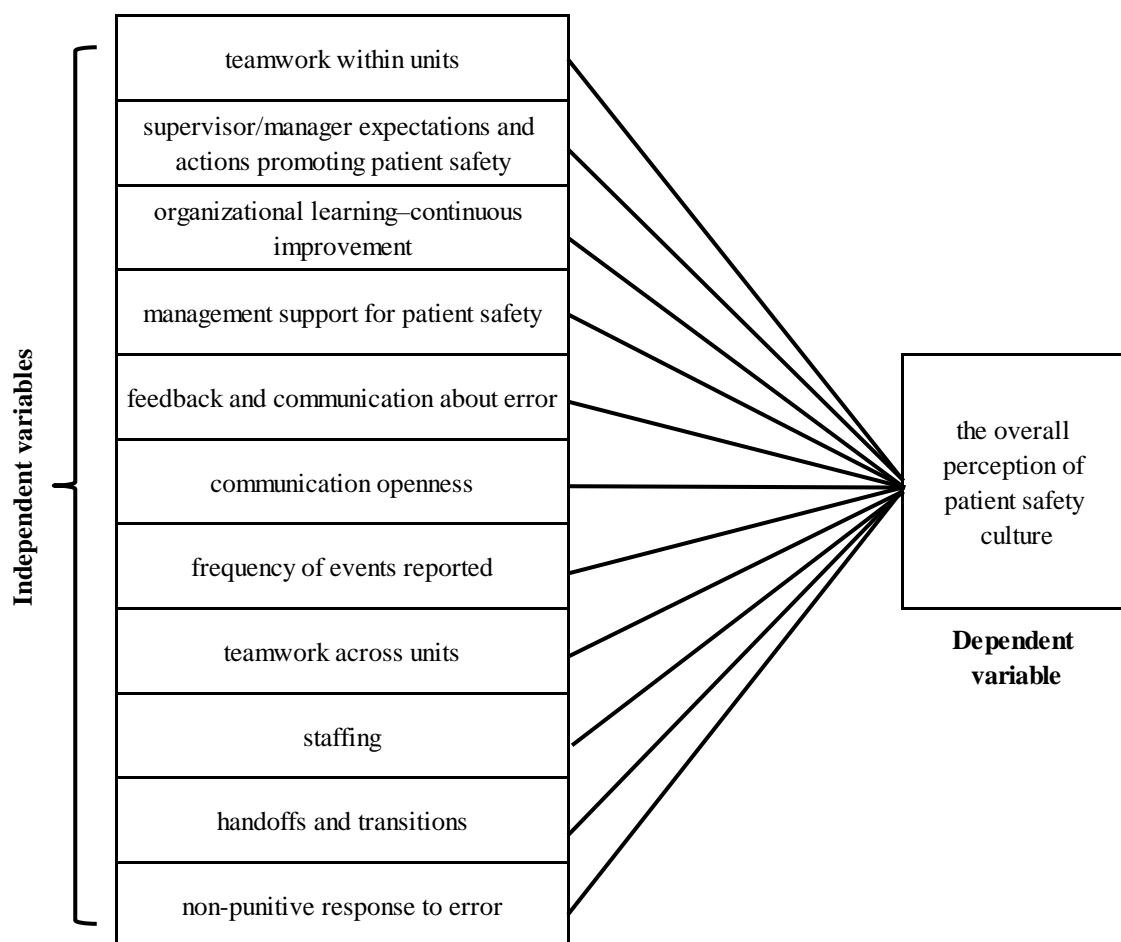
Figure 1: The Conceptual Framwork

Chapter Three: Methodology

This chapter describes the basic research plan to achieve the research purpose. It discusses the study design, target population, research sample, instrument, data analysis, scope, assumptions, and limitations. It introduces the use of the Hospital Survey on Patient Safety Culture (HSOPSC), established by the Agency of Healthcare Research and Quality (AHRQ).

1. Research design.

2. Population and sampling.

3. Research method.

4. Psychometric analysis.

5. Research limitations.

6. Data analysis.

7. Ethical considerations.

8. Research assumptions.

3.1 Research design

The thesis follows a cross-sectional descriptive study. Staff perceptions and attitudes toward patient safety culture are usually assessed through surveys, a more cost-effective design and an efficient way to gather data faster than a more comprehensive survey. The HSOPSC questionnaire form was used to collect quantitative data from the staff of Al Ahli hospital in Hebron from March to April 2022.

HSOPSC is an internationally recognized questionnaire among practitioners and researchers (Hamdan & Saleem, 2013; Hao et al., 2020; Olak et al., 2019). The tool scores patient safety culture at three levels, organizational, departmental, and individual level.

3.2 Population and sampling

The study population comprises all clinical hospital staff with direct patient contacts such as physicians and nurses; staff with indirect contact with patients, like paramedical and support staff; and non-clinical workers (administrative), like managers and supervisors.

The study population comprises the following groups:

1. Clinical staff directly interact with patients (e.g., nursing staff).
2. Hospital physicians spend most of their work time at the hospital (specialists, residents, and general practitioners).
3. Clinical staff whose activities directly affect patient safety without direct contact with patients. For example, pharmacologists, radiology technicians, laboratory technicians, pathology technicians, physiotherapists, and dietitians (paramedics).
4. Non-clinical staff (administrative): such as managers, supervisors, and others.

The total study population at Al-Ahli Hospital, including these four categories, is 987 employees (Al Ahli Hospital Records, 2022).

A stratified proportion of convenient samples are drawn from the population for sampling. It was calculated using Raosoft, a sample size calculator website, with a margin error of 5% and a confidence interval of 95%. It is 278 hospital personnel[1]. However, the researcher distributed 402 questionnaires to employees from the three categories.

The human resource department in Al-Ahli hospital offers a list of the employees in the various departments. The participants were chosen at random while considering the three categories mentioned above.

3.3 Research method

This thesis employs the hospital Survey on Patient Safety Culture (HSOPSC). HSOPSC is one of the most widely used and validated tools for assessing patient safety issues, medical errors, and events reporting within hospital staff whose work affects patients directly or indirectly (clinical and non-clinical staff).

The AHRQ advises utilizing the estimated mean percentage of positive responses in each dimension to measure the safety culture level. It proposes that any dimension with a proportion of positive answers of 75% or more should be deemed a strong dimension of safety culture in the population examined as an evaluation measure. Meanwhile, any dimension with a negative response rate of more than 50% should be regarded as "needing improvement" and prioritize associated initiatives (Sorra et al., 2016). An Arabic-translated version of HSOPSC was used in the study (Appendex 2).

The HSOPSC is comprised of 42 item that measures 12 dimensions of patient safety culture, as well as two single-item response outcomes are used to assess the overall level of patient safety and the number of events reported in the last year (Sorra et al., 2016). Table 1 shows the patient safety culture dimensions and their corresponding definitions. The survey uses a five-point Likert scale to score agreement ("strongly agree" to "strongly disagree") or frequency (never to always).

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[1] The Raosoft, a sample size calculator website http://www.raosoft.com/samplesize.html

The survey measures seven unit-level dimensions of safety culture:

- Supervisor/manager expectations & actions promoting safety (4 items).

- Organizational learning— continuous improvement (3 items).

- Teamwork within Units (4 items).

- Communication openness (3 items).

- Feedback and Communication about Error (3 items).

- Non-punitive Response to Error (3 items).

- Staffing (4 items).

Also, the survey measures three hospital-level dimensions of safety culture:

- Hospital management Support for Patient Safety (3 items).

- Teamwork across Hospital Units (4 items).

- Hospital handoffs and transitions (4 items).

Finally, four outcome dimensions will be assessed:

- Overall perceptions of safety (4 items).

- Frequency of event reporting (3 items).

- Patient safety grade (1 item).

- Number of Events Reported (1 item).

The items in the Hospital Survey on Patient Safety Culture are organized into groups based on the safety culture composites they are meant to assess, and they are shown in Annex1 (Sorra et al., 2016).

Table 1: Patient safety culture dimensions and definitions, Source: (Sorra et al., 2016)

Table (1)	
Patient safety culture dimension	**Definition**
unit level	
Communication openness	Staff members can speak out if they perceive something that may harm a patient. They are also free to challenge individuals in positions of greater authority.
Feedback and communication about error	Staff is notified of errors, receives comments on modifications, and discusses prevention strategies.
Teamwork within units	Staff members support, treat one another with dignity, and collaborate.
Non-punitive response to the error	staff believes that their errors and event reports are not kept against them and that faults are not documented in their personnel records.
Organizational learning–continuous improvement	Mistakes have resulted in constructive changes, and the impact of those changes is being assessed.
Supervisor/manager expectations and actions promoting patient safety	Supervisors/managers evaluate employee recommendations for enhancing patient safety, praise employees for adhering to patient safety protocols, and do not ignore patient safety issues.
Staffing	There is adequate personnel to fulfill the workload, and work hours are suitable for providing the best possible service to patients.
Hospital level dimensions	
Teamwork across units	Hospital units collaborate and coordinate to offer the most outstanding care for patients,
Handoffs and transitions	Critical patient care information is shared between hospital units and throughout shifts.
Management support for patient safety	Hospital management creates an environment that encourages patient safety and demonstrates that patient safety is a major concern.
Outcome dimensions	
Frequency of events reported	There are three sorts of mistakes that are reported: (1) mistakes that are identified and addressed before they injure the patient, (2) mistakes that have no potential to harm the patient, and (3) mistakes that have the potential to harm the patient but do not.

Overall perceptions of patient safety	Procedures and protocols effectively prevent errors, and there are no patient safety problems.
Patient Safety Grade	Staff overall grade on patient safety in their work area in the hospital.
Number of Events Reported	The staff have filled out and submitted the number of events reports in the past 12 months.

3.4 Psychometric analysis

Psychometric analysis of the Arabic-translated American HSOPSC version in Palestine revealed that the HSOPSC is a valid and reliable tool for measuring patient safety culture in an Arabic-speaking hospital context (Najjar, Hamdan, Baillien et al., 2013).

In this study, the instrument's internal consistency was measured using Cronbach's coefficient Alpha (α) as a measure of reliability, as shown in Table 2.

When the reliability is more than or equal to 0.6, the items accurately assess the same concept, so the **α** score is acceptable (Najjar, Hamdan, Baillien, et al., 2013).

Table 2: Reliability of patient safety culture dimensions

Safety Culture Dimensions	**Cronbach's α**
1. Teamwork Within Units (3 items--% Agree/Strongly Agree)	0.81
2. Supervisor/Manager Expectations & Actions Promoting Patient Safety (4 items--% Agree/Strongly Agree)	0.45
3. Organizational Learning-Continuous Improvement (3 items--% Agree/Strongly Agree)	0.66
4. Hospital Management Support for Patient Safety (3 items--% Agree/Strongly Agree)	0.44
5. Overall Perceptions of Safety (4 items--% Agree/Strongly Agree)	0.23
6. Feedback & Communication About Error (3 items--% Most of the time/Always)	0.75
7. Communication Openness (3 items--% Most of the time/Always)	0.57
8. Frequency of Events Reported (3 items--% Most of the time/Always)	0.82

9. Teamwork Across Hospital Units (4 items--% Agree/Strongly Agree)	0.66
10. Staffing (4 items--% Agree/Strongly Agree)	0.34
11. Hospital Handoffs & Transitions (4 items--% Agree/Strongly Agree)	0.75
12. Nonpunitive Response to Error (3 items--% Agree/Strongly Agree)	0.63

3.5 Research limitations

- Shortage of references that tackle patient safety issues in the Palestinian context.

- Shortage of time where the researcher surveys in less than one month.

3.6 Data analysis

After data collection was completed, statistical analyses were carried out using SPSS 26.0, which was utilized to compute the reliability and one-way ANOVA, chi-square, and regression tests. Descriptive statistics were calculated for the survey items, including frequencies and percentages.

The questionnaire items were divided into groups based on the components of safety culture that each item was meant to assess. The two lowest response categories (Strongly Disagree/Disagree or Never/Rarely) and the two highest response categories (Strongly Agree/Agree or Most of the time/Always) were merged for each item. The scale's midpoint was reported as a distinct category in the results (Neither or Sometimes). As for missing data, they were disregarded.

The categories were merged to boost the positive response rate's score and make the findings easier to view in the report (Sorra & Nieva, 2004).

Based on the HSOPSC survey user guide, ten surveys were excluded due to one of the following reasons:

1. Surveys that are blank or include only demographic data.

2. Less than half of the items in the whole survey (in different sections) were completed.

3. Responses with the same score to all questions. The same answer to all items in "1" or "2" suggests that the respondent did not pay careful attention, and the results are most likely invalid.

3.7 Ethical consideration

The researcher got ethical permission from the general director of Al-Ahli Hospital to conduct the research. Participation is entirely voluntary, anonymous, and confidential.

The purpose of the study is explained to the participants. The findings will be discussed with the hospital's top management to discuss the results and generate insightful thoughts that may help the quality improvement process.

3.8 Research assumptions

1. An adequate number of the hospital staff will engage, respond, and cooperate to complete the survey.
2. The questions and concepts of the Arabic HSOPSC version are understood and obvious to participants.
3. All respondents will fill out the questionnaire honestly and truthfully, allowing the actual state of the organization to be revealed.
4. Participants give valid and accurate data.

Chapter Four: Results

This chapter will present the study results, including respondent characteristics, the average percentage of positive responses for all of the survey's items and dimensions, and differences in response among the four respondents' professional groups and differences based on staff position and patient interaction.

To summarize respondents' characteristics, descriptive statistics, and tables are introduced. ANOVA was used to investigate differences in patient safety culture composites across respondents' work areas, positions, experience, and patient contact. The relationship between patient safety outcome measures and respondent characteristics was examined using chi-square tests. Finally, a linear regression was performed to investigate the relationship between the overall perception of patient safety culture (dependent variable) and other remaining dimensions (independent variables). The sections of this chapter include:

1. Response rate.

2. Respondents characteristics.

3. Patient safety culture dimensions.

    3.1   Item level – overall results.

    3.2   Dimension level – overall results.

    3.3   Unit-level overall results.

    3.4   Hospital-level overall results.

    3.5   Results on Patient safety culture Outcomes.

    3.6   Dimensions' positive score differences among staff positions.

    3.7   Dimensions' positive score and patient contact.

    3.8   Safety outcome across respondents' characteristics.

    3.9   Relationship between overall perception of patient safety and other dimensions

4.1 Response rate

As seen in Table 3, 372 of the 406 distributed questionnaires were returned. Ten of these surveys were excluded because all of the items were answered the same way, one section was left unfinished, or less than half of the survey's total items were responded to, so the **valid response rate was 89.2%**.

Table 3: Response rate

Number of distributed questionnaires	406
Number of filled questionnaires	372
Number of excluded questionnaires (Incompletes, same answers)	10
Response rate	91.6%
valid response rate	**89.2%**

4.2 Respondents characteristics

The data in this section is derived from survey respondents' responses to questions concerning the hospital work area or unit where they spent most of their working hours, their staff position, and their direct patient contact. Table 4 shows the respondent characteristics, such as the work area or unit, staff position, and the percentage of respondents directly interacting with patients.

Demographic characteristics

❖ Gender and marital status

According to the collected data, males comprised 53% of the sample, and married participants comprised nearly two-thirds of the respondents.

❖ Work area/unit in the hospital

About 17.5% of respondents were staff who spend most of their time at ICU in different types of departments (surgical, medical, pediatric), followed by 17.2% of staff who worked in supportive

medical services departments (laboratory, radiology, pharmacy, and anesthesiology). Surgery department (14.9%), medical-nonsurgical (10%), Obstetrics and Gynecology (9.40%), pediatrics and neonate (7.2%), and emergency (5.8%), and others working in more than one department.

❖ **Staff position in the hospital**

Nurses (registered nurses & practical nurses) and Physicians (Specialists, residents, and internship) formed most of the study respondents 50.6% and 17.3%, respectively, followed by paramedics (technicians, pharmacists, aid nurses), 17.3%, and rest were administrative and others.

❖ **Working hours**

More than half of the respondents work from 40 to 59 working hours weekly (67.8%), followed by 15.7% who operate from 21 to 39 working hours per week, about 13% work more than 60 hours per week, and only 3.9% work less than 20 hours weekly.

Table 4: Respondents' characteristic

1. Primary hospital work area, department, or clinical area where respondents spend most of their work time: (missing: 1)			
Many different units / No specific unit	8.90%	ICU different types	17.50%
Medicine (non-surgical)	10%	pharmacy & medical stores	1.10%
Surgery	14.90%	Laboratory	5.80%
Obstetrics & Gynecology	9.40%	Radiology	5%
Pediatric & Neonate	7.20%	Anesthesiology	5.30%
Emergency	5.80%	Others	9.10%
2. Staff position in the hospital: (missing: 4)			
Nurses	50.60%	aid-nurse	6.70%
Physicians (Specialists, residents, and internship)	17.30%	Administrative	7.80%
Technicians	9.80%	Secretarial	2.50%
Pharmacists	1.10%	Others	4.30%
3. Gender & status: (missing: 2,7)			
Male	53.10	Female	46.90

	%		%
Single	34.40 %	Married	63.60 %
Other	2%		

4. Weakly working hours: (missing: 5)			
less than 20 hours/week	3.90%	60-79 hours/week	4.50%
20-39 hours/week	15.70 %	80-99 hours/week	3.40%
40-59 hours/week	67.80 %	100 hours or more /week	4.80%

5. Period of working in the hospital: (missing: 1)			
less than one year	26.30 %	11-15 years	8%
1-5 years	34.60 %	16-20 years	6.40%
6-10 years	14.10 %	more than 21 years	10.50 %

6. Period of working in the department: (missing: 2)			
less than one year	34.40 %	11-15 years	6.10%
1-5 years	37.50 %	16-20 years	4.40%
6-10 years	11.40 %	more than 21 years	6.10%

7. Period of working in the profession: (missing: 3)			
less than one year	23.10 %	11-15 years	8.90%
1-5 years	39%	16-20 years	4.70%
6-10 years	14.20 %	more than 21 years	10%

8. Percentage of respondents with direct interaction or contact with patients: (missing: 5)			
Respondents in direct contact with patients	81.20 %	there is NO direct contact	18.80 %

When respondents were asked about their experience at this hospital, the majority worked more than one year in the hospital (73.7%), 34.6% of the respondents worked for 1 to 5 years in the same department, 14.1% worked from 6 to 10 years, and 16.6% worked more than ten years in the same department.

For experience, 23.1% of respondents have less than one year of experience in their current specialty. The majority have experience from 1 to 10 years(53.2%), then 8.9% have 11 to 15 years of experience, 4.7% have 16 to 20 years, and only 10% have more than 21 years of experience.

❖ **Interaction with patients**

Most respondents (80.2%) said they worked in positions requiring direct patient interaction or contact.

4.3 Patient safety culture dimensions

The 42 items of the questionnaire assess 14 dimensions of patient safety culture. Ten of the patient safety culture dimensions are scored by three or four items.

The Hospital Survey on Patient Safety Culture is intended to assess three hospital-level aspects, seven unit-level aspects, and four overall patient safety outcomes. Dimension scores for the hospital were computed by averaging the % positive answer on the items within a dimension. For example, if the item-level percent positive responses for a three-item dimension were (50%), (55%), and (60%), the hospital's dimension-level percent positive response would be the average of these three percentages, or (55%) positive.

Most survey items require respondents to respond using a 5-point scale in terms of agreement (Strongly agree, Agree, Neither, Disagree, Strongly disagree) or frequency (Always, Most of the time, Sometimes, Rarely, Never). Two of the ten patient safety culture dimensions (Feedback and Communication about Error and Communication Openness) use the frequency response option, whereas the other eight use the agreement response option.

The survey contains both positive " We have enough staff to handle the workload" and negative " Important patient care information is often lost during shift changes" worded items, positively. Negatively worded items have a different way of calculating the percent positive response.

Positive, neutral, and negative responses are defined as follows:

1. Positive is the percentage of responses that were (Agree /Strongly agree or Most of the Time /Always) for positively worded questions, and (Disagree /Strongly Disagree or Rarely /Never) for negatively worded questions.

2. Neutral is the percentage of responses for any question that was answered (Neither or Sometimes).

3. Negative is the percentage of responses that were either (Disagree /Strongly Disagree or Rarely /Never) or (Agree /Strongly Agree or Most of the Time / Always) for negatively worded questions.

AHRQ identified patient safety areas of strength and areas for potential improvement as follows (Sorra & Nieva, 2004):

1. Areas of strength: These are positively worded items that approximately (75%) of respondents endorse by responding "Agree / Strongly agree" or "Most of the time / Always." Also defined as when around (75%) of respondents disagreed with the reversely worded item.

2. Potential improvement Items to which 50% or more of respondents responded negatively with "Disagree / Strongly disagree" or "Never / Rarely." Also defined as when (50%) of respondents disagreed with items with reversed wording.
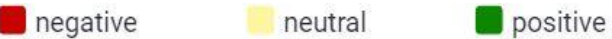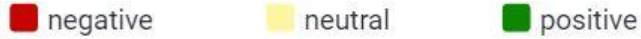
4.3.1 Item level – overall results
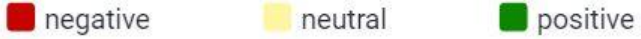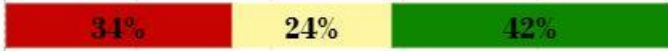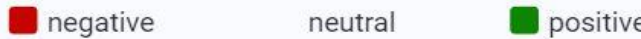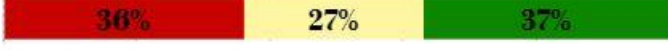
The item-level results show the average percentage of positive responses for each of the 42 survey items across all patient safety dimensions (Figure 1).
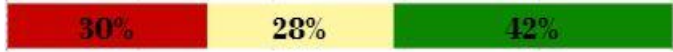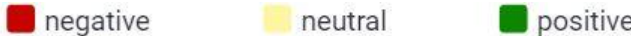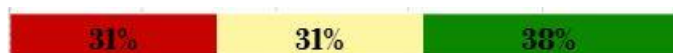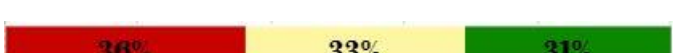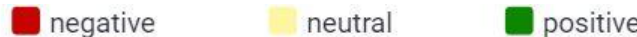
The survey items are organized according to the patient safety culture dimension they are meant to assess. The items within each dimension are provided in the order in which they occur in the survey.

The survey item with the highest average percent positive response (90%) (A6) was from the patient safety culture dimension" Organizational Learning-continuous Improvement: "We are

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actively doing things to improve patient safety," and item (A4) "In this unit, people treat each other with respect" from Teamwork Within Units dimension and (A15) " Patient safety is never sacrificed to get more work done" from Overall Perceptions of Patient Safety dimension, and both scored (81%). The survey items with the lowest average percent positive response (9%)(A14) were from the patient safety culture dimension Staffing (A5) "We work in "crisis mode, trying to do too much, too quickly." That is, an average of only (9%) of respondents in each hospital Strongly disagreed or Disagreed with this negatively worded item), and only (14%) of respondents scored for (A16) Staff worry that mistakes they make are kept in their personnel file from " Non-punitive Response to Errors" dimension.

1.Teamwork Within Units	■ negative　　■ neutral　　■ positive	result
A1. People support one another in this unit.	9% 13% 78%	**area of srtength**
A3. When a lot of work needs to be done quickly, we work together as a team to get the work done	9% 12% 79%	**area of srtength**
A4. In this unit, people treat each other with respect.	6% 13% 81%	**area of srtength**
2.Supervisor/Manager Expectations & Actions Promoting Patient Safety	■ negative　　■ neutral　　■ positive	**result**
B1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.	12% 14% 75%	**area of srtength**
B2. My supervisor/manager seriously considers staff suggestions for improving patient safety.	15% 17% 68%	-
B3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. (negatively worded)	32% 31% 37%	-
B4. My supervisor/manager overlooks patient safety problems that happen over and over. (negatively worded)	13% 15% 72%	-
3.Organizational Learning—Continuous Improvement	■ negative　　■ neutral　　■ positive	**result**
A6. We are actively doing things to improve patient safety.	4% 6% 90%	**area of srtength**
A9. Mistakes have led to positive changes here.	11% 18% 72%	-
A13. After we make changes to improve patient safety, we evaluate their effectiveness.	10% 26% 64%	-

4.Management Support for Patient Safety	negative	neutral	positive	result
F1. Hospital management provides a work climate that promotes patient safety.	14%	23%	63%	-
F8. The actions of hospital management show that patient safety is a top priority.	11%	15%	74%	-
F9. Hospital management seems interested in patient safety only after an adverse event happens. (negatively worded)	34%	24%	42%	-
Overall Perceptions of Patient Safety	negative	neutral	positive	result
A15. Patient safety is never sacrificed to get more work done.	10%	9%	81%	**area of srtength**
A18. Our procedures and systems are good at preventing errors from happening.	9%	19%	72%	-
A10. It is just by chance that more serious mistakes don't happen around here. (negatively worded)	29%	26%	45%	-
A17. We have patient safety problems in this unit. (negatively worded)	36%	27%	37%	-
6.Feedback & Communication About Error	negative	neutral	positive	result
C1. We are given feedback about changes put into place based on event reports.	23%	33%	44%	-
C3. We are informed about errors that happen in this unit.	13%	22%	65%	-
C5. In this unit, we discuss ways to prevent errors from happening again.	12%	22%	68%	-
7.Communication Openness	negative	neutral	positive	result
C2. Staff will freely speak up if they see something that may negatively affect patient care.	17%	23%	60%	-
C4. Staff feel free to question the decisions or actions of those with more authority.	21%	24%	55%	-

		result
C6. Staff are afraid to ask questions when something does not seem right. (negatively worded)	negative 30% / neutral 28% / positive 42%	-
Frequency of Events Reported	■ negative ■ neutral ■ positive	**result**
D1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	negative 18% / neutral 25% / positive 57%	-
D2. When a mistake is made, but has no potential to harm the patient, how often is this reported?	negative 18% / neutral 25% / positive 57%	-
D3. When a mistake is made that could harm the patient, but does not, how often is this reported?	negative 13% / neutral 24% / positive 63%	-
9.Teamwork Across Units	■ negative ■ neutral ■ positive	**result**
F4. There is good cooperation among hospital units that need to work together.	negative 18% / neutral 24% / positive 58%	-
F10. Hospital units work well together to provide the best care for patients.	negative 11% / neutral 24% / positive 65%	-
F2. Hospital units do not coordinate well with each other. (negatively worded)	negative 31% / neutral 31% / positive 38%	-
F6. It is often unpleasant to work with staff from other hospital units. (negatively worded)	negative 36% / neutral 33% / positive 31%	-
10.Staffing	■ negative ■ neutral ■ positive	**result**
A2. We have enough staff to handle the workload.	negative 32% / neutral 20% / positive 48%	-
A5. Staff in this unit work longer hours than is best for patient care. (negatively worded)	negative 66% / neutral 18% / positive 16%	**potintial improvement**
A7. We use more agency/temporary staff than is best for patient care. (negatively worded)	negative 45% / neutral 29% / positive 26%	
A14. We work in "crisis mode" trying to do too much, too quickly. (negatively worded)	negative 71% / neutral 19% / positive 10%	**potintial improvement**

11.Handoffs & Transitions	negative　　neutral　　positive	result
F3. Things "fall between the cracks" when transferring patients from one unit to another. (negatively worded)	32%　24%　44%	-
F5. Important patient care information is often lost during shift changes. (negatively worded)	28%　28%　44%	-
F7. Problems often occur in the exchange of information across hospital units. (negatively worded)	36%　29%　35%	-
F11. Shift changes are problematic for patients in this hospital. (negatively worded)	22%　32%　46%	-
12.Nonpunitive Response to Errors	negative　　neutral　　positive	result
A8. Staff feel like their mistakes are held against them. (negatively worded)	50%　24%　26%	potintial improvement
A12. When an event is reported, it feels like the person is being written up, not the problem. (negatively worded)	48%　30%　22%	-
A16. Staff worry that mistakes they make are kept in their personnel file. (negatively worded)	61%　25%　14%	potintial improvement

Figure 2: Safety culture items' average percentage of positive response.

Based on the positive score response per item, six items were recognized as areas of strength. Three items (A1, A3, A4) from Teamwork within the dimension of the unit, one item (B1) from Supervisor/manager expectations and actions promoting patient safety, another item (A6) from Organizational learning / continuous improvement dimension, and finally item (A15) from overall perception of patient safety.

Four areas for potential improvements were recognized, two items (A5, A14) from the staffing dimension and the other two (A8, A16) from non-punitive responses to errors.

4.3.2 Dimension level – overall results

Table 5 shows the average percentage of positive response rate for each 12 patient safety culture dimensions – dimension level results, and it is in descending order from highest to lowest.

The highest average positive response rate was for the "Teamwork within units" dimension (79%), which shows the level to which staff supports one another, treat each other respectfully, and collaborate as a team. It is considered an area of strength.

The next highest dimension was "Organizational learning- continuous improvement," with a rate of (75.3%), which shows the level of effective learning from mistakes and is considered an area of strength in the hospital.

Table 5: Safety culture dimensions' average percentage of positive responses

	Patient safety culture dimension	Average % of positive responses
1	Teamwork within units	79.00%
2	Organizational learning–continuous improvement	75.30%
3	Supervisor/manager expectations and actions promoting patient safety	63.10%
4	Management support for patient safety	59.60%
5	Feedback and communication about error	59.20%
6	The frequency of events reported	58.90%
7	Overall perceptions of patient safety	58.90%
8	Communication openness	52.50%
9	Teamwork across units	48.30%
10	Handoffs and transitions	42.50%
11	Staffing	25%
12	Non-punitive response to the error	20.60%

On the other hand, the lowest average percent positive response rate was for "Non-punitive response to errors" (20.6%). This indicates how the staff feels that their errors and event reports are not used against them and that errors are not preserved in their personnel files. It is considered an area for potential improvement.

The second lowest rate was for the dimension "Staffing" (25%), representing the degree of staff sufficiency to handle the workload and the stability of work hours to deliver the best patient care. It also indicates areas for potential improvements.

4.3.3 Unit-level overall results

Figure 3 represents the dimensions that indicate patient safety features at the unit –level, demonstrating that teamwork within units (79%) and organizational learning-continuous improvement (75%) are areas of strength at the unit level. It also shows potential areas for improvement: non-punitive error response (21%) and staffing (28%).
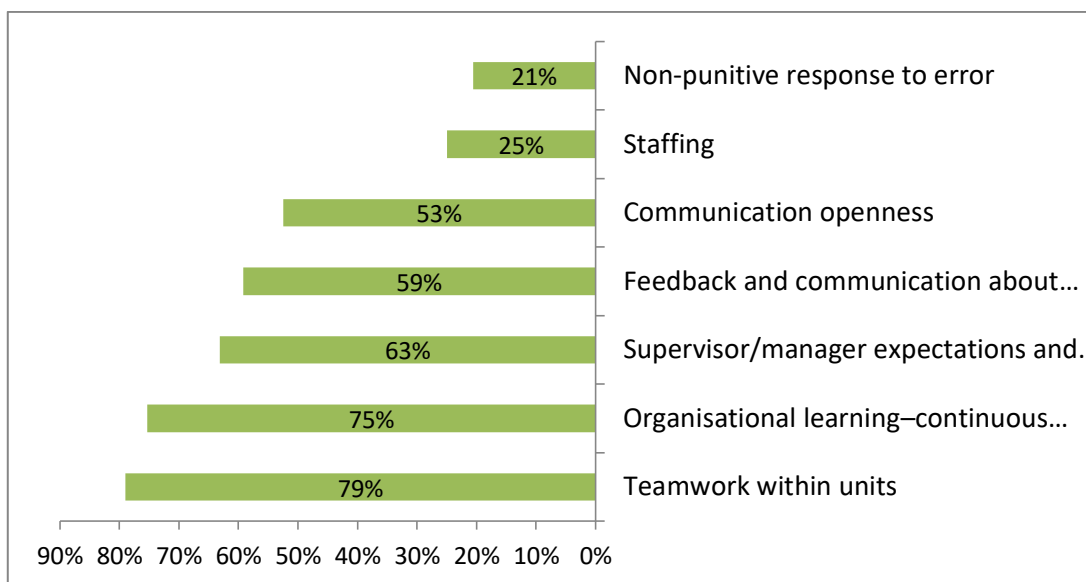
Figure 3: Unit level – patient safety culture dimensions

4.3.4 Hospital-level overall results

Figure 4 represents the dimensions of patient safety at the overall hospital level. The highest dimension was "Management support for patients safety"; on the other hand, the lowest was "Handoffs and transitions."
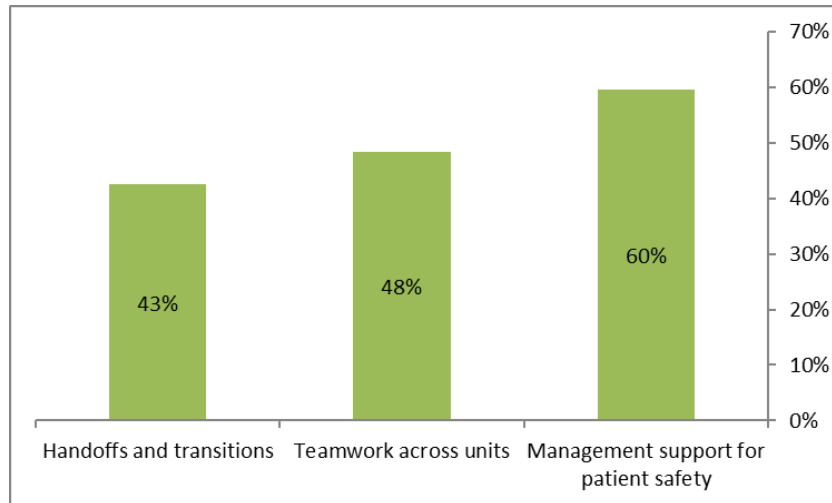
Figure 4: Hospital-level – patient safety culture dimensions

4.3.5 Results on Patient safety culture Outcomes

1.   Overall patient safety grade

Figure 5 displays the responses to the question asking respondents to rate the overall patient safety of their hospital work area or unit. The average percentage of hospital responders who gave grades ranged from "A-Excellent" to "E-Failing." On average, respondents gave their work area or unit an "A-Excellent" (39%) or "B-Very Good" (45%) or Acceptable (13%), and "Poor" (3%) grade for patient safety. None of them graded their department or unit as "Failing" (0%).
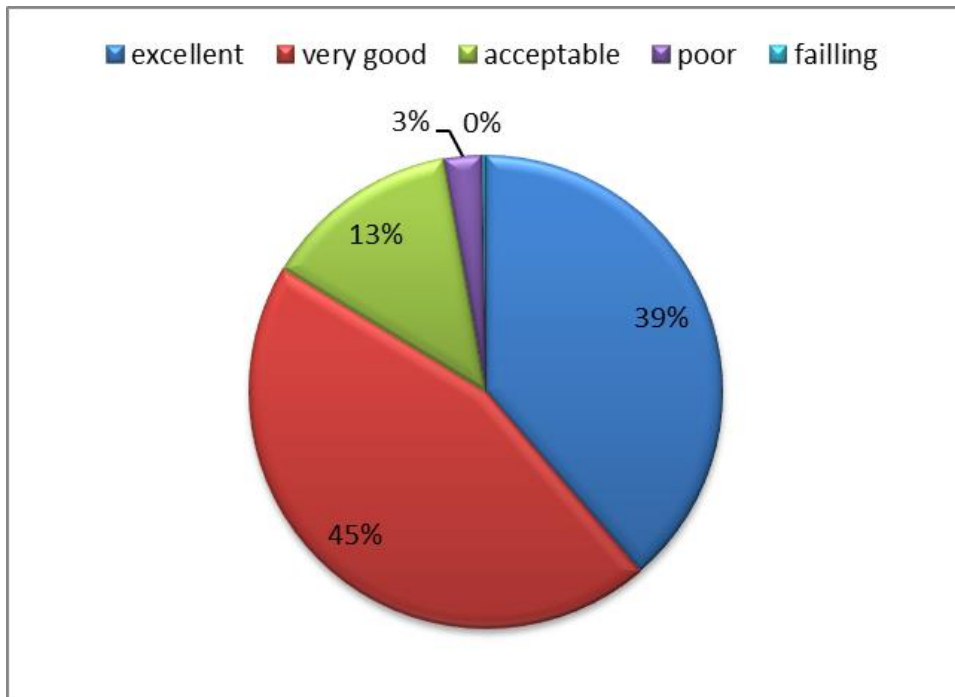
Figure 5: Distributions of Patient Safety Grades

2.   *Number of Events Reported*

Figure 6 displays the results from the question that asked respondents to specify how many events they had reported during the previous 12 months. The Figures show the average response rate of respondents who said that they reported: "No event reports" up to "(57%) and the response rate of respondents who reported one or two events in a 12-month as being (25%).

These rates indicate a real problem in reporting events in the hospital, so potential patient safety issues may not be noticed or discovered and, as a result, may not be addressed, making event reporting one of the hospital's areas for improvement.
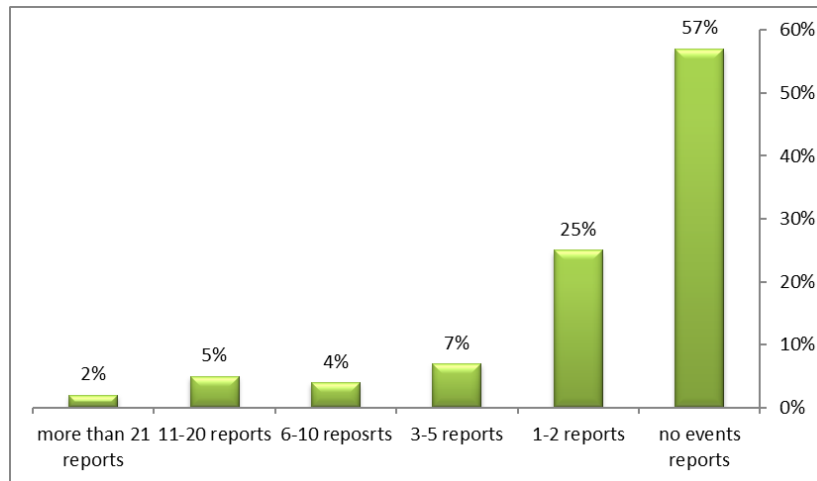
Figure 6: Distribution of Numbers of Events Reported in the past 12 months

3. *Overall perceptions of safety*

The results for the items that indicate the perception of patient safety as a whole are shown in Figure 7. This dimension has an average positive score of (59%). The item (A15), " Patient safety is never sacrificed to get more work done. " was considered an area of strength; the positive score of this item was (81%).

Overall Perceptions of Patient Safety	negative neutral positive	result
A15. Patient safety is never sacrificed to get more work done.	10% 9% 81%	**area of srtength**
A18. Our procedures and systems are good at preventing errors from happening.	9% 19% 72%	-
A10. It is just by chance that more serious mistakes don't happen around here. (negatively worded)	29% 26% 45%	-
A17. We have patient safety problems in this unit. (negatively worded)	36% 27% 37%	-

Figure 7: Overall Perceptions of Patient Safety.

4. *Frequency of events reported*

The scores for the items that represent the frequency of events reported are displayed in Figure (8). For this dimension, the average positive score was (59%).

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Frequency of Events Reported	negative	neutral	positive	result
D1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	18%	25%	57%	-
D2. When a mistake is made, but has no potential to harm the patient, how often is this reported?	18%	25%	57%	-
D3. When a mistake is made that could harm the patient, but does not, how often is this reported?	13%	24%	63%	-

Figure 8: Frequency of Events Reported

4.3.6 Dimensions' positive score differences among staff positions

Table 6 shows the differences in dimensions of positive response within the staff of the hospital, and the researcher categorized the staff into four groups: Nurses (registered nurses & practical nurses), Physicians (Specialist, residents, and internship), Paramedics (technicians, pharmacists, nutritionist, aid-nurse) and finally administrative and others.

Nurses have a higher positive response than other staff toward teamwork within units, feedback & communication about errors, and communication openness dimensions.

Physicians respond higher than others toward supervisor/ manager expectations and actions, promoting the patient safety dimension.

Paramedics have a higher positive response toward organizational learning/continuous improvement, the overall perception of patient safety, and staffing.

And finally, the administrative participants and other staff provided higher scores than others for hospital management support for patient safety and frequency of events reported dimensions.

A one-way ANOVA test was performed to test patient safety dimensions among staff in different categories, one-way ANOVA test was performed, and the results are shown in Table 7 below. Significant differences were found in five patient safety culture dimensions across the four staff

categories (nurses, physicians, paramedics and administrative): *Feedback & Communication About Error (p= 0.012), Teamwork Across Hospital Units (p= 0.002), staffing (p= 0.000), Hospital Handoffs & Transitions (p= 0.001) and Non-punitive Response to Error (p= 0.018).*

Table 6: Differences across four working groups based on the positive response

Safety Culture Composites	Average % of positive responses				Mean &SD	
	Nurses	Physicians	paramedics	administrative &others	Mean	SD
Teamwork Within Units (3 items--% Agree/Strongly Agree)	**80%**	79%	77%	76%	79%	0.014
Supervisor/Manager Expectations & Actions Promoting Patient Safety (4 items--% Agree/Strongly Agree)	64%	**66%**	62%	58%	63%	0.027
Organizational Learning-Continuous Improvement (3 items--% Agree/Strongly Agree)	78%	70%	**76%**	70%	74%	0.039
Hospital Management Support for Patient Safety (3 items--% Agree/Strongly Agree)	58%	56%	60%	**68%**	59%	0.042
Overall Perceptions of Safety (4 items--% Agree/Strongly Agree)	57%	59%	**64%**	59%	59%	0.023
Feedback & Communication About Error (3 items--% Most of the time/Always)	**65%**	51%	54%	54%	57%	0.059
Communication Openness (3 items--% Most of the time/Always)	**57%**	40%	55%	47%	49%	0.073
Frequency of Events Reported (3 items--% Most of the time/Always)	61%	51%	57%	**62%**	57%	0.047
Teamwork Across Hospital Units (4 items--% Agree/Strongly Agree	48%	41%	**54%**	**54%**	47%	0.055
Staffing (4 items--% Agree/Strongly Agree	23%	21%	**34%**	26%	25%	0.046
Hospital Handoffs & Transitions (4 items--% Agree/Strongly Agree)	45%	29%	**46%**	**46%**	40%	0.077
Nonpunitive Response to Error (3 items--% Agree/Strongly Agree)	23%	11%	25%	19%	19%	0.055
aggregate score	**55%**	**48%**	**55%**	**53%**		

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Table 7: One-Way ANOVA comparing patient safety dimensions by professional category.

Patient safety dimension		Sum of Squares	df	Mean Square	F	Sig.*
1. Teamwork Within Units	Between Groups	1.199	3	0.400	0.685	0.562
	Within Groups	198.902	341	0.583		
	Total	200.101	344			
2. Supervisor/Manager Expectations & Actions Promoting Patient Safety	Between Groups	1.741	3	0.580	1.406	0.241
`	Within Groups	145.304	352	0.413		
	Total	147.045	355			
3. Organizational Learning-Continuous Improvement	Between Groups	1.262	3	0.421	0.917	0.433
	Within Groups	161.031	351	0.459		
	Total	162.293	354			
4. Hospital Management Support for Patient Safety	Between Groups	3.270	3	1.090	2.269	0.080
	Within Groups	167.129	348	0.480		
	Total	170.399	351			
5. Overall Perceptions of Safety	Between Groups	0.733	3	0.244	0.475	0.700
	Within Groups	177.931	346	0.514		
	Total	178.664	349			
6. Feedback & Communication About Error	Between Groups	8.060	3	2.687	3.714	**0.012**
	Within Groups	253.904	351	0.723		
	Total	261.964	354			
7. Communication Openness	Between Groups	4.487	3	1.496	2.090	0.101
	Within Groups	253.340	354	0.716		
	Total	257.827	357			
8. Frequency of Events Reported	Between Groups	2.218	3	0.739	0.841	0.472
	Within Groups	308.531	351	0.879		
	Total	310.749	354			
9. Teamwork Across Hospital Units	Between Groups	7.210	3	2.403	5.010	**0.002**
	Within Groups	163.572	341	0.480		
	Total	170.782	344			
10. Staffing	Between Groups	6.531	3	2.177	6.062	**0.000**
	Within Groups	125.320	349	0.359		
	Total	131.850	352			-
11. Hospital Handoffs & Transitions	Between	10.802	3	3.601	5.809	**0.001***

		Groups					
		Within Groups	213.840	345	0.620		
		Total	224.641	348			
12. Non-punitive Response to Error		Between Groups	6.093	3	2.031	3.397	**0.018**
		Within Groups	209.254	350	0.598		
		Total	215.347	353			
13. Number of Events Reported		Between Groups	2.941	3	0.980	0.583	0.626
		Within Groups	580.073	345	1.681		
		Total	583.014	348			
14. Patient Safety Grade		Between Groups	0.329	3	0.110	0.177	0.912
		Within Groups	211.659	341	0.621		
		Total	211.988	344			

On the other hand, no statistically significant differences were found among staff perceptions toward Teamwork Within Units, Supervisor/Manager Expectations & Actions Promoting Patient Safety, Organizational Learning-Continuous Improvement, Hospital Management Support for Patient Safety, Overall Perceptions of Safety, Communication Openness, Frequency of Events Reported, Number of Events Reported and Patient Safety Grade.

Scheffes' post hoc test was used to determine between which groups the differences were found, as displayed in Table 8.

Table 8: Scheffes' post hoc test for patient safety dimensions and staff position

Dimension	staff position		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Feedback & Communication About Error	nurses	physicians	.36531	0.12592	**0.040**	0.0116	0.7190
		Paramedics	0.28256	0.12441	0.163	-0.0669	0.6320
		administrative & others	0.19208	0.13588	0.573	-0.1896	0.5738
	physicians	Nurses	-.36531	0.12592	**0.040**	-0.7190	-0.0116
		Paramedics	-0.08275	0.15278	0.961	-0.5119	0.3464
		administrative & others	-0.17322	0.16225	0.768	-0.6290	0.2826
	Paramedics	Nurses	-0.28256	0.12441	0.163	-0.6320	0.0669

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			Mean Diff	Std Error	Sig	Lower	Upper
		physicians	0.08275	0.15278	0.961	-0.3464	0.5119
		administrative & others	-0.09048	0.16109	0.957	-0.5430	0.3620
	administrative & others	Nurses	-0.19208	0.13588	0.573	-0.5738	0.1896
		physicians	0.17322	0.16225	0.768	-0.2826	0.6290
		Paramedics	0.09048	0.16109	0.957	-0.3620	0.5430
Teamwork Across Hospital Units	nurses	physicians	0.25491803	0.10298	0.108	-0.0344	0.5442
		Paramedics	-0.18790	0.10236	0.340	-0.4755	0.0997
		administrative & others	-0.15213	0.11379	0.618	-0.4718	0.1676
	physicians	Nurses	-0.25491803	0.10298	0.108	-0.5442	0.0344
		Paramedics	-.44282	0.12490	**0.006**	-0.7937	-0.0919
		administrative & others	-.40705	0.13442	**0.028**	-0.7847	-0.0294
	Paramedics	Nurses	0.18790	0.10236	0.340	-0.0997	0.4755
		physicians	.44282	0.12490	**0.006**	0.0919	0.7937
		administrative & others	0.03578	0.13395	0.995	-0.3406	0.4121
	administrative & others	Nurses	0.15213	0.11379	0.618	-0.1676	0.4718
		physicians	.40705	0.13442	**0.028**	0.0294	0.7847
		Paramedics	-0.03578	0.13395	0.995	-0.4121	0.3406
Staffing	nurses	physicians	0.17622545	0.08830	0.265	-0.0718	0.4243
		Paramedics	-.27224	0.08727	**0.022**	-0.5174	-0.0271
		administrative & others	-0.01833	0.09740	0.998	-0.2919	0.2553
	physicians	Nurses	-0.17622545	0.08830	0.265	-0.4243	0.0718
		Paramedics	-.44846	0.10678	**0.001**	-0.7484	-0.1485
		administrative & others	-0.19456	0.11521	0.416	-0.5182	0.1291
	Paramedics	Nurses	.27224	0.08727	**0.022**	0.0271	0.5174
		physicians	.44846	0.10678	**0.001**	0.1485	0.7484
		administrative & others	0.25391	0.11442	0.179	-0.0675	0.5753
	administrative & others	Nurses	0.01833	0.09740	0.998	-0.2553	0.2919
		physicians	0.19456	0.11521	0.416	-0.1291	0.5182
		Paramedics	-0.25391	0.11442	0.179	-0.5753	0.0675
Hospital Handoffs & Transitions	nurses	physicians	.39430	0.11689	**0.011**	0.0659	0.7227
		Paramedics	-0.11710	0.11483	0.792	-0.4397	0.2055
		administrative & others	-0.12724	0.12919	0.808	-0.4902	0.2357
	physicians	Nurses	-.39430	0.11689	**0.011**	-0.7227	-0.0659
		Paramedics	-.51140	0.14088	**0.005**	-0.9072	-0.1156

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		administrative & others	-.52154	0.15280	**0.009**	-0.9508	-0.0923
	Paramedics	Nurses	0.11710	0.11483	0.792	-0.2055	0.4397
		physicians	.51140	0.14088	**0.005**	0.1156	0.9072
		administrative & others	-0.01014	0.15124	**1.000**	-0.4350	0.4147
	administrative & others	Nurses	0.12724	0.12919	0.808	-0.2357	0.4902
		physicians	.52154	0.15280	**0.009**	0.0923	0.9508
		Paramedics	0.01014	0.15124	1.000	-0.4147	0.4350
Non-punitive Response to Error	nurses	physicians	.34254	0.11447	**0.031**	0.0210	0.6641
		Paramedics	0.03525	0.11245	0.992	-0.2806	0.3511
		administrative & others	0.19671	0.12553	0.484	-0.1559	0.5493
	physicians	Nurses	-.34254	0.11447	**0.031**	-0.6641	-0.0210
		Paramedics	-0.30729	0.13836	0.179	-0.6960	0.0814
		administrative & others	-0.14583	0.14919	0.812	-0.5649	0.2733
	Paramedics	Nurses	-0.03525	0.11245	0.992	-0.3511	0.2806
		physicians	0.30729	0.13836	0.179	-0.0814	0.6960
		administrative & others	0.16146	0.14764	0.754	-0.2533	0.5762
	administrative & others	Nurses	-0.19671	0.12553	0.484	-0.5493	0.1559
		physicians	0.14583	0.14919	0.812	-0.2733	0.5649
		Paramedics	-0.16146	0.14764	0.754	-0.5762	0.2533

❖ Feedback & communication about Error:

Significant differences were found between nurses and physicians in feedback and communication about the errors dimension.

❖ Teamwork Across Hospital Units:

Significant differences were found between physicians and paramedics, physicians and administrative & others toward the dimension "feedback across hospital units."

❖ Staffing:

Significant differences were found between physicians and paramedics and nurses and paramedics for the dimension "staffing."

❖ Hospital Handoffs & Transition:

This dimension found significant differences between physicians and all other staff categories.

❖ Non-punitive Response to Error:

There was only a significant difference in this dimension between physicians and nurses.

4.3.7 Dimensions' positive score and patient contact

We compare the results of positive responses from the staff based on their interaction or direct contact with the patient (Table 9). It's noticed that those staff with direct contact with patients have higher positive responses towards the following items: teamwork within units; supervisor/Manager expectations and actions promoting patient safety; organizational learning-continuous improvement; hospital management support for patient safety; overall perceptions of safety; feedback & communication about the error and communication openness.

Table 9: Average percent positive responses by patient interaction

Safety Culture Composites	Average % of positive responses		Mean &SD	
	with contact	without contact	Mean	SD
1. Teamwork Within Units	**80%**	76%	78%	0.020
2. Supervisor/Manager Expectations & Actions Promoting Patient Safety	**64%**	57%	61%	0.035
3. Organizational Learning-Continuous Improvement	**78%**	69%	74%	0.045
4. Hospital Management Support for Patient Safety	**60%**	56%	58%	0.020
5. Overall Perceptions of Safety	**59%**	57%	58%	0.010
6. Feedback & Communication About Error	**60%**	54%	57%	0.030
7. Communication Openness	**53%**	51%	52%	0.010
8. Frequency of Events Reported	58%	**62%**	60%	0.020
9. Teamwork Across Hospital Units	47%	**51%**	49%	0.020
10. Staffing	25%	**26%**	26%	0.005
11. Hospital Handoffs & Transitions	42%	**43%**	43%	0.005
12. Non-punitive Response to Error	20%	**23%**	22%	0.015

On the other hand, those staffs are less frequently reported events, they also feel that they face more problems in working with other units cooperatively, and in their perception, they don't have enough staff to handle the workload. They need to work longer hours in crisis mode to deliver the best care for patients. Moreover, they feel that their mistakes are held against them and kept in their personnel files, and they believe critical patient information is missed during transitions and shift changes.

4.3.8 Safety outcome across respondents' characteristics

Patient safety grade and the number of events reported in the last 12 months were cross-tabled by different respondents' characteristics (gender, status, working department, staff position, working experience, and contact with patients) as shown in table 10.

No significant differences were found for patient safety grades concerning any of the respondents' characteristics.

Concerning the number of events reported in the previous 12 months, respondents from the laboratory department were more likely to report more than five events (33%), and respondents from the pharmacy and medical store departments were more likely to report no events (75%).

More experienced respondents were more likely to report more than five events (21%). Paramedics were the most likely respondents to report more than five events in the prior year (16%), followed by administrative & others (15%). Still, physicians were the most likely group to report no events in the last 12 months (68%).

No significant differences in event reporting were found for the remaining characteristics (gender, status, and patient contact).

Table 10: Patient safety outcome variables by selected respondent characteristics

	patient safety grade			events reported in the last 12 months			
	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	more than 5 events
Gender							
male	85%	12%	3%	59%	24%	6%	11%
female	82%	15%	3%	54%	27%	7%	12%
	Chi-square= 0.485	*P-value= 0.785*		*Chi-square= 0.894*	*P-value= 0.827*		
	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	more than 5 events
Status							
single	82%	16%	2%	59%	28%	7%	6%
married	84%	12%	4%	56%	24%	6%	14%
others	100%	0%	0%	57%	29%	0%	14%
	Chi-square= 3.188	*P-value= 0.527*		*Chi-square= 6.283*	*P-value= 0.392*		
	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	more than 5 events
unit of work							
diff departments	84%	13%	3%	60%	17%	10%	13%
internal medicine	75%	21%	4%	25%	61%	4%	11%
surgical	75%	21%	4%	57%	26%	2%	15%
Obstetrics & Gynecology	91%	9%	0%	47%	38%	3%	12%
Pediatric & Neonate	84%	16%	0%	54%	19%	15%	12%
emergency	100%	0%	0%	70%	10%	5%	15%
Cardiology & Catheterization	100%	0%	0%	71%	0%	14%	14%
ICU different types	86%	12%	2%	52%	31%	11%	5%
pharmacy & medical stores	100%	0%	0%	75%	0%	25%	0%
laboratory	81%	5%	14%	48%	19%	0%	33%
Radiology	89%	11%	0%	72%	6%	11%	11%
Anesthesiology	74%	26%	0%	72%	28%	0%	0%
others	80%	13%	7%	73%	13%	3%	10%
	Chi-square= 32.543	*P-value= 0.253*		*Chi-square= 71.310*	*P-value= 0.003*		
	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	> 5 events
patient contact							
With	82%	14%	3%	54%	26%	7%	13%
without	90%	8%	2%	66%	20%	6%	8%
	Chi-square= 2.263	*P-value= 0.323*		*Chi-square= 3.336*	*P-value= 0.343*		
	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	> 5 events
working experience							
less experienced	83%	14%	3%	58%	30%	6%	6%
experienced	85%	13%	2%	54%	18%	7%	21%

	excellent/ very good	acceptable	poor/ failing	no events	1-2 events	3-5 events	> 5 events
Chi-square=0.526		*P-value= 0.769*		*Chi-square= 23.301*		*P-value= 0.000*	
staff position							
nurses	85%	14%	1%	48%	33%	9%	9%
physicians	82%	15%	3%	68%	20%	2%	10%
Paramedics	82%	11%	6%	63%	15%	6%	16%
administratives & others	83%	13%	4%	66%	17%	2%	15%
Chi-square= 5.249		*P-value= 0.512*		*Chi-square= 22.677*		*P-value= 0.007*	

4.3.9 Relationship between overall perception of patient safety and other dimensions

Linear regression was performed to investigate the relationship between patient safety culture dimensions. The overall perception of the patient safety dimension (as an outcome indicator) was the dependent variable, and the predictors (independent variables) were the remaining 11 patient safety culture dimensions: Teamwork within units, Supervisor/manager expectations and actions promoting patient safety, Organizational learning–continuous improvement, Management support for patient safety, Feedback and communication about error, Communication openness, Frequency of events reported, Teamwork across units, Staffing, Handoffs and transitions and Non-punitive response to error.

As shown in Table 11, R^2 and adjusted R^2 were 0.269 and 0.242, respectively. This means that the independent variables explain the dependent variable by 26.9%, and the ANOVA test showed a *P-value* close to 0.000, indicating the regression model's overall significance.

Table 11: Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig.
0.519	0.269	0.242	0.63543	0.000

Based on the regression analysis Table 12, a significant relationship was found between the overall perception of patient safety culture and Supervisor/manager expectations and actions promoting

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patient safety, Management support for patient safety, and Handoffs and transitions dimensions (*P-value < 0.05*).

On the other hand, no significant relationship was found between the overall perception of patient safety culture and Teamwork within units, Organizational learning–continuous improvement, Feedback and communication about error, Communication openness, Frequency of events reported, Teamwork across units, Staffing, and Non-punitive response to error dimensions (*P-value > 0.05*).

Table 12: Linear Regression Model

Independent variables (dimensions)	Beta (standarized)	P-value
constant	**0.985**	**0.001**
Teamwork within units	0.086	0.21
Supervisor/manager expectations and actions promoting patient safety	**0.146**	**0.024**
Organizational learning–continuous improvement	0.08	0.269
Management support for patient safety	**0.169**	**0.014**
Feedback and communication about error	-0.105	0.149
Communication openness	0.12	0.092
The frequency of events reported	0.06	0.292
Teamwork across units	-0.075	0.299
Staffing	0.003	0.957
Handoffs and transitions	**0.207**	**0.002**
Non-punitive response to the error	0.062	0.283
dependent variable: overall patient safety perception (outcome dimension)		

Chapter Five: The Discussion

This chapter discusses the generated information and the findings' importance. This employed survey provided insight into patient safety culture at the hospital and unit levels. Additionally, details on the overall patient safety grade, the frequency of reported errors, and an analysis of areas of strength and weakness are to be discussed.

Discussions, comparisons, and evaluations of the results with those of similar studies are presented when relevant. This method of comparison and assessment shows the present state of PSC at the study site and any differences the hospital may have from the national and global literature.

1. Respondents characteristics.

2. Overall dimensions results.

3. Comparing the results with the AHRQ database 2021, ~~local and regional studies~~.

4. Conclusion.

5. Recommendations.

6. Implications for Future Research.

5.1 Respondents characteristics

Four hundred and six surveys were handed out to clinical and non-clinical staff from all wards and departments at Al-Ahli Hospital. Three hundred twenty-three valid surveys were returned, and this response rate is regarded as high, strengthening the study findings.

Almost 17.5% of respondents work in Intensive Care Units of different types (surgical, medical, pediatrics), with the highest response rate among other departments. Because every ICU patient needs one or two nursing staff, more nurses are working in these units. The following 17.2% of respondents work in supportive medical departments, and the high rate is due to the diversification and large numbers of workers who spend their time in these departments. The targeted hospital has two laboratories and two radiology departments to serve the needs of inpatients and outpatients. Besides, the hospital operates a blood bank department, pathology, pharmacy & medical store, and anesthesiology.

It is followed by the Surgery department with a 14.9% response rate and entails general and specialized surgeries (Neurosurgery, Orthopedic, Urology, Open-heart, Pediatric, and others).

The Medical- nonsurgical with a 10% response rate, Obstetrics & Gynecology with 9.40%, 8.9% of respondents work in one or more departments, and Pediatric & Neonate with 7.2% of the survey respondents. Emergency with 5.8%. Finally, 9.1% of the respondents work in departments not specified in the questionnaire (administration department, accounting, general services, and others).

Nurses comprised almost half of the survey respondents (68% registered and 32% practitioners); this rate is acceptable given that around 40% of hospital personnel work in the nursing profession. Then it is followed by Physicians (31% specialists and 69% residents) with 17.3% of the respondents and paramedics at the same rate, including technicians, pharmacists, aid nurses, and nutritionists. Considering the weekly working hours, 67.8% of the respondents work more than the regular hours (from 40 to 59 hours per week).

But, 19.6 % work less than that designed for administrative, specialist doctors, or other part-timers. Finally, the remaining respondents who work more than 60 hours per week are exceptional cases and have overtime records.

About two-thirds of the respondents have worked for less than five years in the hospital, 55% of them are nurses. That is due to the high turnover among nurses at the hospital, and 20% of physicians primarily work in residency program that lasts for five years only. The remaining 39% of the respondents have worked more than five years at the hospital.

Approximately 82% of the respondents have direct contact or interaction with patients. Most respondents are familiar with issues related to patient safety, such as events reporting, teamwork across and within units, communication and handoffs, and transitions, which contribute to attaining one of the study goals to raise staff awareness of patient safety issues.

5.2 Overall dimensions results

❖ **Unit–level aspects of patient safety**

At the unit –level, there were two strength areas; Teamwork within units and Organizational learning-continuous improvement; four neutral dimensions; Supervisors/manager expectations and actions promoting safety, feedback, and communication about errors, communication openness, and Staffing; and only one weakness area Non-punitive response to errors.

- *Teamwork within units:*

The degree to which staff works together as a team shows respect for and helps one another. The findings of this study show that this dimension had the highest positive response rate (79%), so it is considered a strength area, which is consistent with other Palestinian studies (Hamdan & Saleem, 2018; Surkhi, 2011; Zabin et al., 2022). The individual teamwork items receiving the highest favorable response rates and indicative of strengths in patient safety culture were the following: "when a lot of work needs to be done, we work together to gather as a team to get the work done"

(79% agreed), "In this unit, people treat each other with respect (81%) and "people support one another in this unit" (77% agreed).

In healthcare, teamwork refers to the continual contact between team members as they collaborate to give care to patients. Moreover, teams are crucial since they enable members to bring their varied knowledge, expertise, and experience to group decision-making and problem-solving to accomplish the intended results.

So working in teams could help diverse professionals better understand one another's responsibilities in healthcare and what each profession may contribute. Therefore, collaboration and team composition could have favorable benefits, particularly in the quality and safety of healthcare services delivered (Clements et al., 2007; Gafa et al., 2005). Because of this, the duties of professionals who operate in a team include not only the tasks they carry out as a result of their specific training or knowledge but also those that arise from their commitment to oversee those tasks, including resolving any disagreements that may arise (Oandasan et al., 2006).

On the other hand, effective teamwork is more than simply highly desirable for people who receive medical care; it is an essential requirement that they frequently believe to be in place. The goal of health system executives, policymakers, and physicians is to discover ways to execute optimal working conditions while fulfilling patient expectations (Clements et al., 2007).

- *Organizational learning–continuous improvement:*

The extent to which errors have led to positive changes and the effectiveness of such changes.

The second highest positive response rate was toward the Organizational learning–continuous improvement dimension (75.3%), considered an area of strength in the hospital. This finding was similar to other local studies as Zabin et al.(2022) and Surkhi (2011) (87%, and 79%, respectively), except for Hamdan & Saleem (2018), the dimension scored 63% positive response rate as a neutral

dimension. Also, this dimension has the most positive item (90%), A6, "We are actively doing things to improve patient safety.".

The culture of learning from mistakes and the principles of continuous improvement is reflected in this positive response, which is the primary reason for reporting adverse events.

Continuous improvement is required to provide high-quality, reliable health care (IOM, 2001), and this is achieved by minimizing medical errors and unnecessary morbidity and deaths. This is crucial in healthcare because patient health and safety are the top priorities in this industry (Kovach et al., 2008).

Moreover, in the IOM's report 'To Error is Human,' Kohn et al. (1999) mentioned: "It may be part of human nature to error, but it is also part of human nature to create solutions, find better alternatives, and meet the challenges ahead."

- *Supervisor/manager expectations and actions promoting patient safety:*

The extent to which managers and supervisors consider suggestions made by staff to improve patient safety, commend the staff for following patient safety guidelines and keep an eye out for patient safety issues.

The overall average positive response rate toward the Supervisor/Manager Expectations & Actions Promoting Patient Safety dimension was 63%. An item indicating an area of strength (B1) " My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures."

This positive response rate was better than the rate of other Palestinian studies (Al-Makkased Hospital, 54% and MoH hospitals, 60%) (Hamdan & Saleem, 2018; Surkhi, 2011). Still, on the other hand, it was better Arab studies in Kuwait (77%) (Ali et al., 2018), and Lebanon (66%) (El-Jardali et al., 2010).

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In general, AL-Ahli hospital staff perceived their supervisors and managers as good supporters of patient safety, as they adequately considered their subordinates' suggestions and criticisms of issues related to patient safety. They also adhere to procedures and protocols that improve patient safety. However, due to the intense workload, they may occasionally use shortcuts and speed up the work with extreme caution.

- *Feedback and communication about errors:*

The degree to which employees are told about errors provided insights on modifications implemented and discussed methods to avoid the mistakes.

This dimension is considered neutral based on the AHRQ criterion, with a 59% positive response rate, which is similar to the findings of El-Jardali et al.(2010) in Lebanon, Nie et al. (2013) in China, Hamdan & Saleem (2018) and Surkhi (2011) in Palestine.

On the other hand, it was an area of strength in the Palestinian context in Zabin et al. (2022) study with a positive response rate of 83%, also in Arab Gulf studies Aboufour & Subbarayalu (2022) in KSA with a positive response of 72% and Ali et al. (2018) in Kuwait with the positive response of 71%. For El-Sherbiny et al. (2020) and Kakemam et al. (2022), it is an area that requires more improvements.

So the findings indicate an opportunity to improve the communication system regarding staff mistakes, particularly by giving staff feedback about changes based on those mistakes and event reporting.

On the other hand, two items of this dimension score acceptable and above 65% positive response "C3." We are informed about errors in this unit," and C5, " In this unit, we discuss ways to prevent errors from happening again, " meaning that the staff perceived themselves and their workmates as good learners from mistakes. They can hold discussions about how to prevent the re-occurrence of these errors. Findings indicate that nurses interacted more positively toward this dimension.

Findings show a significant difference between nurses and physicians regarding feedback and communication about errors. Nurses communicate errors more than physicians; they perceive themselves as being more informed about errors and modifications, consistent with the findings of Nie et al. (2013). It seems that the longer the time and the closer they are to the patient, they have such perceptions.

- *Communication openness:*

The degree to which Staff feels free to speak out and question people in positions of authority when they observe anything that might negatively affect a patient.

This is another neutral dimension with a 53% positive response rate, which makes it more of an area for further improvements because all items of the dimension have a 60% or lower positive response rate, as is the case in the rest of the Arab and Palestinian studies that have been compared (Aboufour & Subbarayalu, 2022; Ali et al., 2018; El-Jardali et al., 2010; El-Sherbiny et al., 2020; Hamdan & Saleem, 2018; Surkhi, 2011; Zabin et al., 2022).

However, communication openness was perceived much better by Nie et al. (2013) in China, meaning that staff in Chinese hospitals feel more free to speak up and disclose issues related to patient safety.

Communication is critical for workplace efficiency and high-quality, safe work execution. It imparts knowledge, develops relationships, and sets predictable behavioral patterns, and it is essential for leadership and team coordination (Flin et al., 2009)

So the study results show that staff members cannot express concerns about mistakes or errors that can threaten patient safety or speak up freely to address safety issues.

- *Staffing:*

The degree to which there is sufficient staff to handle the workload and that work hours are suitable to deliver the best care for patients.

Staffing was another patient safety concern needing attention and improvement, with a 25% overall positive response rate. As it was the lowest among all compared studies (Aboufour & Subbarayalu, 2022; Ali et al., 2018; El-Jardali et al., 2010; El-Sherbiny et al., 2020; Hamdan & Saleem, 2018; Kakemam et al., 2022; Nie et al., 2013; Surkhi, 2011; Zabin et al., 2022).

Most respondents said they work longer hours than is optimal for patient care and work in 'crisis mode,' trying to accomplish too much too fast (16%, and 9%, respectively).

This result is unsurprising, considering Palestinian hospitals are understaffed and overloaded with patients. Staff must work extra shifts to compensate for shortages; almost half of the participants work more than designed (40 hours per week).

The number of working hours should be adequate to provide the best care for patients. Long hours and shift work raise the possibility of poor performance at work. Additionally, errors brought on by fatigue may endanger patients (Caruso, 2014).

An interesting finding was the difference between physicians and paramedics regarding the staffing issues related to patient safety. The first believe that there isn't enough staff to handle the current workload and that working hours are unsuitable for delivering the best patient care. A relatively high proportion of the physicians' group participants are resident doctors; they stay longer in the hospital, extending to two or three successive working shifts. Therefore, it seems expected to perceive workloads as relatively high.

- *Non-punitive response to error:*

Staff believes that their errors and event reports are not kept against them and that faults are not documented in their personnel records.

This study's overall positive response rate on the on-punitive response to errors dimension was 21%, the lowest dimension in the study. It was indicated as an area for potential improvement.

For hospitals in the region, the issue of blame culture and punitive work environment is not uncommon. Previous research provided evidence in Arab countries as Kuwait (28%) (Ali et al., 2018) and Lebanon (24%) (El-Jardali et al., 2010) as area for potential improvement.

Also in the Palestinian context this dimension acts as an area that needs attention and improvement, for example; this dimension scored 23% positive response rate in Al-Makkased Hospital (Surkhi, 2011), 19% in the Palestinian MoH hospitals and 22% in An-Najah National University Hospital (Zabin et al., 2022).

A difference between nurses and physicians toward a non-punitive response to error was significant, which was consistent with the findings of (Nie et al., 2013). The results indicate that physicians believe more than nurses that their errors are kept against them because it is frequently observed that the Palestinian media claims that physicians and doctors are error generators in case of medical incidents.

In other words, healthcare professionals do not feel free to disclose and document errors or concerns regarding patient safety, and this is due to their fears of punishment and blame and to not interrupt their reputation and professional advancement.

So the management and leadership have to transform the "blame culture" into a "just culture," where everyone understands how the organization will perceive and respond to errors by trusting their staff. It is not the aim of a just culture to eliminate blame in the workplace doesn't absolve individuals or organizations of responsibility. A just culture is identified by unique system thinking, organizational learning, well-developed decision-making mechanisms, and different organizational structures (Leonard et al., 2013).

❖ **Hospital–level aspects of patient safety**

- *Management support for patient safety:*

Hospital management creates an environment that encourages patient safety and demonstrates that patient safety is a major concern.

This dimension is considered neutral (60%) for Al-Ahli hospital, and it is perceived as better than Palestinian MOH hospitals (44%) (Hamdan & Saleem, 2018). On the other hand, respondents from other regional and local studies perceived management initiatives toward patient safety much better than those of Al-Ahli hospital (Aboufour & Subbarayalu, 2022; Ali et al., 2018; El-Jardali et al., 2010; El-Sherbiny et al., 2020; Hamdan & Saleem, 2018; Nie et al., 2013; Surkhi, 2011; Zabin et al., 2022)

The dimension contains an item that is almost an area of strength (F8 "The actions of hospital management show that patient safety is a top priority") with a positive response of 74%. This means that the staff feels that the working environment is safe and the management prioritizes patient safety. However, they believe that top management seems interested in patient safety only after an adverse event occurs.

Top management must show their commitment to safety in a tangible way, such as by visiting wards, clinics, and laboratories. These are known as 'Executive Walk Rounds,' and they have been found to affect the nursing safety culture (Thomas et al., 2005).

Moreover, a patient safety program is successful when leadership is committed to patient safety and provides expertise, training, and resources (Clarke et al., 2007; Mohr et al., 2002).

- *Teamwork across units:*

The degree to which hospital units collaborate and coordinate to give patients the best care possible.

Based on the study findings, this dimension is considered a concern, low positive response toward it (48%) that should be improved, and it was similar to the results of Hamdan & Saleem (2018). The staff feels unpleasant working with other units and believes hospital units do not cooperate reasonably.

Especially physicians at Al-Ahli hospital feel they have difficulties working with other hospital units and don't find the best coordination between them. Thus cooperation between departments must be enhanced to provide the best care for patients. Moreover, this suggests that informal relations are more forested by teamwork within the same units than teamwork across different hospital units (Surkhi, 2011).

- *Handoffs and transitions:*

This dimension estimates how critical patient information is shared throughout hospital units and during shift changes. The average positive response to this dimension was 43%, indicated as the lowest among the Palestinian benchmarked studies (Hamdan & Saleem, 2018; Surkhi, 2011; Zabin et al., 2022), so it is an area that requires further improvements.

The findings indicate a difference between physicians and paramedics in their perception toward handoffs and transitions, where paramedics feel that important information is shared well through hospital units and shift changes. The better levels of technology used to transfer information between paramedics and others may explain this result. On the other hand, the gap in the transfer of information between physicians and others is observed. Nursing is usually a mediator for the transfer of such information, which may increase the possibility of losing some of it.

Hospital staff feels that problems occur when changing patients' information across hospital units, particularly while changing shifts. The weak coordination between the departments and the excessive workload may explain such feelings. Although, the perceived problems in communication and feedback across units are consistent with the findings of (Lee et al., 2016).

❖ **Patient safety culture Outcomes**

- *Overall patient safety grade & perception of patient safety:*

About 85% of hospital staff perceived their departments' overall patient safety grade as "excellent" or "very good." Although "Overall perception of patient safety" and "Overall patient safety grade" are complementary dimensions. The former dimension scored only a 59% positive response rate, as the staff believed that patient safety was never sacrificed to get more work done as a strength point (81% positive response rate). Yet, in the latter dimension, participants think that procedures and systems are good at preventing errors.

On the other hand, 36% of the respondents feel they have patient safety problems in their work area, and 27% didn't give a clear answer and prefer to stay neutral toward this item. The blame culture they face in the hospital may explain this, so they feel afraid of talking about patient safety problems. These findings are consistent with the conclusions from benchmarked Palestinian studies.

- *The reported number & frequency of events:*

Across the different studies, event reporting is a common patient safety concern. Enhanced changes to the system that reduce the likelihood of injury to future patients are made possible through event reporting, which plays a key role in improving patient safety (WHO, 2005).

The study's findings showed this to be a significant issue in Al-Ahli hospital. About 57% of the respondents did not report any harmful or potentially harmful errors to patients in the past year.

Results indicate that staff from the Laboratory department (33%) and the Pediatric & Neonat department (27%) were more likely to report more than three reports in the previous 12 months (*p=0.003)* than other departments. In addition to people with work experience of more than five years (28%) also, paramedics (22%) had reported more than five events in the previous year (*p=0.000, p=0.007).*

The prevalence of a punitive response to error and blame culture is likely the cause for the staff's unwillingness to report events. Staff thinks their mistakes will be used against them and recorded in their personnel file. Additionally, there is insufficient feedback and communication about errors, which suggests that staff members are not effectively informed about errors or feedback on adjustments made to prevent them (Hamdan & Saleem, 2013).

❖ Relationship between overall perception of patient safety and other dimensions

The regression analysis investigates the relationship between the overall perception of patient safety culture as an outcome measure and the other remaining patient safety culture dimensions. Results indicate that one unit increase in the scores of Supervisor/manager expectations and actions promoting patient safety, Management support for patient safety, and Handoffs and transitions dimensions resulted in higher perceived patient safety. These findings were consistent with Ali et al. (2018) from Kuwait. On the other hand, in Zabin et al. (2022), the dimension of communication openness was found to be a significant predictor of nurses' overall safety perceptions. Nevertheless, there was no association with the other dimensions.

The linkage between these three dimensions is that they are all managerial issues that can be handled by hospital management and not staff themselves to enhance the overall perception of patient safety culture among hospital staff.

And the model can be summarized in the following equation:

$$OP = a + 0.146\ \underline{S} + 0.169\ \underline{M} + 0.207\ \underline{H}$$

Where :

OP= Overall Perception of Patient Safety Culture

a= constant

S= Supervisor/manager expectations and actions promoting patient safety

M= Management support for patient safety

H= Handoffs and transitions.

5.3 The results are compared with the AHRQ database 2021.

The following section compares the positive response rates with data from 320 hospitals on safety culture dimensions. In the United States, 191,977 hospital staff respondents scored patient safety culture using the AHRQ HSOPSC. Their response was submitted in their annual report 2021, "Hospital Survey 1.0: 2021 User Database Report", as shown in Table 13 (AHRQ, 2021).

Results are considered meeting or better than the benchmark when they are 10% within the benchmark, and it is a slight deviation when results are 10-50% different from the benchmark. Finally, it is a deviation when the difference exceeds 50% from the benchmark (Ali et al., 2018).

When comparing Al-Ahli Hospital with the 320 USA hospitals, it is obvious that both hospitals have the same order for patient safety culture dimension based on their average positive response rate. Also, the deviation ranged from 3% to 24.7% in favor of USA hospitals.

This means that in both studies, the positive response rate toward teamwork within units (79% in Al-Ahli hospital, 82% in USA hospitals) and organizational learning-continues improvement (75.3% in Al-Ahli hospital, 80% in USA hospitals) were the highest dimensions, and they both are areas of strength.

For the lowest dimensions, non-punitive response to errors (20.6% in Al-Ahli hospital, 48% in USA hospitals) and staffing (25% in Al-Ahli hospital, 49% in USA hospitals) were the lowest among other dimensions.

Moreover, a slight deviation between the two studies was noticed in the two dimensions (27.4%, and 24%, respectively).

Table 13: Comparable results of positive culture percentages with USA hospitals.

Source: (AHRQ benchmark, 2021)

	Patient safety culture dimension	Al-Ahli Hospital's Dimension Score	AHRQ Benchmark 2021	variance	status
		Average % of positive responses			
1	Teamwork within units	79.00%	82.00%	3.00%	meet/ better than
2	Organizational learning–continuous improvement	75.30%	80.00%	4.70%	meet/ better than
3	Supervisor/manager expectations and actions promoting patient safety	63.10%	71.00%	7.90%	meet/ better than
4	Management support for patient safety	59.60%	69.00%	9.40%	meet/ better than
5	Feedback and communication about error	59.20%	69.00%	9.80%	meet/ better than
6	Frequency of events reported	58.90%	68.00%	9.10%	meet/ better than
7	Overall perceptions of patient safety	58.90%	66.00%	7.10%	meet/ better than
8	Communication openness	52.50%	66.00%	13.50%	slightly deviation
9	Teamwork across units	48.30%	61.00%	12.70%	slightly deviation
10	Handoffs and transitions	42.50%	53.00%	10.50%	slightly deviation
11	Staffing	25%	49%	24%	slightly deviation
12	Non-punitive response to error	20.60%	48.00%	27.40%	slightly deviation

5.4 Conclusion

This research assesses the patient safety culture in Al-Ahli Hospital, which is vital to the Palestinian healthcare system in terms of size, specialty, and location. It is the only secondary and tertiary care service provider in the southern part of the West Bank. For this purpose, the thesis employs a well-recognized and widely used assessment tool among practitioners and researchers. This tool is developed by The Agency of Healthcare Research and Quality (AHRQ), the so-called HSOPSC survey.

The data from a sample of 362 clinical and non-clinical staff were analyzed to generate information that may capture strengths and weaknesses for better patient safety practices. Such assessments are well-known to enhance patient safety. They should be regarded as a starting point for developing patient safety initiatives, as they enable us to gain a comprehensive grasp of potential improvements in the hospital's existing patient safety culture at the individual, unit, and organizational levels.

In general, the study findings were somewhat similar to the local and regional studies compared with slight differences. Because the participants of those studies share the same general culture, it seems acceptable.

The study's findings revealed that staff at Al-Ahli Hospital perceive cooperation, teamwork, and mutual respect among employees in the same unit, which is regarded as an area of strength in the hospital. In addition, respondents positively perceive the occurrence of errors as a lessons learning area. Further, continuous efforts to improve patient safety are followed. Luckily, respondents do not compromise patient safety under overwork load conditions which is another area of strength.

The results confirmed the prevalence of blame culture within the context of error disclosure in the Palestinian context (Hamdan & Saleem, 2013; Surkhi, 2011). This is essential, yet insufficient, for any institution to improve safety culture, where error disclosure is a unique source of information for Improvements.

Staff feels that their mistakes are held against them and harm their personnel files due to the prevalence of the blame culture. This may affect incident reporting because staff feels afraid of reporting adverse events. Hence, they prefer to keep silent not to get punished.

Another area that needs improvements is that the current staff needs to work longer than regular hours in stress mood to handle the workload, raising the likelihood of errors and making it more difficult to communicate and share safety information. Moreover, another issue that needs attention is that staff don't feel pleasant working with other units and find it difficult to cooperate with them, which increases the possibility of missing information during handoffs between hospital units.

5.5 Recommendations

Building on the previously mentioned findings and discussions, the researcher recommends promoting patient safety in Al-Ahli Hospital:

- Top management initiatives related to patient safety should be more visible to the staff, and they have to be proactive in dealing with patient safety issues and adverse events.
- Identifying the hospital's current culture and establishing a system that enables the hospital to periodically arrange such culture assessments so changes and improvements can be tracked easily.
- Patient safety must be prioritized across all organizational levels, starting from top management to the front line and supporting staff members, both clinical and non-clinical, where safety is achieved through the integrated efforts of all hospital staff.
- Revisiting the incident reporting system to report adverse events properly. It facilitates learning from those errors so that it can be communicated and treated openly and fairly in a non-punitive atmosphere. So managers are asked to emphasize improving organizational performance rather than blaming the staff.
- Management must be aware of the influence of sufficient staff allocation (number, working hours) on the workload and the quality of healthcare services delivered.

- Improving coordination across hospital units by establishing cross-departmental meetings and training to facilitate communication between them, get them involved in each other processes, and provide ice-breaking and informal activities to promote cooperation and coordination between different hospital units.

- Handoffs must be focused, comprehensive, and standardized, so hospital management must identify all the critical information that must be passed along during the process, build a repeatable process around these processes and focus on face-to-face interaction during handoffs.

- Form a specialized committee to review and follow up on adverse events and patient safety issues at the hospital, which include members from different organizational levels and departments, and they meet regularly.

5.6 Implications for Future Research

Given the limitations of this research work, the findings of this study pave the way for future research:

- Assessing patient safety culture from the patient's perspective.

- Investigating the contribution of education and training on patient safety culture.

- Examining the impact of patient safety culture on patient outcomes (e.g., adjusted mortality and morbidity rates as outcomes).

- Investigating the effect of adverse event reporting on patient safety.

- The relationship between patient safety culture and adverse events.

- Studying the relationships between the perceived patients' safety culture and the intentions to report errors.

- A comparative study on patient safety culture among private, governmental, and not-for-profit hospitals in Hebron could benefit better policies.

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Appendices

Hospital Survey on Patient Safety

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

- An **"event"** is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.
- **"Patient safety"** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.

SECTION A: Your Work Area/Unit

In this survey, think of your "unit" as the work area, department, or clinical area of the hospital where you spend *most* of your work time or provide *most* of your clinical services.

What is your primary work area or unit in this hospital? Select ONE answer.

- ☐ a. Many different hospital units/No specific unit
- ☐ b. Medicine (non-surgical)
- ☐ c. Surgery
- ☐ d. Obstetrics
- ☐ e. Pediatrics
- ☐ f. Emergency department
- ☐ g. Intensive care unit (any type)
- ☐ h. Psychiatry/mental health
- ☐ i. Rehabilitation
- ☐ j. Pharmacy
- ☐ k. Laboratory
- ☐ l. Radiology
- ☐ m. Anesthesiology
- ☐ n. Other, please specify:

Please indicate your agreement or disagreement with the following statements about your work area/unit.

Think about your hospital work area/unit...	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
1. People support one another in this unit	☐1	☐2	☐3	☐4	☐5
2. We have enough staff to handle the workload	☐1	☐2	☐3	☐4	☐5
3. When a lot of work needs to be done quickly, we work together as a team to get the work done	☐1	☐2	☐3	☐4	☐5
4. In this unit, people treat each other with respect	☐1	☐2	☐3	☐4	☐5
5. Staff in this unit work longer hours than is best for patient care	☐1	☐2	☐3	☐4	☐5

SECTION A: Your Work Area/Unit (continued)

Think about your hospital work area/unit...

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
6. We are actively doing things to improve patient safety	□1	□2	□3	□4	□5
7. We use more agency/temporary staff than is best for patient care	□1	□2	□3	□4	□5
8. Staff feel like their mistakes are held against them	□1	□2	□3	□4	□5
9. Mistakes have led to positive changes here	□1	□2	□3	□4	□5
10. It is just by chance that more serious mistakes don't happen around here	□1	□2	□3	□4	□5
11. When one area in this unit gets really busy, others help out	□1	□2	□3	□4	□5
12. When an event is reported, it feels like the person is being written up, not the problem	□1	□2	□3	□4	□5
13. After we make changes to improve patient safety, we evaluate their effectiveness	□1	□2	□3	□4	□5
14. We work in "crisis mode" trying to do too much, too quickly	□1	□2	□3	□4	□5
15. Patient safety is never sacrificed to get more work done	□1	□2	□3	□4	□5
16. Staff worry that mistakes they make are kept in their personnel file	□1	□2	□3	□4	□5
17. We have patient safety problems in this unit	□1	□2	□3	□4	□5
18. Our procedures and systems are good at preventing errors from happening	□1	□2	□3	□4	□5

SECTION B: Your Supervisor/Manager

Please indicate your agreement or disagreement with the following statements about your immediate supervisor/manager or person to whom you directly report.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	□1	□2	□3	□4	□5
2. My supervisor/manager seriously considers staff suggestions for improving patient safety	□1	□2	□3	□4	□5
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts	□1	□2	□3	□4	□5
4. My supervisor/manager overlooks patient safety problems that happen over and over	□1	□2	□3	□4	□5

SECTION C: Communications

How often do the following things happen in your work area/unit?

Think about your hospital work area/unit...	Never	Rarely	Some-times	Most of the time	Always
1. We are given feedback about changes put into place based on event reports	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. Staff will freely speak up if they see something that may negatively affect patient care	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
3. We are informed about errors that happen in this unit	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
4. Staff feel free to question the decisions or actions of those with more authority	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. In this unit, we discuss ways to prevent errors from happening again	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
6. Staff are afraid to ask questions when something does not seem right	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

SECTION D: Frequency of Events Reported

In your hospital work area/unit, when the following mistakes happen, *how often are they reported?*

	Never	Rarely	Some-times	Most of the time	Always
1. When a mistake is made, but is *caught and corrected before affecting the patient*, how often is this reported?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. When a mistake is made, but has *no potential to harm the patient*, how often is this reported?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
3. When a mistake is made that *could harm the patient*, but does not, how often is this reported?	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

SECTION E: Patient Safety Grade

Please give your work area/unit in this hospital an overall grade on patient safety.

$\square$	$\square$	$\square$	$\square$	$\square$
A	B	C	D	E
Excellent	Very Good	Acceptable	Poor	Failing

SECTION F: Your Hospital

Please indicate your agreement or disagreement with the following statements about your hospital.

Think about your hospital...	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. Hospital management provides a work climate that promotes patient safety	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. Hospital units do not coordinate well with each other	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
3. Things "fall between the cracks" when transferring patients from one unit to another	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
4. There is good cooperation among hospital units that need to work together	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

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SECTION F: Your Hospital (continued)

Think about your hospital...

	Strongly Disagree ▼	Disagree ▼	Neither ▼	Agree ▼	Strongly Agree ▼
5. Important patient care information is often lost during shift changes	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
6. It is often unpleasant to work with staff from other hospital units	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. Problems often occur in the exchange of information across hospital units	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
8. The actions of hospital management show that patient safety is a top priority	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
9. Hospital management seems interested in patient safety only after an adverse event happens	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
10. Hospital units work well together to provide the best care for patients	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
11. Shift changes are problematic for patients in this hospital	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$

SECTION G: Number of Events Reported

In the past 12 months, how many event reports have you filled out and submitted?

☐ a. No event reports   ☐ d. 6 to 10 event reports

☐ b. 1 to 2 event reports   ☐ e. 11 to 20 event reports

☐ c. 3 to 5 event reports   ☐ f. 21 event reports or more

SECTION H: Background Information

This information will help in the analysis of the survey results.

1. How long have you worked in this <u>hospital</u>?

☐ a. Less than 1 year   ☐ d. 11 to 15 years

☐ b. 1 to 5 years   ☐ e. 16 to 20 years

☐ c. 6 to 10 years   ☐ f. 21 years or more

2. How long have you worked in your current hospital <u>work area/unit</u>?

☐ a. Less than 1 year   ☐ d. 11 to 15 years

☐ b. 1 to 5 years   ☐ e. 16 to 20 years

☐ c. 6 to 10 years   ☐ f. 21 years or more

3. Typically, how many <u>hours per week</u> do you work in this hospital?

☐ a. Less than 20 hours per week   ☐ d. 60 to 79 hours per week

☐ b. 20 to 39 hours per week   ☐ e. 80 to 99 hours per week

☐ c. 40 to 59 hours per week   ☐ f. 100 hours per week or more

SECTION H: Background Information (continued)

4. What is your staff position in this hospital? Select ONE answer that best describes your staff position.

☐ a. Registered Nurse

☐ b. Physician Assistant/Nurse Practitioner

☐ c. LVN/LPN

☐ d. Patient Care Asst/Hospital Aide/Care Partner

☐ e. Attending/Staff Physician

☐ f. Resident Physician/Physician in Training

☐ g. Pharmacist

☐ h. Dietician

☐ i. Unit Assistant/Clerk/Secretary

☐ j. Respiratory Therapist

☐ k. Physical, Occupational, or Speech Therapist

☐ l. Technician (e.g., EKG, Lab, Radiology)

☐ m. Administration/Management

☐ n. Other, please specify:

5. In your staff position, do you typically have direct interaction or contact with patients?

☐ a. YES, I typically have direct interaction or contact with patients.

☐ b. NO, I typically do NOT have direct interaction or contact with patients.

6. How long have you worked in your current specialty or profession?

☐ a. Less than 1 year

☐ b. 1 to 5 years

☐ c. 6 to 10 years

☐ d. 11 to 15 years

☐ e. 16 to 20 years

☐ f. 21 years or more

SECTION I: Your Comments

Please feel free to write any comments about patient safety, error, or event reporting in your hospital.

THANK YOU FOR COMPLETING THIS SURVEY.

Appendix 2: The study's questionnaire

جامعة الخليل

كلية الدراسات العليا و البحث العلمي

برنامج ادارة الاعمال

اخي الكريم / اختي الكريمة ...

السلام عليكم و رحمة الله و بركاته،

تقوم الباحثة بإعداد دراسة بعنوان **"تقييم ثقافة سلامة المرضى في المستشفى الأهلي في الخليل"**.

تشير **"سلامة المريض"** إلى تجنب إيذاء المريض وتجنب الحوادث الناتجة عن عمليات تقديم الرعاية الصحية للمرضى، و يقصد **"بالحادث"** هو أي نوع خطأ أو حادث أو انحراف بغض النظر عما إذا كان قد تسبب في أذى للمريض أم لا.

يهدف هذا الاستبيان الى معرفة آرائك حول قضايا سلامة المرضى والخطأ الطبي والإبلاغ عن الأحداث في المستشفى الاهلي وسيستغرق إكماله حوالي 10 إلى 15 دقيقة. إذا كنت لا ترغب في الإجابة على سؤال، أو إذا كان السؤال لا ينطبق عليك، فيمكنك ترك إجابتك فارغة.

مع العلم بأن الاستبانة تستخدم عالمياً "Hospital Survey on Patient Safety Culture HSOPSC" لتقييم ثقافة سلامة المرضى و التي تم تطويرها في الولايات المتحدة من قبل "Agency for Healthcare Research and Quality AHRQ".

ارجو من حضرتكم التعاون بالإجابة عن الفقرات المرفقة بما يتلاءم مع وجهة نظركم، علماً بأن البيانات ستحاط بالسرية التامة و ستستخدم لأغراض البحث العلمي فقط.

و تفضلوا بقبول فائق الاحترام

الباحثة:

تمارا أيمن سلطان

بإشراف الدكتور:

وسيم ادريس سلطان

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القسم الأول: القسم الذي تعمل به

في هذا الاستبيان يعبر القسم الذي تعمل به هو المكان الذي تقضي فيه معظم وقت عملك لتقديم معظم الخدمات للمرضى او غيرهم.
ما هي منطقة عملك أو قسمك الأساسي في المستشفى؟ حدد إجابة واحدة.

☐	11. الاشعة	☐	6. الطوارئ	☐	1. عدة اقسام / لا يوجد قسم محدد
☐	12. التخدير	☐	7. القسطرة والقلب	☐	2. باطني (غير جراحي)
☐	13. غير ذلك، يرجى التحديد:	☐	8. العناية الحثيثة / بأنواعها	☐	3. جراحة
		☐	9. الصيدلية والمستودع الطبي	☐	4. النسائية والتوليد
		☐	10. المخبر	☐	5. الاطفال والخداج

يرجى الإشارة إلى موافقتك أو عدم موافقتك على العبارات التالية حول قسمك.

موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	رأيك في القسم الذي تعمل به ...
☐5	☐4	☐3	2☐	1☐	1. موظفو هذا القسم يدعمون بعضهم بعضاً
☐5	☐4	☐3	2☐	1☐	2. لدينا عدد كاف من الموظفين للتعامل مع عبء العمل
☐5	☐4	☐3	2☐	1☐	3. عندما يزداد عبء العمل نحاول جميعاً إنجاز العمل كفريق واحد.
☐5	☐4	☐3	2☐	1☐	4. يعامل الموظفون بعضهم بعضاً باحترام في هذا القسم
☐5	☐4	☐3	2☐	1☐	5. تؤثر ساعات العمل الطويلة للموظفين على جودة تقديم الرعاية المناسبة للمرضى.
☐5	☐4	☐3	2☐	1☐	6. نحن نبذل قصارى جهدنا للارتقاء بسلامة المرضى.
☐5	☐4	☐3	2☐	1☐	7. يؤدي العدد الكبير من الموظفين المؤقتين إلى تأثير سلبي على جودة الرعاية للمرضى.
☐5	☐4	☐3	2☐	1☐	8. يعتقد الموظفون أنهم عندما يرتكبون خطأ فإنه يتم استخدام ذلك الخطأ ضدهم.
☐5	☐4	☐3	2☐	1☐	9. يتم في هذا القسم إجراء تغييرات إيجابية مع الخبرة المكتسبة من الأخطاء التي ارتكبت سابقاً.
☐5	☐4	☐3	2☐	1☐	10. مجرد صدفة عدم حدوث أخطاء جسيمة وخطيرة في هذا القسم.
☐5	☐4	☐3	2☐	1☐	11. عندما يكون لدى بعض موظفي القسم كثير من العمل فإن موظفي الأقسام الأخرى يساعدون في العمل.
☐5	☐4	☐3	2☐	1☐	12. عدد الإبلاغ عن ما فإنه يولد شعور بأنه يتم الإبلاغ عن الشخص أكثر من الحادث نفسه.
☐5	☐4	☐3	2☐	1☐	13. بعد إجراء تغييرات للارتقاء بسلامة المريض فإنه يتم تقييم فعالية هذه التغييرات.
☐5	☐4	☐3	2☐	1☐	14. إننا مضطرون دائماً إلى القيام بكثير من الأعمال بسرعة كبيرة (crisis mode)
☐5	☐4	☐3	2☐	1☐	15. حجم العمل الكبير لا يجعلنا نتجاهل سلامة المرضى.
☐5	☐4	☐3	2☐	1☐	16. يشعر الموظفون بالقلق من أنهم إذا ارتكبوا خطأ أو أبلغوا عنه فسيتم تسجيله

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في سجلهم الوظيفي.

موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	
☐5	☐4	☐3	2☐	1☐	17. نحن في هذا القسم نواجه مشاكل تتعلق بالسلامة.
☐5	☐4	☐3	2☐	1☐	18. أنظمتنا وعملياتنا وإجراءاتنا جيدة وفعالة لتجنب الأخطاء.

القسم الثاني: مشرفك/ مديرك

يرجى الإشارة إلى موافقتك أو عدم موافقتك على العبارات التالية حول مشرفك المباشر / مديرك أو الشخص الذي تتبع له مباشرة.

موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	
☐5	☐4	☐3	2☐	1☐	1. يقدّر مشرفي/ مديري الموظف عندما يعلم أنه قد تصرف وفقاً لإجراءات سلامة المرضى.
☐5	☐4	☐3	2☐	1☐	2. يولي مشرفي/ مديري اهتماماً كبيراً لاقتراحات الموظفين بشأن تحسين سلامة المرضى.
☐5	☐4	☐3	2☐	1☐	3. يطلب مني مشرفي/ مديري أن نقوم بالعمل بسرعة عندما يكون عبء العمل مرتفعاً، حتى لو قمنا باختصارات ولم نقم ببعض المهام.
☐5	☐4	☐3	2☐	1☐	4. يتجاهل مشرفي/ مديري مشاكل سلامة المرضى (حتى لو حدثت بشكل متكرر).

القسم الثالث: الاتصالات

كم مرة يحدث ما يلي في مكان عملك/ قسمك؟

دائماً	غالباً	احياناً	نادراً	ابداً	
					رأيك في القسم الذي تعمل به ...
☐5	☐4	☐3	2☐	1☐	1. يتم تزويدنا بتغذية راجعة حول التغييرات التي تم إجراؤها بناءً على تقارير الأخطاء.
☐5	☐4	☐3	2☐	1☐	2. يبدي الموظفون آراءهم بحرية إذا شاهدوا أية مشاكل قد يكون لها تأثير سلبي على رعاية المرضى.
☐5	☐4	☐3	2☐	1☐	3. نحن نطلع على الأخطاء التي تحدث في هذا القسم
☐5	☐4	☐3	2☐	1☐	4. لدى الموظفين حرية في طرح أسئلة على المسؤولين الأعلى حول القرارات أو الأنشطة.
☐5	☐4	☐3	2☐	1☐	5. في هذا القسم نناقش وندرس طرق تجنب تكرار الأخطاء.
☐5	☐4	☐3	2☐	1☐	6. يخشى الموظفون في هذا القسم أن يسألوا عن إجراء يبدو خاطئاً.

القسم الرابع: تكرار الإبلاغ عن الأحداث غير المقصودة

في القسم الذي تعمل به ما هو معدل الإبلاغ عن الأخطاء التالية إذا حدثت؟

دائماً	غالباً	احياناً	نادراً	ابداً	
☐5	☐4	☐3	2☐	1☐	1. عند حدوث خطأ، ولكن يتم اكتشافه وتصحيحه قبل التأثير على المريض، كم مرة يتم الإبلاغ عن ذلك؟
☐5	☐4	☐3	2☐	1☐	2. عند حدوث خطأ، ولكن ليس من الممكن أن يؤذي المريض، كم مرة يتم

الإبلاغ عن ذلك؟

□5	□4	□3	2□	1□

3. عند حدوث خطأ يمكن أن يضر المريض، ولكنه لم يضره، كم مرة يتم الإبلاغ عن ذلك؟

القسم الخامس: تقييم سلامة المريض:

يرجى إعطاء القسم الذي تعمل به في المستشفى درجة إجمالية من حيث سلامة المرضى.

□	□	□	□	□
هـ. فاشل	د. ضعيف	ج. مقبول	ب. جيد جداً	أ. ممتاز

القسم السادس: المستشفى الذي تعمل به:

يرجى الإشارة إلى موافقتك أو عدم موافقتك على العبارات التالية حول المستشفى الذي تعمل به.

موافق بشدة	موافق	محايد	غير موافق	غير موافق بشدة	رأيك في المستشفى الذي تعمل به ...
□5	□4	□3	2□	1□	1. توفر إدارة المستشفى مناخ عمل يعزز سلامة المرضى
□5	□4	□3	2□	1□	2. لا يوجد تنسيق جيد بين أقسام المستشفى.
□5	□4	□3	2□	1□	3. يتم إهمال بعض المهام عند نقل مريض من قسم إلى آخر.
□5	□4	□3	2□	1□	4. هناك تواصل وتعاون جيد بين الأقسام التي من المقرر أن تعمل مع بعضها.
□5	□4	□3	2□	1□	5. غالباً ما تُفقد معلومات مهمة متعلقة برعاية المرضى عند تبديل المناوبات بين الموظفين.
□5	□4	□3	2□	1□	6. غالباً ما يكون العمل مع الأقسام الأخرى في المستشفى غير سار بالنسبة لنا.
□5	□4	□3	2□	1□	7. غالباً ما تحدث مشكلة في تبادل المعلومات بين أقسام المستشفى.
□5	□4	□3	2□	1□	8. تظهر إجراءات إدارة المستشفى أن سلامة المرضى هي أولوية قصوى.
□5	□4	□3	2□	1□	9. تبدو إدارة المستشفى مهتمة بسلامة المرضى فقط بعد وقوع الخطأ.
□5	□4	□3	2□	1□	10. في هذا المستشفى تعمل الأقسام معاً بشكل جيد لتقديم أفضل خدمات الرعاية للمرضى.
□5	□4	□3	2□	1□	11. تغيير المناوبات بين الموظفين في هذا المستشفى يخلق مشاكل للمرضى.

القسم السابع: عدد الحوادث التي تم الإبلاغ عنها:

خلال 12 شهراً الماضية، كم عدد تقارير الأحداث التي قمت بتعبئتها وإرسالها؟

□1 لا يوجد تقارير	□2 1-2 تقرير	□3 3-5 تقارير
□4 6-10 تقارير	□5 11-20 تقرير	□6 أكثر من 21 تقرير

القسم الثامن: معلومات اساسية:

ستساعد هذه المعلومات في تحليل نتائج المسح.

1. الجنس:

□1 ذكر   □2 انثى

2. الحالة الاجتماعية:

□1 أعزب / عزباء   □2 متزوج/ة   □3 غير ذلك: ....

3. منذ متى وأنت تعمل في هذا المستشفى؟

□1 اقل من سنة   □2 1-5 سنوات   □3 6-10 سنوات

□4 11-15 سنة   □5 16-20 سنة   □6 أكثر من 21 سنة

4. منذ متى وأنت تعمل في قسمك الحالي بالمستشفى؟

□1 اقل من سنة   □2 1-5 سنوات   □3 6-10 سنوات

□4 11-15 سنة   □5 16-20 سنة   □6 أكثر من 21 سنة

5. كم عدد ساعات العمل في الاسبوع؟

□1 اقل من 20 ساعة اسبوعيا   □2 20-39 ساعة اسبوعيا   □3 40-59 ساعة اسبوعيا

□4 60-79 ساعة اسبوعيا   □5 80-99 ساعة اسبوعيا   □6 100 ساعة او أكثر اسبوعيا

6. ما هو المسمى الوظيفي الخاص بك في المستشفى؟ يرجى اختيار اجابة واحدة التي تصف الى أقرب حد وظيفتك الحالية

□ 1. ممرض/ة قانوني/ة   □ 5. فني (أشعة، مخبر وغيرها)   □ 9. اخصائي/ة تغذية

□ 2. ممرض/ة مؤهل/ة   □ 6. مساعد/ة تمريض   □ 10. سكرتاريا

□ 3. طبيب اخصائي   □ 7. اداري   □ غير ذلك، يرجى للتحديد:

□ 4. طبيب مقيم   □ 8. صيدلاني/ة   _____

7. في وظيفتك الحالية، هل لديك عادة تواصل مباشر مع المرضى؟

□ أ. نعم، عادةً ما يكون لدي تفاعل مباشر أو تواصل مع المرضى

□ ب. لا، ليس لدي أي تفاعل مباشر أو اتصال مع المرضى.

8. منذ متى وأنت تعمل في تخصصك أو مهنتك الحالية؟

□1 اقل من سنة   □2 1-5 سنوات   □3 6-10 سنوات

□4 11-15 سنة   □5 16-20 سنة   □6 أكثر من 21 سنة

9. من وجهة نظرك، ما هي اهم اجراءات سلامة المرضى التي تم استحداثها بعد جائحة كورونا؟

....

....

....

شكرا لك لإتمامك هذه الاستبانة.

Appendix 3: Hospital's consent

Date: 25/4/2022

Ms. Tamara Sultan

College of Graduate Studies

Hebron University.

Dear Ms. Sultan,

In reference to your request to conduct a research in our hospital entitled **"Assessment of Patient Safety Culture at Al-Ahli Hospital – Hebron"** in fulfillment of requirements for the Degree of Masters in Business Administration.

We are pleased to inform you that we accept to distribute the questionnaires to our staff during May-June 2022, and we are in pleasure to cooperate with you to complete your research.

Best Regards

Dr. Yousef Takrouri

General Director

Dr. Takroury Yousef
Director General
ALAHLI Hospital - Hebron

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Annexes

Annex 1 : Hospital Survey on Patient Safety Culture: Composites and Items

Hospital Survey on Patient Safety Culture: Composites and Items

In this document, the items in the *Hospital Survey on Patient Safety Culture* are grouped according to the safety culture composites they are intended to measure. The item's survey location is shown to the left of each item. Negatively worded items are indicated.

1. Teamwork Within Units

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

A1.   People support one another in this unit.
A3.   When a lot of work needs to be done quickly, we work together as a team to get the work done.
A4.   In this unit, people treat each other with respect.
A11. When one area in this unit gets really busy, others help out.

2. Supervisor/Manager Expectations & Actions Promoting Patient Safety[1]

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

B1.   My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.
B2.   My supervisor/manager seriously considers staff suggestions for improving patient safety.
B3.   Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. (negatively worded)
B4.   My supervisor/manager overlooks patient safety problems that happen over and over. (negatively worded)

3. Organizational Learning—Continuous Improvement

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

A6.   We are actively doing things to improve patient safety.
A9.   Mistakes have led to positive changes here.
A13. After we make changes to improve patient safety, we evaluate their effectiveness.

4. Management Support for Patient Safety

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

F1.   Hospital management provides a work climate that promotes patient safety.
F8.   The actions of hospital management show that patient safety is a top priority.
F9.   Hospital management seems interested in patient safety only after an adverse event happens. (negatively worded)

NOTE: Negatively worded questions should be reverse coded when calculating percent "positive" response, means, and composites.

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[1] Adapted from Zohar D. A group-level model of safety climate: testing the effect of group climate on microaccidents in manufacturing jobs. J Appl Psychol 2000;85(4):587-96. http://psycnet.apa.org/journals/apl/85/4/587.html. Accessed January 15, 2015.

5. Overall Perceptions of Patient Safety

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

- A15. Patient safety is never sacrificed to get more work done.
- A18. Our procedures and systems are good at preventing errors from happening.
- A10. It is just by chance that more serious mistakes don't happen around here. (negatively worded)
- A17. We have patient safety problems in this unit. (negatively worded)

6. Feedback & Communication About Error

(Never, Rarely, Sometimes, Most of the time, Always)

- C1. We are given feedback about changes put into place based on event reports.
- C3. We are informed about errors that happen in this unit.
- C5. In this unit, we discuss ways to prevent errors from happening again.

7. Communication Openness

(Never, Rarely, Sometimes, Most of the time, Always)

- C2. Staff will freely speak up if they see something that may negatively affect patient care.
- C4. Staff feel free to question the decisions or actions of those with more authority.
- C6. Staff are afraid to ask questions when something does not seem right. (negatively worded)

8. Frequency of Events Reported

(Never, Rarely, Sometimes, Most of the time, Always)

- D1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?
- D2. When a mistake is made, but has no potential to harm the patient, how often is this reported?
- D3. When a mistake is made that could harm the patient, but does not, how often is this reported?

9. Teamwork Across Units

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

- F4. There is good cooperation among hospital units that need to work together.
- F10. Hospital units work well together to provide the best care for patients.
- F2. Hospital units do not coordinate well with each other. (negatively worded)
- F6. It is often unpleasant to work with staff from other hospital units. (negatively worded)

10. Staffing

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

- A2. We have enough staff to handle the workload.
- A5. Staff in this unit work longer hours than is best for patient care. (negatively worded)
- A7. We use more agency/temporary staff than is best for patient care. (negatively worded)
- A14. We work in "crisis mode" trying to do too much, too quickly. (negatively worded)

NOTE: Negatively worded questions should be reverse coded when calculating percent "positive" response, means, and composites.

11. Handoffs & Transitions

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)
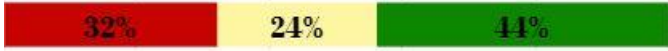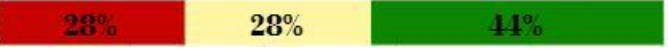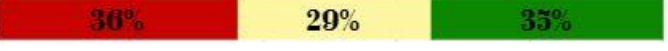
- F3. Things "fall between the cracks" when transferring patients from one unit to another. (negatively worded)
- F5. Important patient care information is often lost during shift changes. (negatively worded)
- F7. Problems often occur in the exchange of information across hospital units. (negatively worded)
- F11. Shift changes are problematic for patients in this hospital. (negatively worded)

12. Nonpunitive Response to Errors

(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)

- A8. Staff feel like their mistakes are held against them. (negatively worded)
- A12. When an event is reported, it feels like the person is being written up, not the problem. (negatively worded)
- A16. Staff worry that mistakes they make are kept in their personnel file. (negatively worded)

Patient Safety Grade

(Excellent, Very Good, Acceptable, Poor, Failing)

- E1. Please give your work area/unit in this hospital an overall grade on patient safety.

Number of Events Reported

(No event reports, 1 to 2 event reports, 3 to 5 event report, 6 to 10 event reports, 11 to 20 event reports, 21 event reports or more)

- G1. In the past 12 months, how many event reports have you filled out and submitted?

NOTE: Negatively worded questions should be reverse coded when calculating percent "positive" response, means, and composites.