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An integrated literature review on cultural management systems and patient safety

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Abstract

The incidence of adverse events in healthcare is a global problem with negative consequences for all stakeholders including patients, their family members, health professionals and the government. Patient safety and patient safety culture lie at the heart of all adverse events within healthcare settings. The culture of an organization determines its approach to problem solving and determines how individuals within that setting work; this is also true for patient safety culture and the reduction of adverse events within healthcare organizations.

The aim of this study was to assess, identify and have a better understanding of the importance of patient safety culture within the healthcare organization and to create insights on the impact of cultural management systems regarding patient safety.

The research method of this study is an integrated literature of the patient safety culture and perspectives of healthcare workers, assessed using the Modified Stanford Instrument (MSI) and Manchester Patient Safety Framework (MaPSaF).

Analysis of the data revealed that health professionals working in the same organizations have differing opinions on the same topic; therefore, there is need for open communication and a systematic approach to establishing the right safety culture within healthcare organizations.

In conclusion, establishing the right culture and having systematic ways of measurement enable improvements and the ability of organizations to learn from their mistakes. There is paucity of data with respect to the use of these tools in the respective countries (Canada and United Kingdom) even though the tools are the national tools established through rigorous research. Therefore, a study of MaPSaF in New Zealand was also analyzed.

There is need for further research and publications to enable learning on patient safety, which will reduce the incidence of adverse events and associated consequences in healthcare organizations.

Keywords: Safety culture, patient, healthcare, MaPSaf, MSI.

1. Introduction

1.1 Background

Apparently, many patients worldwide suffer from disabilities, injuries or even death due to medical errors. A report published by World Health Organization [1], states that a patient is hurt every thirty-five seconds in the process of receiving care in the United Kingdom, while in the United States, medical errors constitute one third of the deaths that occur annually. The WHO stated the existence of an adverse event rate of about 10 percent; this means that one in every ten-hospitalized patient experiences some level of adverse event, fifty percent of which is preventable [1]. In 2002, Commonwealth Fund studies revealed that 25 percent of patients disclosed that in the past two years, they had experienced some level of medical error [2]. Any undesirable outcome in the provision of care to patients that arises because of the care received by the patient and not the patient's underlying disease is referred to as an adverse event [3]. Consequently, patient safety has been described in terms of adverse events and iatrogenic incidents in hospitals [4]. Iatrogenic events are unintended adverse events experienced by patients because of receiving care from healthcare professionals. Iatrogenic illness is very common in hospitals [5].

The term 'safety culture' is a term that premiered in the 1987 Organisation for Economic Co-operation and Development (OECD) Nuclear Agency report (group 1) regarding the April 1986 Chernobyl disaster. Ever since, the term has become a frequently used term with varying definitions [6]. According to the Advisory Committee on the Safety of Nuclear Installations health and safety executive [7], safety culture is regarded as 'the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determines the commitment to, and the style and proficiency of an organization's health and safety management' [7].

The concept of culture is usually discussed [8] and 'early anthropologists claimed that there is no culture without humans, but more importantly no humans without culture' [9]. According to Hofstede, [10] 'culture can be regarded as a collective memory of a group and by applying memory to culture, it certainly means that culture can actually be learnt'.

Patient safety culture, which is also called patient safety climate, is an overall behaviour of individuals and organizations, based on common beliefs and values [11, 12]. It leads to reduction of possible injury to the patient at the lowest level in the service procedure through hard efforts. Related research shows that positive patient safety culture could promote patient safety [13] and could aid the improvement of an organization with safety behaviour, including reporting little errors, self-reporting errors, safety behaviours, safety audit rating [14-18].

Until now, many countries have introduced patient safety culture research, especially in the developed countries [12, 19-23]. On a global basis, several international organizations have significantly contributed to the promotion of the culture of patient safety, such as the World Alliance for Patient Safety, the National Patient Safety Agency (NPSA) in the UK, and the Agency for Healthcare Research and Quality (AHRQ) in the USA to mention but a few [24].

A number of adverse events occur within the settings of a healthcare organization, the key ones include "hospital-acquired infections, adverse drug events, surgical complications, system errors, diagnostic errors, treatment errors, obstetrical injuries, procedure complications and anaesthesia related injuries" [5, 25-31]. Many of these events are due to various forms of oversight from different departments or personnel which tends to have some type of ripple effect on the end users, which in this case are usually the patients.

The study of medical errors and adverse events has long featured an epidemic of issues relating to patient safety within a given health care system [30]. Despite the high level of technical and skills advancements taking place in health care, several patients are still being affected by various levels of injuries. Reports have shown high numbers of adverse events, for instance, between 100,000 to 500,000 adverse events occur annually with up to 20,000 leading to deaths [32]; resulting in a loss of between $300 million to $1.5 billion Canadian dollars (CAD) per year [33]. An estimated 7.5% of patients who sought care in Canadian hospitals experienced an adverse event (34), 36.9% of which were preventable [30, 34]. According to the National Health Service (NHS) [35], patients admitted to a hospital experiences an adverse event with an accompanying cost of £2 billion annually. Also, about 10% of hospital admissions result in an adverse event and half of these events are deemed preventable [35]. A review of patient safety culture tools shows thirteen (13) percent of admissions in hospitals leads to an adverse event, 2% of which leads to death or permanent disability [36]. Also, a review of 14000 medical admission records in 28 hospitals from South Australia and New South Wales unveiled a rate of 16.6% adverse events amongst hospital patients [37].

Adverse events may be a result of individual errors, health system design errors or risks inherent in the care being provided to the patient [5]. While individuals can be the agents through which harm happens to others especially within a healthcare setting, Reason [38] believes that

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weaknesses in systems are responsible for harm to individuals/patients within most healthcare settings. A lot of attention has been paid to the burden of errors caused by doctors to their patients.

However, while the incident of errors to patients by doctors has been reportedly high, Milne and Lalonde [32] opine that the incident of adverse events to patients is not exclusively caused by doctors. Consequently, the Canadian Nurses Protective Society stated that in Gynaecology and Obstetrics, 21% of the legal cases involved perinatal nurses [32].

Adverse events can also be caused by occupational factors like the prevalence of unsafe conditions that affect the ability of healthcare workers to work effectively, efficiently and affects their ability to provide consistently safe services to their patients. Fatigue in healthcare workers was implicated in negatively impacting on patient safety within healthcare settings [39].

Reductions in errors during the process of care provision by healthcare organizations lead to improvements in patient safety [40]. However, a system that is reactive to safety, responding only when incidents have occurred is not safe. Hospitals in Canada for example, focus on measuring and managing a predefined set of outcomes which enables the use of feedback to inform improvements and practice to manage patient safety through incident reporting [41].

In recent years, the world has realized the impact of patient safety problems in healthcare organizations and has been responding with great endeavor to tackle the issue [42]. A landmark 1999 report issued by the Institute of Medicine, ''To Err is Human:'' Building a Safer Health System on patient safety, came to the centre of the world's attention [3]. According to Brickell and McLean, an estimated 44,000 to 98,000 people die every year from medical errors that occur in U.S hospitals, more than those that die from motor vehicle accidents, breast cancer, and acquired immunodeficiency syndrome (AIDS) combined [43].

The objective of this study is to determine and draw a fundamental inference on how cultural management systems and frameworks on patient safety management occur in both Canada and United Kingdom with the use of Manchester patient safety framework (MaPSaF) and Modified Standard Instrument (MSI) assessing instruments, respectively.

The development of patient safety culture is an integral aspect in the provision of essential services to patients. With this assessment, providers of healthcare can fully identify the fields that need improvement in patient safety culture assessment.

The overall objective of this study is to create insight and highlight inherent lessons where possible, of the impact of cultural management systems and frameworks on patient safety management, by assessing the cultural systems/frameworks that underlie the management of patient safety.

The vital aim of this study is to answer the question: What is the importance of safety culture, frameworks, and management systems in patient safety within the healthcare system? In conducting this study, we hope to achieve the following aims:

I. To assess a study that measures patient safety using the Modified Stanford Instrument (MSI).
II. To assess a study that measures patient safety using the Manchester Patient Safety Framework (MaPSaF).
III. Highlight the importance of management systems or frameworks in the management of patient safety.

We have all been patients at some point in time in our lives and as any living organism ages, we will always need a certain level of healthcare, right from conception till the very end. The current global pandemic Coronavirus disease (COVID-19) is a proof that systems and frameworks within patient safety management will always be an immense area in which health organisations cannot afford to take with levity or be caught being lackadaisical.

Customer satisfaction is always the forefront of any business organisation since they (the customers) are the ones that keep the business afloat and without them, businesses cannot make a return on their investments which could eventually lead to bankruptcy or a complete business shutdown. Patients are the customers of healthcare organisations. In this case, the wellbeing and health of the individuals are paramount and highly crucial, without them it will be impossible for any health organisation to succeed.

Patient safety management should be encouraged, most especially now that the world is fighting an invincible terror called COVID-19. Extra precautionary measures are being put in place to protect human lives, most especially those that have some underlying medical conditions (asthma, cancer, heart or liver disease, pregnant women just to name a few). These individuals are already susceptible to the virus that causes COVID-19 and as such, their safety and that of those issuing the healthcare service must be well protected at all costs.

1.2 Key Concepts of the Study

The key concepts for this study include cultural management systems, patient safety management. These terms are defined below with regards to their meaning in this study.

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1.2.1 Cultural Management Systems

Cultural management systems can best be described as ''A pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems'' [44].

It is estimated that the world's population is currently at over seven billion according to the United States and World population clock index (https://www.census.gov/popclock/). The above definition reiterates the essence of culture in any given society and the high level of importance it has in an organisation such as the healthcare system which usually consist of different nationalities within its workforce.

1.2.2 Patient Safety Management

According to Macchi and colleagues [45], ''Patient safety management is composed of various types of organisational procedures. The procedures are fashioned for diagnosis, classification, and management of risk for an organisation's safety as well as protection against dangers. Moreover, they are regarded as a general part of the organisation's risk management''.

Research has shown that team leaders or supervisors within the healthcare sector plays a critical role in patient safety maintenance for the unit they manage and ensuring that effective models of leadership are probably applicable [46]. The area of managerial leadership and safety has not been studied as much within the healthcare sector compared to the industry sector, but it is just as important. It is only the senior officials that can adequately direct the efforts within their healthcare organisations to promote the growth of culture and commitment that is highly needed to address the hidden causes of medical errors and harm to patients [47].

In the past, patient safety management was basically concerned with recognizing and averting various forms of mistake. Since the 1990's, various research has been executed for diagnosing factors which can have compelling effects in error creation and making problems in reporting the case [48].

2. Theoretical Background

2.1 Organizational Culture

In earlier works, Deal and Kennedy [49] defined culture as the principles and values that a group articulates, makes known to the public and tries to achieve. However, culture as a climate was defined by Schneider [50] as the way people express their feelings within an organization and the type of interaction that goes on within members of an organization and its customers. A similar perspective to the definition of culture is the one adopted by Geertz [9] who opined that culture as a shared meaning refers to the understanding that exists between members of an organization because of their interaction with each other. A more general definition of culture is the one proffered by Schein [44], who defined culture ''as the way of thinking (previously successful and proven to work) adopted by members of an organization while trying to solve problems''. This validated way of thinking becomes the norm and is taught to new members of the organization as the way things are done in that organization, becoming the shared system of belief and meaning. Schein [44] proposed that culture can be depicted using a 3-layered model as shown in figure 1.

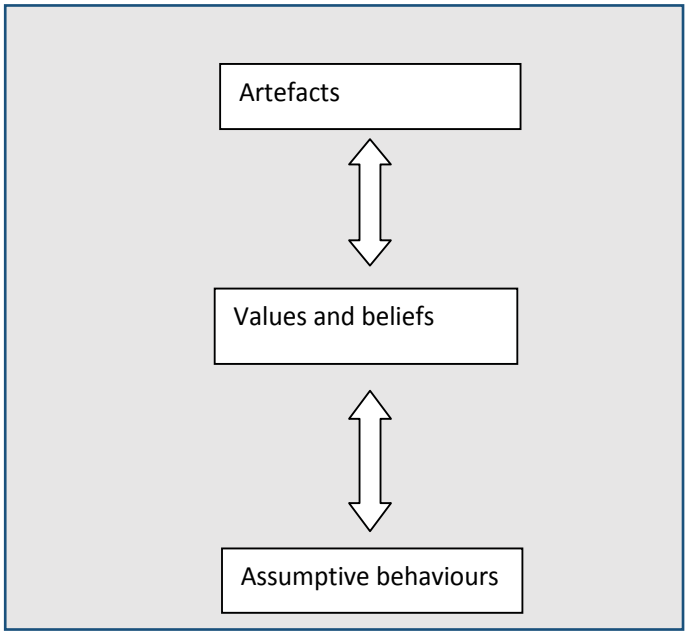

Figure 1: Depiction of culture using 3-layered model (Schein 1992)

Different from the 3-layered model proposed by Schein [44], is the cultural web proposed by Johnson and colleagues [51]. Their model has three additional components (stories, power structures and symbols) in addition to the components (artefacts, values and beliefs and behavioural routines) found in the layered model proposed by Schein [44]. The main difference between the two models is the fact that Johnson and colleagues [51] opine that the components of culture are intertwined in a web. Another difference between the two models is that while Johnson et al. [51] perceive leadership as the power structure of an Artefacts Values and beliefs Assumptive behaviours organization, Schein [44] sees leadership as the source of values and beliefs in an organization.

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Cameron and Quinn [52] categorized culture into four types: the clan, development, market and hierarchy culture respectively. They [52] postulate that the culture of an organization must be established as the extent to which it supports the organization's ability to achieve its goals and objectives. It is instrumental in determining the direction, behaviours, values and beliefs the organization needs to attain if the organization is to be effective and manage its performance positively and or productively.

More recently, Westrum [53] describes culture as "the organization's pattern of response to problems and opportunities it encounters" and identifies three types of culture: "pathological, bureaucratic, and generative" as shown below in table 1. Westrum [53] recommended that the most immature stage of any organisational culture is the pathological stage where the information is usually concealed, latest innovations are quashed and deficiencies are normally swept under the rug. While a more mature organisational culture tends to have a rather developed system that can manage the flow of information, the bureaucratic stage is usually where various information is collated but could be ignored, sharing and learning are usually accepted but not necessarily supported. The generative stage of the organisation exhibits a rather more advanced level of cultural maturity. The information is usually needed and welcomed, staff members are well trained, should there be a case of any failure, a full investigation is made instead of cover-up and blame [53].

	Pathological	Bureaucratic	Generative
Power structure	Power oriented	Risk oriented	Performance oriented
Leadership style	Pre-occupied with personal power, needs and glory	Pre-occupied with rules, position and department turf	Focused on the organization's mission not on position or individuals
Information flow	Information hoarded for political reasons	Information languishes due to bureaucratic barriers	Information flows well, elicits prompt and appropriate responses
Response to failure	Scapegoating	Justice	Inquiry
Approach to innovation	Innovations are crushed	Innovation leads to problems	Innovations are implemented
Attitude to risks/responsibilities	Responsibilities are shirked	Responsibilities are narrow	Risks are shared
Attitudes to messengers	Messengers are shot	Messengers are neglected	Messengers are trained
Cooperation levels	Low cooperation	Modest cooperation	High cooperation
Leaders attitude to organization's mission	Alignment with a person's or clique's interests over other loyalties	Alignment with personal/unit's mission takes priority over organization's mission. Focus is on department interest	Complete buy in and dedication to the achievement of the mission
Use of empowerment	Empowerment used for personal performance	Empowerment used for departmental performance	Need empowerment for maximum performance

Table 1: Types of culture (Westrum) [53]

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The leaders within an organization or a unit of an organization determines the culture of the setting within which they lead based on their priorities, which in turn influences the behaviour and responses of the work population in that organization. While the way people in an organization think, their emotional responses and actions form the culture of that organization and how they respond to events in that organization. Another factor that influences organizational culture is the way information flows within that organization; information flow determines response time and type [53]. Table 1 highlighted the different responses within an organization dependent on the prevalent culture and leadership within that organization.

2.2 Safety Culture and Patient Safety Culture

The Advisory Committee on the Safety of Nuclear Installations (ACSNI) defined safety culture as a "product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine commitment to, and the style and proficiency of the organization's health and safety management" [7].

"Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures." [54].

Previously, the description of how and why adverse events and medical errors happens focused on the individual's human error. The inclination to blame individuals perpetuated a culture of punishment and individual accountability among medical professionals [55]. However, because of the heightened attention toward improving patient safety over the past decade, health authorities have looked to the safety science literature to help explain safety culture and provide direction for creating safety management systems [56]. In the safety science literature, there is a spotlight on the culture of safety as a starting point from which a safer system can be created. The WHO has defined patient safety ''as the reduction of risk of unnecessary harm associated with healthcare to an acceptable minimum'' [57]. Some professionals opine that patient safety is a factor of the priorities of an organization's leadership as well as the component units that make up that organization [17].

The safety culture of a health care organization is an encompassing concept that is drawn from high reliability organization theory. It has been most notably translated by Reason [38] and Weick and Sutcliffe [58] into guiding dimensions and constructs. This focus on the culture of safety is linked to Reason's description of the ''Swiss Cheese'' model as shown in figure 2. The concept depicts the idea of multi-causation to describe how the interaction between numerous organizational and individual layers result in structural holes; the alignment of these holes at one time subsequently allows for error(s) to occur.

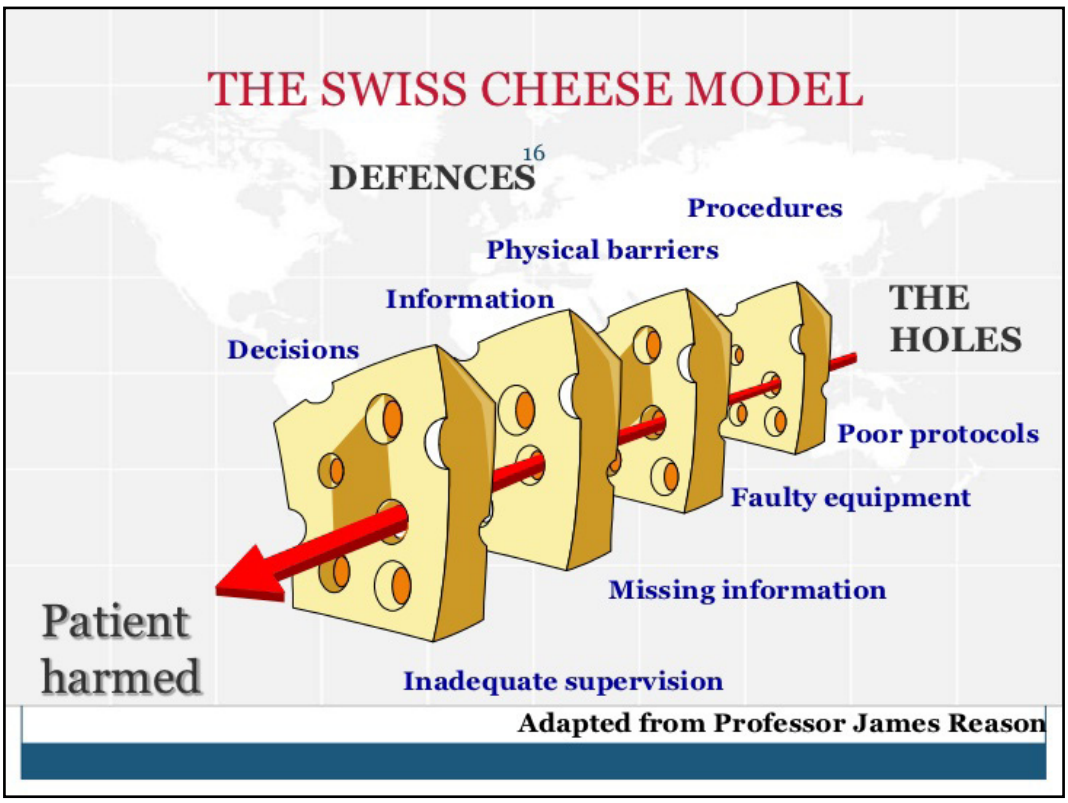

Figure 2: Reason's Accident Causation Model [38]

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A lot of these characteristics are not as evident in a health care environment because of the variable nature of the tasks and work. However, Vincent [54] surmises that hierarchies in health care, because of its embedded varying professions, can lead to relationship problems which are complicated by status and power; leading to problems in applying some of the concepts from high reliability organization (HRO) such as deference to expertise [58]. A drawback to achieving high reliability in the health care sector hinges on the fact that failed processes are exclusively characterized as ''non-catastrophic events,'' which does not result in massive suffering or loss, given that most of the events only tend to affect one individual. Hence, low events of reliability are generally accepted and remain unquestioned [59].

Complementary to the research by Reason [38], Weick and Sutcliffe [58] outlines concepts of mindfulness that create a culture of safety. According to Weick and Sutcliffe [58], mindfulness is seen in five core characteristics of high reliability organizations. These core characteristics are preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience and deference to expertise. All of which need to be integrated within the everyday work of the organization in order to facilitate optimal safety management and propagate a culture of safety.

After viewing these foundational theories, researchers recommend that HRO theories should be practiced in health care given the resemblance in practices and procedures that have emerged with the ''dynamic, the variable and the unexpected'' [54]. An immense level of HRO theory and practice is carried out in an environment that can be viewed as highly disciplined in nature and is centred on strict training and adherence to procedures, routine and protocols [38,54]. Therefore, prior to administering concepts and theories from HROs, it is vital to examine the differing nature of health care organizations in similarities to HROs [54].

A different approach to safety culture is the one adopted by Westrum (Table 1). Westrum [53] categorizes safety culture based on different types of organizational responses to opportunities or threats: "pathological" (not open to new ideas, rife with cover-ups and scapegoating), "bureaucratic" (adopts a laissez faire attitude to information, is lenient and believes that new ideas lead to issues) and "generative" (seeks out information, investigates and learns from past challenges, trains reporters to report opportunities or threats and are open to new ideas).

With advancements in the study of patient safety, the influence of staff perception on safety behaviour has become more apparent [60,61], in addition to its impact on patient outcomes [62-65].

Organizational culture determines how things are done in an organization [44] and provides the vehicle for socially controlling behaviour in that organization [40]. It is established that in other high-risk sectors, a focus on safety culture led to improvements and resultant decreases in the prevalence of adverse events [58,66].

Furthermore, a direct correlation has been found between health workers' perception of safety and satisfaction levels of patients' family members [67]. This influence however, is not always positive [68].

In healthcare, every initiative to improve patient safety by organizations in different countries for example the National Patient Safety Agency in the UK and the Canadian Council on Health Service Accreditation in Canada, features safety culture as a recurring factor in the achievement of desired outcomes [69]. Safety culture has been shown to have a positive impact on patient safety in healthcare because it enables healthcare professionals to make choices that enable patient safety [11].

Additionally, safety culture is rather crucial, as it determines ease of communication, incident reporting and the ability to question colleagues or authority [40, 70], all of which enable the reduction of adverse events and the propagation of a positive culture. As researchers continue to explore culture as a way of improving patient safety, its importance cannot be over emphasized.

Law [34] also opines that ''to improve safety in a system, there is a need to examine the prevalent culture within that system as opposed to focusing on individuals within the system. 'Consequently, improving patient safety in healthcare requires cultural change within the healthcare sector [3, 69, 71].

Lee and colleagues [72] stated that ''patient safety culture is typically defined as the shared attitudes, beliefs, values and assumptions that underlie how people perceive and act upon safety issues within their organization''. It is a critical and pivotal part in the provision of quality care [73]. However, the prevalence of errors and the attitude to them has made the healthcare industry across many countries reactive and conducive of errors with a high but unacceptable margin for errors. This was also accentuated by the isolated approach to analysis of past incidents, where a clear picture of the overall impact of each individual incident on patients and the sector at large was lacking [34].

The paper by Kohn et al. [3] brought to limelight the prevalence of high morbidity and mortality rates as a result of adverse events in healthcare; making the healthcare sector a high-risk sector with the need for safe practices and triggered the beginning of research in this area. However, prior to this, the WHO in 2005 published three documents which elucidated the need for involvement in

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patient safety culture research [57, 74].

Provision of safe and quality care is very important within the healthcare system. The prevalence of adverse events to patients has led to the need for improved measures towards patient safety [39]. To be able to achieve improvements in safety in healthcare, the context within which care is provided should be examined. This includes the values, attitudes and beliefs (culture) that influence behaviour in the settings of healthcare organizations [36]. Carrying out surveys, for example, survey of culture, enables an assessment of performance, identification of gaps in service provision, evaluate interventions, record changes in the organization and compare its performance to that of other similar organizations [36]. Additionally, the need for involvement and commitment across board from leaders, through physicians to the staff of healthcare organizations cannot be over emphasized, if desirable goals are to be achieved [40].

Concentrating on safety science research has contributed some level of direction to health care leaders and researchers regarding the fundamental aspects to consider for improving safety culture. Nevertheless, a void remains in our understanding of the most appropriate methods of studying, appraising and finally making some culture adjustments. There is a crucial need to tackle this void, given that applied efforts are ongoing to accomplish safety culture change. Although some researchers have only suggested a couple of intuition as to how to oversee and estimate the changes of this nature [3, 75]. Over time, the importance of improving patient safety in healthcare has been articulated by different professionals [3, 76]. Safety culture is important because the culture of an organization influences the behaviour of members of the organization and determines the "stories, rituals and languages" of that organization [40]. Reason [38] posited that a combination of inactive but already existing conditions and active failure is the main cause of accidents; his reports has been impactful in the development of patient safety culture in the acute hospital sector.

In developed countries, information technologies are increasingly being used in healthcare to improve patient safety. Studies have shown that Computerized Physician Order Entry (CPOE), especially when combined with Decision Support System, tends to improve patient safety [77]. Sadly, several resource constrained countries have a shortage of these technologies; hence these countries are left with no choice but to set up a patient safety culture within the health care organizations so that some level of patient safety and quality of patient care can be attained. Patient safety culture when broken down to its component parts, is made up of how learning occurs, how incidents are reported and finger pointing orientation of members of an organization [38, 62, 78]. In addition to these, other factors like job satisfaction [79] and human resource issues like staffing levels [11] also impact the safety culture of an organization.

2.3 Assessment of Patient Safety Culture

The results of the research work by Zboril-Benson and Magee [40] showed that evidence of cultural change is seen in changes in values, attitudes and beliefs of healthcare workers. It is necessary to identify the importance of patient safety culture and acknowledge that growth or improvements in this area can only be captured through robust assessments. Manchester Patient Safety Framework (MaPSaF) was developed for the healthcare sector in the United Kingdom. This framework serves to guide healthcare professionals whose goal is to improve safety and enable them capture more accurately, improvements and gaps where they exist while tracking maturity levels within the organization [80, 81]. Likewise in Canada, the Modified Stanford Instrument (MSI) is used to measure how healthcare workers perceive safety culture within their work environment [82], with an implementation guide that enables the acquisition of accurate data that captures all aspects of culture within the unit or organization being measured. The MSI was designed for use on the whole population within any organization for which it is intended to sample. Capturing the information of an arbitrarily or systematically selected cross section of the population under investigation is not prescribed or advisable when using the survey instrument [82].

Manchester Patient Safety Framework is a tool used to assess patient safety culture, identify gaps, analyse the information, learn from it and assess corrective measures needed. Cooke and partners [83] aimed to create a safe system for clinical practice and developed a framework comprising of different tools and stages, for the improvement and proactive response to safety within healthcare settings as shown in table 2.

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	Dimension	Explanation
1	Overall commitment to quality	How much is invested in developing the quality agenda? What is seen as the main purpose of policies and procedures? What attempts are made to look beyond the practice for collaboration and innovation?
2	Priority given to patient safety	How seriously is the issue of patient safety taken within the practice? Where does responsibility lie for patient safety issues?
3	Perceptions of the causes of patient safety incidents and their identification	What sort of reporting systems are there? How are reports of incidents received? How are incidents viewed, as an opportunity to blame or improve?
4	Investigating patient safety incidents	Who investigates incidents and how are they investigated? What is the aim? Does the practice learn from the event?
5	Team learning following a patient safety incident	What happens after an incident? What mechanisms are in place to learn from the incident? How are changes introduced and evaluated?
6	Communication about safety issues	What communication systems are in place? What are their features? What is the quality of record keeping communicating about safety like?
7	Staff management and safety issues	How are safety issues managed in the practice? How are staff problems managed?
8	Staff education and training about safety issues	How, why and when are education and training programmes about patient safety developed? What do staff think of them?
9	Team working around safety issues	How and why are teams developed? How are teams managed? How much team working is there around patient safety issues?
10	System errors and individual responsibility	How are the reports of incidents received? What sort of reporting systems are there?

Table 2: The dimensions of MaPSaF [83]

The MaPSaF framework dimensions could be regarded as a form of matrix which basically sums up the various levels of patient safety culture in a hospital setting. The different dimension levels were composed by the research team of the University of Manchester which consist of researchers in the fields of health, psychologists and other health professionals [84]. Different attitudes to safety described in this framework range from "pathological," through "reactive," "bureaucratic," "proactive" to "generative" responses [85], as depicted in table 3.

Levels	Descriptions
A – Pathological	Why do we need to waste our time on patient safety issues?
B – Reactive	We take patient safety seriously and do something when we have an incident.
C – Bureaucratic	We have systems in place to manage patient safety.
D – Proactive	We are always on the alert/thinking about patient safety issues that might emerge.
E – Generative	Managing patient safety is an integral part of everything we do.

Table 3: Levels of patient safety culture [85]

The MaPSaF has been expanded on and adapted for use across different units and departments in the health sector. An adaptation of the framework for use in the acute care sector can be found in [80]. The framework enables professionals pinpoint what level of maturity their unit or organization is at and triggers a conversation on the subject; the result of the exercise is an identification of strengths, weakness and areas of improvement while serving as a constant source of assessment of growth or improvement.

The MSI measures three main dimensions of patient safety: "senior leadership support for safety, supervisory leadership support for safety and patient safety learning culture [82]. However, upon revision, another dimension was incorporated into the survey to capture the need to discuss errors within the system.

The MSI is a survey that goes through a range of questions that starts with establishing context and gathering basic information about the responder (understanding the work environment, position or function of the responder), through asking questions that enable the responders to

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share their thoughts on safety, competence, perceptions, influences etc. Through getting the responder to self-assess their unit and organization with respect to how well they feel patient safety is being managed within that unit/organization. Finally, some demographic information about the responder is elicited to enable analysis of the information gleaned from their answers [86]. To enable a systematic and homogenous approach to administering the survey and production of generalizable results, an implementation handbook was also developed to help professionals whose goal is to improve culture within healthcare settings.

3. Methods and Materials

3.1 Integrated literature review

An integrated literature review aims to synthesize and critically analyze a subject in a way that enables the conceptualization of new opinions on the topic under review [87]. Similar to this, Whittemore and Knalf [88] declared that integrated literature reviews enable the summarization of existing data or knowledge to provide a robust understanding of the topic under study. This kind of research entails the use of a search strategy that is detailed, employing a systematic approach to answer the research question by finding studies closely related to the question and analyzing the inherent data [89].

This system of research could be used to answer a varying range of questions from already established research areas to new and evolving areas while maintaining the tenets of rigorous methodical research found in primary research [89]. The most important aspect of an integrated literature review is the breakdown of the evidence inherent in the information or data. This research method was chosen because it enables the synthesis of any subject under study irrespective of its age [87, 89].

For the literature review, the relevance of the articles was determined based on their connection to the research question. The determination of the extent to which the research was evidence based depended on whether the study was published in a scientific journal.

3.2 Data retrieval and search strategy

A general electronic search was performed across several databases including PubMed/MEDLINE (NLM), Oxford journals, Elsevier (ScienceDirect Journals) and Health Reference Center Academic (GALE). Queries centered on organizational culture, patient safety, patient safety culture, adverse events in healthcare, MSI, MaPSaF and safety culture in healthcare. The queries were then narrowed down to 'patient safety culture AND Canada or United Kingdom.'Also, an additional manual search was carried out on the sites of various international and national agencies that specializes in safety care, which includes the likes of the WHO, the National Patient Safety Agency (NPSA) and the Agency for Healthcare Research and Quality (AHRQ).

Articles were selected based on if the abstract addressed the subject of this research and year of publication. Also, some articles that could not be accessed were left out. All published articles, abstracts, books or their previews, letters, and reviews relevant to the subject were selected and then included or excluded based on pre-established criteria: patient safety culture, English language, from year 2005 to 2018, healthcare, MaPSaF, MSI.

For the data analysis, a Boolean search was conducted to get more specific results related to the subject matter. For each searched term, the title as well as the abstract for the articles retrieved were reviewed to examine its relevance to the subject, presence of the keywords to determine inclusion or exclusion. All articles selected for review were in English language and from 2005 to 2018 respectively.

When writing an evidence-based medicine (EBM) paper, it is usually suggested that the writer formulates some type of scientific questions in terms of population/patient, intervention, comparison, and outcome which makes up a (PICO) frame when put together [90]. Medicine is a field that has a long history of researching new and modern techniques of solving health problems as well as finding measures of keeping the human populace free from harmful diseases. Under the PICO process, study questions are usually categorised into groups that is highly effective for categorising some key context in order to answer health related questions [91].

As illustrated below in table 4, population/patient question was 'who are the patient'? The intervention question is, 'what is planned for the patient/population. That is, what needs to be tackled'? Patient safety, patient care, adverse events, errors and safe patients are the target group. Under the comparison frame, 'what alternatives are being considered'? Cultural assessment within the healthcare, healthcare organization, Manchester patient safety framework and modified standard instrument are frameworks used in both the Canadian and United Kingdom health services respectively. Finally, the outcome question is, 'what I wish to achieve'? For this, it is the safety culture, safety perspectives, safety values, safe culture, safety beliefs and perception.

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P= Healthcare professional	I= Patient Safety	C= Cultural assessment	O= Safety culture
Care giver Health worke Health Professional Healthcare Worker	Safe patient Adverse events Errors Patient care Safe care Patient safety	Healthcare Healthcare Organization MSI MaPSaF Canada United Kingdom	Safety perspectives Safety values Safety beliefs Perception Safe culture

OR

OR

OR

OR

AND

AND

AND

Table 4: Search query

The search query below was formulated and used based on the above search query:
(caregiver OR health worker OR health professional OR healthcare worker)
AND
(safe patient OR adverse events OR errors OR patient care OR safe care OR patient safety)
AND
(healthcare OR organization OR cultural assessment OR MaPSaF OR MSI)
AND
(safety perspectives OR safety values OR safety beliefs OR perception OR safe culture)

As stated earlier, several databases such as PubMed, Elsevier were searched to identify articles of most relevance to the topic. Search terms included patient safety, patient safety culture, healthcare, MaPSaf, MSI. To be eligible, the articles were included if it mentioned patient safety, safety culture and/or healthcare assessment.

The final searches yielded a total of 3,914 articles as shown in the flow chart (Figure 3) below. After 820 duplicates were excluded, a total 3,094 were screened based on their abstracts and titles. From these, 2120 were rejected as they did not meet inclusion criteria (both abstract and title information).

This resulted in 974 full text articles eligible for assessment, out of these a total of 971 did not make the final inclusion criteria due to absolute use of MSI and MaPSaF assessment tools.Although the number of articles retrieved from different databases searched was over 3,000 (Figure 3), only three (3) articles were

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finally included for the analysis due to the strict inclusion conditions and criteria for articles selection. Table 5 shows a synthesis of the three studies chosen for the overall assessment.

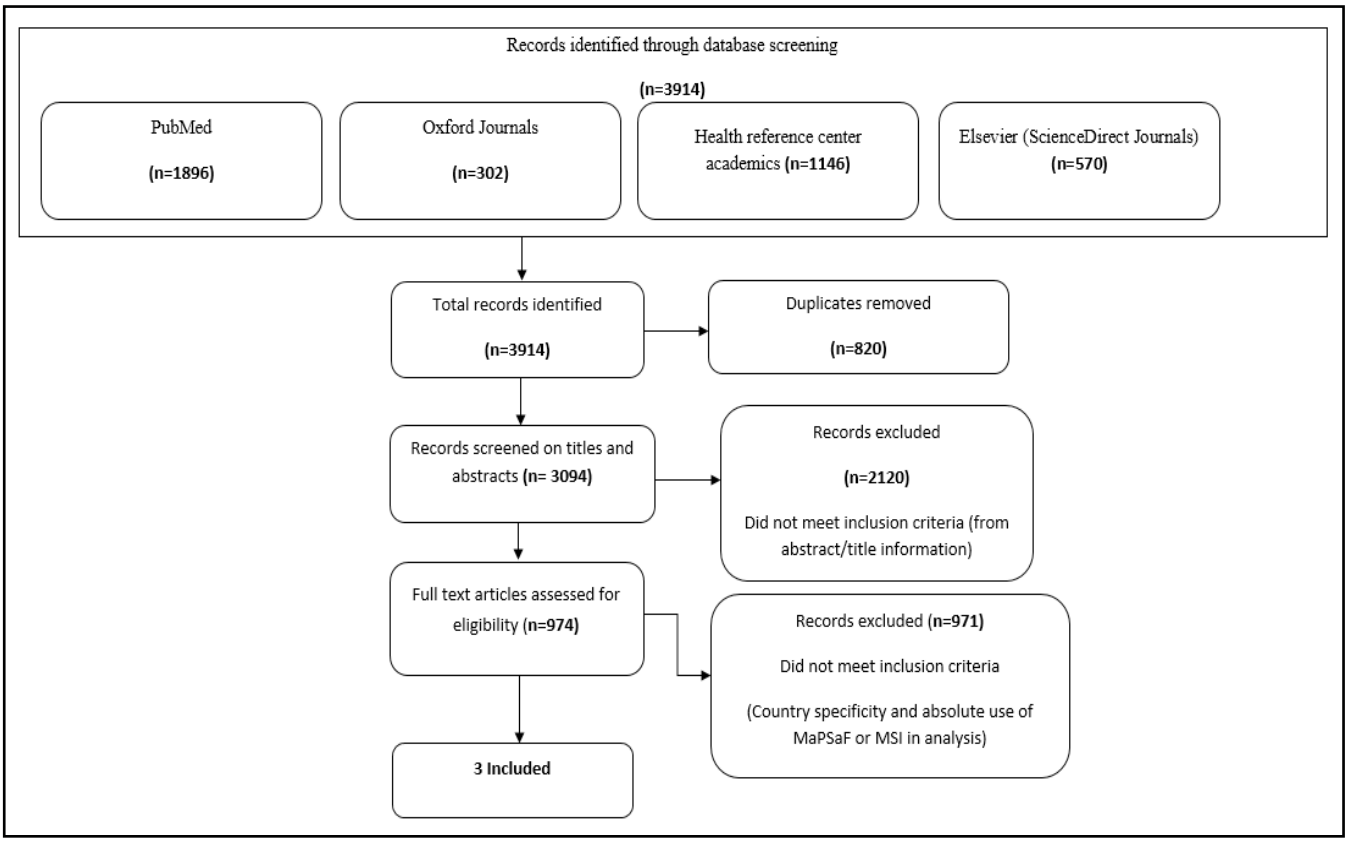

Figure 3: Flow chart of the included studies.

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Title of Article	Document type	Source authors and Citation	Keywords	Country MaPSaF Instrument
Perceptions of Patient Safety Culture in Four Health Regions	Research paper	Ginsburg LR (2006). Perceptions of patient safety culture in four health regions. School of Health Policy & Management York University, 1-29.	Safety culture, patient safety, safety perception, healthcare organization	Canada
Perceptions of Patient Safety Culture in Six Canadian Healthcare Organizations	Research paper	Ginsburg, LR, Tregunno D, Flemming M, Flemons W, Gilin D and Fleming M (2007). Perceptions of patient safety culture in six Canadian healthcare organizations. Canadian Patient Safety Institute, 2007. Available at http://www.yorku.ca/patientsafety/psculture/reports_docs/PSC_2007_MainReport.pdf (Assessed July 20, 2019).	Safety culture, patient safety, safety perception, healthcare organization	Canada
Assessing Patient Safety Culture in New Zealand Primary Care: a pilot study using a modified Manchester Patient Safety Framework in Dunedin general practices	Research paper	Wallis K and Dovey S (2011). Assessing patient safety culture in New Zealand primary care: a pilot study using modifies Manchester Patient Safety Framework in Dunedin general practices. Journal of Primary Health Care, 2011, 3(1):35-40.	Family practice; patient safety; primary care; safety culture	New Zealand Priority given to safety; F focuses on the broader notionnotion of safety culture; e learning and effecting ca change and team working.

Table 5: Chosen articles for assessment

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The methodical assessment of the chosen papers was conducted using an evaluation tool developed by [92].

From the study selection process, the three studies in table 5 were chosen. However, during the quality assessment, the two studies [93, 94] were chosen for data analysis of this research paper. The studies were chosen because of their relevance to the research questions.

4. Results

4.1 Main Findings

There is some degree of bias inherent in an integrated literature review because it depends on the researcher's subjective interpretation of the evidence and results in the studies being reviewed. However, bias is controlled in this study by ensuring that emerging theories and concepts can be found in existing research.

This paper sets out to compare perspectives using MaPSaF and MSI respectively. However, due to paucity of data and unavailability of research papers where the instruments discussed were used to assess patient safety perspectives of health professionals, a study conducted in New Zealand that employed the use of MaPSaF is used in the data analysis. While the MaPSaF and MSI are survey instruments used in the UK and Canada respectively, these instruments can be used in different settings as the concepts are universal. Table 6 below highlights the result characteristics of the two studies being analyzed relative to the patient safety assessment tool adopted in the respective countries. A total of six hospitals from various parts of Canada took part in the research which was funded by the Canadian Patient Safety Institute (CPSI) to assess patient safety culture in healthcare organizations. Direct care providers, direct and non-direct care support staff and non-direct care managers were all sent a survey of patient safety culture in healthcare organizations. Staff members in the administrative departments were omitted for the survey. The authors aimed to test its applicability within the New Zealand primary care system.

Characteristic	New Zealand paper using MaPSaF	Canadian paper using MSI
No. of practices	12 general practices	6 Canadian healthcare Organization
Data collection period	Data was collected at Baseline and 3 months later	Data was collected in one attempt
Ethics	No anonymity, however, an external consultant was used to facilitate data collection	Anonymity of respondents was maintained
Data grouping/comparison	Acceptability Applicability Utility (for education) Utility (for team communication	By organization, staff group and sector By individual questions, facility and unit Most important survey questions Performance vs. Importance
Analysis	Qualitative analysis	Quantitative analysis
Survey instrument characteristics	9 dimensions of patient safety concerns across five levels of maturity	5 dimensions of patients safety

Table 6: A comparison characteristic result of both papers (MSI and MaPSaF) [94]

The above table is a comparison of the perspectives adopted in the tools with respect to the dimensions of safety that they aim to assess [94].

Table 7 below lists the various themes within the nine dimensions of safety in MaPSaF and MSI respectively.

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MaPSaF	MSI
Overall commitment to quality	Organizational leadership for safety
Priority given to patient safety	Unit leadership for safety
Perceptions of the causes of patient safety incidents and their identification	Perceived state of safety
Investigating patient safety incidents	Shame and repercussions of reporting
Team learning following a patient safety incident	Safety learning behaviors
Communication about safety issues	Communication quality
Staff management and safety issues	Recruitment and safety issues
Staff education and training about safety risk issues	Risk management development
Team working around safety issues	Team development and management

Table 7: Dimensions of Safety in MaPSaF and MSI [94]

To ensure that the MaPSaF was fit for purpose within the health sector in New Zealand, without altering the concepts in the instrument, some of the terminologies were exchanged for indigenous terminologies to aid better understanding of the questions and the descriptions were shortened (see examples in tables 9 and 10 respectively).

For each dimension, the MaPSaF provided descriptions of organizations at five levels of safety culture maturity. The NZ-MaPSaF was used during practice meetings, at baseline and at three months (see Table 8). Participants were then given time to read the five descriptions for each of the nine dimensions (A, B, C, D and E) and to choose the description that they believed best reflected their practice for each dimension [93].

NZ-MaPSaF Dimension 3: Perceptions of the causes of patient safety incidents and their identification	
Level	Description
A	Incidents are seen as 'bad luck', occurring as a result of staff errors or patient behavior. Ad hoc reporting systems are in place but the practice is largely in 'blissful ignorance' unless serious incidents occur or letters of complaint are received. There is a strong blame culture.
B	The practice sees itself as a victim of circumstances. Individuals are seen as the cause and the solution is 'retraining' and punishment. There is an embryonic reporting system. Minimum data on the incidents is collected but not analyzed. There is a blame culture, so staff are reluctant to report incidents.
C	There is a recognition that 'systems' contribute to incidents and not just individuals. A reporting system is in place. Attempts are made to encourage staff to report incidents (including those that did not lead to harm), though staff do not feel safe reporting the latter.
D	It is accepted that incidents are a combination of individual and system faults. Reporting of patient safety incidents is encouraged and they are seen as learning opportunities although learning is not always disseminated. Accessible, 'staff friendly' electronic reporting methods are used. The practice has an open, fair and collaborative culture.
E	'System' failures are noted, although staff are also aware of their own professional accountability in relation to errors. It is second nature for staff to report patient safety incidents as they have confidence in the investigation process and understand the value of reporting. The practice has a high level of openness and trust.

Table 8: Dimension three described at five levels of safety culture maturity [93]

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Some of the participants selected from small practices considered the systems advocated in the NZ-MaPSaF to be rather unnecessary and could lead to an unfair scoring level (see Table 9 below). Other study practices had processes to involve patients in various safety initiatives, as advocated in the NZ-MaPSaF, and several participants were hesitant of the value of patient involvement and feedback [93].

Dimension 4: Investigating patient safety incidents	
MaPSaF: description (D)	NZ-MaPSaF: description (D)
Investigations occur in order to gain an independent perspective. The staff involved in incidents are involved in their investigation, which uses robust methods like root cause analysis and significant event audit to identify the contributory factors and system problems that led to the incident. The aim of investigations is to learn from incidents and disseminate the findings widely. Data from investigations are used to analyze trends, identify 'hot spots' and examine training implications. It is a forward-looking, open organization. Patients are involved in the investigation process and their perceptions, experience and recommendations are sought.	Investigations occur in order to gain an independent perspective. The staff involved in incidents are involved in their investigation and help to identify the contributory factors and system problems that led to the incident. The aim of investigations is to learn from incidents and disseminate the findings widely.

Table 9. Comparison of MaPSaF and NZ-MaPSaF [93]

Furthermore, while the studies especially the study using the MSI covers a wide range of subjects including organizational perspectives on patient safety, for the purposes of this study, individual responses that show perspectives of healthcare professionals were isolated, analyzed and discussed. The synthesis of information presented in the tables and discussion, were performed using the two articles chosen for this study. A summary of the perspectives on patient safety on the organizational level will be provided from the MSI study. This is because it is the only study that captured that information. The focus of this paper, however, is on the perspectives of healthcare professionals, therefore for both studies; the highlighted observations will focus on individual responses.

Table 10 below shows the amounts of each of the safety culture dimensions by the staff groups. There are some distinct differences between the different groups within the dimension frame. In the supervisory leadership, the clinical care managers tend to give a more positive score compared to nurses and physicians. Within the fear and repercussions dimension, clinical care managers score positively in comparison to the other groups and Emergency Medical Services (EMS) staff scored lower in comparison to health care aides and nurses. On the state of safety dimension, clinical care managers score lower than health care aides, allied and techniciansand support staff. The healthcare aides and support staff feel more positively about the state of safety than most of the clinicians (nurses, physicians and clinical care managers). Finally, in the valuing and safety dimension, physicians and nurses scored lower compared to clinical care managers, healthcare aides and support staff [86].

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Dimension	Perspective
Organizational leadership for safety	On the average most professionals agree that patient safety is a priority, decisions are made by rightly skilled professionals and there is communication up the leadership rank of the organizations. Worthy of note: Nurses think the commitment of leadership to safety is inadequate (at 3.30 mean score, below the overall average of all professionals)
Unit leadership for safety	There is no reward or positive reinforcement for identifying mistakes quickly. Nurses and non-clinical support staff scored the lowest on this dimension, however, overall scores were low across staff groups
State of safety	Some staff groups believe the state of safety to be good enough; however, some questions registered really low scores. Physicians are the most worried about the state of safety.
Shame and repercussion of reporting	Reporting safety issues does not lead to negative consequences for the professional who reports. All professionals agree on this however, based on individual scores, EMS staff and non-clinical staff scored the lowest in this dimension
Safety learning behavior	While professionals think that incidents are reported and captured as necessary, they do not think that patients are carried along in the investigative and solution finding process. There is also no formal structured system of disclosure of adverse events that enables provision of support to all stakeholders involved. However, nurses and EMS staff think the lowest of learning behaviors within their organization in general.

Table 10: Individual perspectives of patient safety culture using the MSI

The study in New Zealand using the MaPSaF was administered at baseline and after three months. Therefore, the perspectives shared in Table 9 were collected after three months. This allowed the professionals to think about the subject and its ramifications and express their opinions with respect to their specific work environment.

Table 11 is the New Zealand staff perspectives of MaPSaF study with regards to patient safety. It shows the various responses of the staff members within each domain frame.

Domain	Staff perspectives
Communication	Discussing patient safety enabled more open communication between teams and helped them share their concerns
Response to error	People tend to be defensive about errors and concerns were raised about how to overcome this
Quality	It started conversations on how patient safety should be incorporated into daily practice to improve patient safety culture.
Learning	It enabled participants draw a distinction between patient safety and occupational health and safety
Patient involvement	Some professionals thought patient involvement in patient safety improvement was unnecessary and unproductive.
Utility of the instrument	Professionals in smaller practices felt the tool was a bit excessive and could lead to unfair scores
Utility: regular usage	Time constraints might hinder the ability of professionals to run the NZ-MaPSaF process

Table 11: Staff perspectives of patient safety from MaPSaF [93]

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Opportunities identified for improvement in order of importance from highest to lowest are:

* Most care professionals did not think that healthcare errors posed a significant risk to patients.
* Most professionals did not think that errors were unreported.
* The lack of a system of reward or positive reinforcement for professionals who report safety issues and take quick action.
* The involvement of patients and their family members in the investigation and solution seeking effort following an adverse event.
* The belief that loss of experienced staff does not have a negative effect on their ability to perform their duties. The lack of a formal process for disclosing adverse events that involves patients and their families.
* The lack of balance between patient safety and the need for productivity.
* Senior management lack a clear picture of risks associated with patient care.
* Senior management does not take patient safety into consideration when discussing program change.

5. Discussion

5.1 Validity and reliability of the study

Even though the tools were designed and made for a specific region healthcare system, its usability and relevance at some other location could be a welcomed development. Although, tests to this effect are yet to be carried out. It is possible that more comparative published test results in scientific papers with focus on patient safety may have been omitted.

The MaPSaF tool is broadly used in the United Kingdom with some North American usage as well, its usage and results are not well published thereby giving it very minimal recognition. Moreover, some tools that are validated in the United States tend to have negative effects when applied in the United Kingdom. Sharing and making such results known to other healthcare organizations in other parts of the globe will aid in promoting a healthier patient safety concept. It would be good to have such results published in good scientific papers and journals.

Also, there is room for improvement in the findings within the patient safety culture context where underreporting of patient safety incidents by nurses or top medical staff poses a significant threat to the general system, such information too should be made readily available in evidence based scientific journals.

The use of the patient safety culture survey instruments triggered a conversation on the subject. These conversations as admitted by the healthcare professionals in both studies, call the issue to mind and raise the bar with respect to how much attention is paid to the subject [95].

Improved communication between teams will enable better information sharing. This will positively impact on the ability of the organization to always have a clear picture of concerns and situations and work to improve them. Open communication between teams also means that subcultures which may be negative or divergent from the organization's goals are not formed within the organization. This is important because different groups of employees were shown to have different opinions of the same topic. For example, nurses have a low perception of safety leadership both in the organization as a whole and in the unit, while non-clinical managers thought the most of leadership as shown in the Canadian study [86, 94].

Defensiveness in the face of an adverse event could serve to hinder a thorough investigation that enables lessons to be learnt for continuous improvement. Small practices tend to have informal conversations around a tea table for example and so found the tool excessive. However, with use and consistent reinforcement, they can learn the need for a system of measurement that enables them measure growth and pinpoint areas of improvement [96].

In seeking a solution to the challenges and inherent risks in the provision of care to patients, holistic approaches that cover the life span of care provision is necessary for proper management of associated risks and patient safety [32]. The release of the World Alliance for Patient Safety: Forward Program 2006-2007 [97], described exact action areas in patient safety; and these actions include:

I. To stir a global patient safety challenge.
II. Making certain that patients/consumers are fully involved, and their voices are being heard.
III. Paying attention to reporting and learning.
IV. Promoting a taxonomy for patient safety.
V. Promoting research in patient safety.
VI. Translating knowledge into practical safety solutions.
VII. Spreading best practices for change in improving patient safety.
VIII. Concentrating on the opportunities for technology to improve patient safety.
IX. Paying attention on the care of acutely ill patients and
X. Sharing knowledge amongst member states and foreign allies.

In high risks industries, a focus on safety culture helped curb and control the prevalence of adverse events; this approach has been identified as important and necessary if improvements are to be seen in healthcare [36].

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5.2 Discussion of study finding

It is opined that the culture of an organization shapes the performance of that organization; safety is not exempted from this theory. While it is easier to scientifically show the impact of human factors in the performance of an organization, it is difficult to adopt a scientific approach in establishing the link between culture and performance [53].

However, the administration of these tools to measure culture enables it to be assessed in a way that improves performance with respect to patient safety. Some practices in New Zealand were shown to have made changes that enabled them to get a clearer picture of patient safety within practice and started efforts towards improvements [93].

Some misconceptions can only be corrected through practice and open conversations on the subject. Some professionals who thought it unproductive and unnecessary to carry patients along inpatient safety conversations especially as it concerns incidents involving them, can learn its importance from practice and more interactions with professionals in the field [98].

The survey instruments differed in their approach and dimensions. However, exploration of data from the studies analyzed in this paper shows that patient safety culture is an integral part of service provision, with similar challenges across board. The surveys shed light on areas of ignorance. For example, in the New Zealand study, professionals learnt a clear distinction between patient safety and occupational health and safety while the Canadian study revealed the ignorance of the professionals with respect to reporting and the risk to patients associated with adverse events [86, 93, 94].

The use of the national instruments for cultural assessment in the health sector of Canada and the United Kingdom is growing. However, there is paucity in the availability of studies that have assessed culture using these instruments. Creating insight in the use of these instruments could serve to increase awareness and adoption of these tools in tackling the challenge of increase awareness of safety in patient care [86, 93, 94].

Assessment of safety in the provision of care within the primary care environment focuses on communication systems, professional networks and administrative structures while dealing mostly with undiagnosed cases [85]. However, in the acute care sector, provision of care focuses on medication and inherent risks, falls and infections contracted in the hospital while risks to patient safety are usually associated with communication, administrative and issues with managing long-term medication respectively [99].

WHO in their Patient Safety Report [57] continues to encourage research for continuous improvement in patient safety in healthcare and the need to eradicate blame in incident reporting as this has the ability to hinder learning and growth.

6. Conclusions

Adverse events are a problem caused by individual or systemic organizational factors, or occupational factors (relating to occupational health and safety). A blend of both active and inactive failures tends to act together which eventually lead to adverse events. However, interaction between cultural factors e.g., approach to learning and incidents and inactive organizational factors could act as a defence to adverse events. Adverse events lead to high morbidity, mortality, pain, suffering, loss and accompanying economic consequences. Reducing the risk of harm in the provision of care is the basic tenet of patient safety. However, approach to incidents, embedded in the culture of that organizational setting determines the rate of improvement.

It has been established that a culture of punishment and blaming/individual accountability serves to create a disabling environment for improvements in safety culture. The use of the survey instruments in healthcare settings is valuable for the quality and facilitation of change within healthcare setting. Safety assessment of care within the healthcare environment targets on professional networks, administrative structures and communication systems whilst dealing with various undiagnosed cases.

6.1 Summary of the study

The incidence of adverse events in healthcare is a global problem with negative consequences for all stakeholders including patients, their family members, health professionals and the government. Patient safety and patient safety culture lies at the forefront of all adverse events within healthcare settings. The culture of any organization determines its approach to problem solving and determines how individuals within that setting work; this is also true for patient safety culture and the reduction of adverse events within healthcare organizations. The main aim of this study is to view cultural management systems and frameworks of MaPSaF and MSI within the healthcare industry as well as the fundamental roles which medical personnel play within the healthcare sector. Various strategies are included in the promotion of patient safety and it all boils down to the exact type of framework tools or type of shared cultural management style that each health department adopts within its organization.

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6.2 Key findings

Management systems or frameworks in patient safety management is an essential aspect of the healthcare industry where a predefined set of outcomes gives room for feedback between the management and clinicians which aids in carrying out their tasks more diligently and efficiently. In the past, patient safety management was more about recognising and averting various forms of mistake. In the 1990's for instance, more research had gone into diagnosing factors with compelling effects in error creation [48].

With the development and adaptation of various assessment tools being used in different countries' healthcare system, it is suitable to say that the culture of an organisation and staff attitudes can have a tangible impact on safety processes and ultimately patient outcomes [100]. Zohar et al. [101] claims that patient safety climate is a related term often inadvertently used interchangeably with culture-that refers specifically to shared perceptions or attitudes about the norms, policies and procedures related to patient safety among members of a group (for example, care team, unit, service, department, or organization).

6.3 Evaluation of the study and future study research

Making a study evaluation regarding the term 'cultural management' in the study context had its challenges in the sense that various groups and schools of thought gave a wide range of definitions. Also, safety within the healthcare system tend to differ from safety within the manufacturing, aviation, or other sectors.

The study main focus was to assess and understand the importance of patient safety culture as well as the impact level that culture management plays on the safety of patients in healthcare. The research was conducted via a literature review-where several articles existed on different matters concerning patient safety. Several tools were developed over the years by a series of researchers with regards to how best to promote patient safety in different health climates. Two measurement frameworks were compared, MSI and MaPSaF respectively. These two frameworks are predominantly used in Canada and the United Kingdom healthcare systems, even though both are members of the commonwealth states, both tools differ in carrying out the assessment of patient safety. Measurement and feedback are totally necessary and need to be encouraged amongst all the participants within the health sector.

The opinions and characteristics of healthcare personnel vary greatly within each individual framework dimensions and this tends to give some contrasting outcomes in the overall managerial setting within the organization. There should be room for both patients and family members to step out of the passive role and have a say about their treatment patterns.

Managerial leadership is a research area that is not so studied in healthcare compared to other industry like aviation or industry sector for example. A need for more published studies cannot be over emphasized.

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Competing interests

Authors declare no conflict of interest.

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