TeamSTEPPS and Organizational Culture

by

Amelia Quinto

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Dissertation

Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Liberty University, School of Business

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Abstract

Patient safety issues remain despite several strategies developed for their deterrence. While many safety initiatives bring about improvement, they are repeatedly unsustainable and short-lived. The index hospital's goal was to build an organizational culture within a groundwork that improves teamwork and continuing healthcare team engagement. Teamwork influences the efficiency of patient care, patient safety, and clinical outcomes, as it has been identified as an approach for enhancing collaboration, decreasing medical errors, and building a culture of safety in healthcare. The facility implemented Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS), an evidence-based framework which was used for team training to produce valuable and needed changes, facilitating modification of organizational culture, increasing patient safety compliance, or solving particular issues. This study aimed to identify the correlation between TeamSTEPPS enactment and improved organizational culture in the ambulatory care nursing department of a New York City public hospital.

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Dedication

Dedicated to my family, friends, classmates, and teachers who instilled in me that it is never too late nor too early to pursue your passions.

Acknowledgments

Words cannot express my gratefulness to my dissertation chair, my committee reviewer, and my administrative reviewer for their invaluable guidance, patience, and feedback. I also could not have accomplished this gargantuan task without my doctorate professors who generously provided their expertise. Additionally, this endeavor would not have been possible without the support from this study's participants and their supervisors.

I am also grateful to my virtual classmates for their help, occasional feedback conferences, and moral support. My appreciation also goes to the myriad online personnel from Liberty University who impacted and inspired me. Lastly, I thank my family, especially my parents, siblings, spouse, and children. Their confidence in me has kept my motivation during this educational process.

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Section 1: Foundation of the Study

Health systems capitalize heavily on quality improvement initiatives, which consist of continuing patient outcomes monitoring and process improvement development as required. Even with several patient safety procedures, avoidable adverse events continued to emerge, and advances were frequently short-term and unsustainable (Bajracharya et al., 2019). However, there is an indication that effective teamwork processes and training improve team dimensions and, ultimately, safety and organizational culture (Malik et al., 2020; Potnuru et al., 2019).

The concept of culture plays a central role in quality improvement methods (Linnander et al., 2021; Malik et al., 2020). The groundwork of any quality improvement initiative is to foster a quality culture or mindset and integrate it throughout the organization. Health care teams comprise multiple subcultures, which may drive change or undermine quality improvement initiatives. Experts agree that teams can improve organizational culture and patient safety measures via team training by developing their expertise, competencies, and attitudes (Parker et al., 2019).

A sound safety culture ensures that health care teams commit to their roles and report unsafe conditions, unacceptable behaviors, and errors (Harolds, 2021). This strategy considers the association between solid safety culture and better patient outcomes. One route of evaluating and managing health care culture issues is to emphasize specific measures to gauge the ubiquitous organizational culture within a performance realm, such as patient safety. Such metrics may detect circumstances calling for managed change, and constant measurement may scale development against cultural targets, expecting that care improvements occur (Bartlett et al., 2019; Malik et al., 2020).

TeamSTEPPS is a positive team-training program assessed by numerous health care facilities. Still, team training alone may not produce the projected organizational outcomes. A study revealed that team training is a factor in team performance inconsistency (Costar & Hall, 2020). Subsequently, the principal determining factor of team performance is what an institution can do to keep up or systematize team behaviors. There are no thorough assessments of the relationship between team training on safety and organizational culture (Garavan et al., 2021; Shahriari & Allameh, 2020); moreover, there are inadequate statistics on its value in public hospitals.

Background of the Problem

The Institute of Medicine (IOM) has underlined the significance of establishing a safety culture in health care organizations (Upadhyay et al., 2020). Safety culture results from group and individual values, mindsets, insights, competencies, and behavior patterns that define a facility's commitment, style, and safety management proficiency (Harolds, 2021). Various health care teams and health care delivery comprise different professions and organizational divisions. Therefore, the stimulus of group principles, insights, and actions can play a more significant part than an individual health care worker's role in improving the quality of care.

Additionally, organizational culture signifies a company's shared beliefs, norms, attitudes, and behaviors, reflecting a member's ideals, vision, objectives, structures, purposes, guidelines, and practices (Woodhead et al., 2021). An establishment's culture matures over time as it safeguards members' conformance to the central models and inculcates new personnel. In conjunction with external aspects such as business and legal relations, internal factors such as leadership, people, and interaction influence the organization's culture (Pavithra, 2022;

Woodhead et al., 2021). It takes a concerted effort to change the culture to cause any substantial change to the organizational systems.

After the IOM report, several scholars published safety culture, patient safety, and quality of care literature reviews. However, these analyses have focused on reviewing measures and dimensions of the concept of safety culture (Lee, McFadden, et al., 2021; Profit et al., 2020) rather than on the association between TeamSTEPPS training, organizational goals, and safety culture. Remarkably, the articles sought out strategies to influence culture. However, evidence of the effectiveness of team training interventions and their link to patient safety and organizational culture remains limited.

Problem Statement

The general problem involves the challenges encountered by healthcare leaders to detect strengths and weaknesses in executing and upholding a vigorous TeamSTEPPS initiative resulting in the lack of data measuring the relationship between TeamSTEPPS training, organizational culture, and patient safety culture. Researchers have demonstrated that healthcare teams lacking expertise, competencies, and attitudes can negatively impact organizational culture and patient safety compliance (Parker et al., 2019). Furthermore, healthcare personnel who do not commit to their roles and report unsafe conditions, unacceptable behaviors, and errors do not demonstrate conformity with safety culture guidelines (Harolds, 2021).

Implementation barriers remain challenging, including the considerable resources required to deliver teamwork training (Parker et al., 2019). The common challenges that hinder TeamSTEPPS from attaining its optimal potential involve inadequate administrative backing or lack of resources and developmental focus to concentrate on hierarchal variances and discourtesy at all echelons of healthcare administration and practice (Baloh et al., 2021). Moreover, studies

identified other implementation barriers, such as ineffective TeamSTEPPS education, inadequate simulation techniques, and personnel's counteraction to change (Shen et al., 2020).

Experts aim to identify the best way to execute and sustain TeamSTEPPS in diverse spheres (Shen et al., 2020). The specific problem to be addressed involves the potential challenges encountered by healthcare leaders to identify strengths and weaknesses in implementing and sustaining a robust TeamSTEPPS program resulting in the lack of data measuring the relationship between TeamSTEPPS, patient safety culture, and organizational culture within a New York City public hospital.

Purpose Statement

This quantitative correlational study links the TeamSTEPPS approach to patient safety culture to create highly efficient medical teams that accomplish the safest patient care, ultimately transforming organizational culture in a New York City public hospital. Program evaluation provides feedback on results, accomplishments, or impact to inform policymakers and administrators about its usefulness. Furthermore, these metrics offer clear guidance on maintaining and improving its TeamSTEPPS implementation to develop patient safety and organizational culture.

Although patient safety has focused on continuous improvement, building on various demands for action, there are rising demands for healthcare quality improvement (QI) initiatives (Harolds, 2021). Various interferences utilized in QI programs strongly emphasize collaboration and communication dynamics. Still, in the face of extensive attempts and some encouraging outcomes, experts report that QI initiatives' accomplishments are primarily considered transitory, insufficiently resolving multifaceted, obstinate, and profoundly ingrained safety and quality challenges (Wong et al., 2020).

In addition to business processes in health care delivery, regular expert logistics and interdisciplinary team practices encompass many factors. These aspects frequently reveal the local culture and people's beliefs. Consequently, valuable change initiatives necessitate a blend of interventions on numerous levels and issues, resulting in the local perspective of intertwined practices and behaviors in conjunction with the change management strategies (Baloh et al., 2021; Shen et al., 2020).

This study's coverage involves TeamSTEPPS implementation in a Brooklyn, New York City public hospital. The subject facility primarily conducts TeamSTEPPS training during the orientation phase and administers annual competencies for all staff members. This institution's leadership expects all personnel to advance patient safety and healthcare quality through TeamSTEPPS implementation. This index hospital initially implements TeamSTEPPS through new employee orientation simultaneously in different departments, with multi-disciplinary physicians, nurses, and other affiliated health care specialists. Subsequently, annual employee aptitudes are mandated to ensure continuous competencies.

Research Questions

Researchers use quantitative research methods to identify the involvement, tendencies, and underlying relationships between two or more variables. The author used quantitative relationship questions to find the variables' association, predispositions, and inherent links within the study's topic. The following research questions seek the relationship between team training, safety culture, and organizational culture:

RQ1: What is the relationship between TeamSTEPPS implementation and improved patient safety culture?

RQ2: What is the relationship between leadership's support for culture change and the institution's effort to execute and maintain a robust TeamSTEPPS program?

RQ3: What is the relationship between a healthcare facility's inclination to embark on a TeamSTEPPS initiative and the need to improve its safety culture?

RQ4: What is the relationship between an organization's willingness to measure and assess TeamSTEPPS progress and its sustenance of a robust TeamSTEPPS program?

TeamSTEPPS embodies a practical methodology for developing effective communication and collaboration within health care organizations. RQ1 finds the correlation between improved patient safety culture and TeamSTEPPS implementation. Sub-questions involve ascertaining the correlation between culture change and TeamSTEPPS knowledge, skills, and attitudes. Researchers concur that teamwork is a necessary patient safety dynamism, deemed vital for upholding quality health care to prevent and reduce medical errors (Harolds, 2021). An institution focusing on teamwork and safety can almost certainly achieve more from a TeamSTEPPS intervention than an institution that does not seek change.

TeamSTEPPS intends to provide tools and prepare institutions to improve their process delivery systems. A facility must quickly modify its practices and ethos to expand collaboration and sustain patient safety. The desired outcomes include accepting the demand for change, forming a culture consenting to change, and encouraging changes in staff strategies and health care delivery practices (Staines et al., 2020). These changes support workers' self-sufficiency and foresight, enabling them to utilize team-driven decisions.

RQ2 seeks to find the correlation between an institution's determination to implement and maintain an effective TeamSTEPPS program and its leadership's buy-in for culture change. Administrative leaders must sponsor teamwork training. They need to acknowledge the

initiative's constraints to reinforce the developmental concepts, such as preparation and education, ongoing coaching, and continuing team meetings. Furthermore, health care facilities must provide the necessary personnel, schedule, and resources support to execute and maintain the program productively. Leaders must understand their responsibility as sponsors. They must assess, facilitate, or adjust the behaviors necessary to construct and withstand the preferred patient safety or teamwork performance modifications (Baloh et al., 2021).

Any health care facility certain to take on a TeamSTEPPS program must have objective and satisfactory data to confirm the need for improving specific units (Wong et al., 2020). For instance, numerous sources such as adverse events, near-miss or good catch reports, root cause investigations, or failure modes and effects analyses provide factual information. Also, administering patient safety culture surveys, staff or patient satisfaction assessments, and gauging unit-specific procedures and outcome measures such as patient flow, infection control rates, and avoidable deaths offer statistics to support the implementation of TeamSTEPPS.

RQ3 seeks to find the correlation between a facility's demand for cultivating its safety culture and its predisposition to undergo a TeamSTEPPS program. Organizations must consider culture change as a course of action rather than a mere event (Andres et al., 2019). Thus, institutions must continuously measure the accomplishment of their team training intervention. This practice verifies effective interventions and ascertains the need for additional staff support or program modification. Likewise, this process entails determining additional patient safety and quality improvement measures (Parker et al., 2019). After recognizing the improvement prospects, facilities need to implement adjustments to revolve around the TeamSTEPPS initiative.

RQ4 seeks to find the correlation between sustaining an organization's robust TeamSTEPPS program and its commitment to evaluating and reviewing its progress. Health care institutions must underpin the positive effects and process improvements, rewarding positive teamwork behaviors and incorporating them into practice (Costar & Hall, 2020). Leaders, team-training champions, trainers, and coaches should recommend continuing feedback within the institution. Leaders must appropriately acknowledge and display their teams' accomplishments, as these activities strengthen the drive to support teamwork and safety culture.

Hypotheses

Hypotheses are assumptions based on some evidence. This research element is the preliminary argument of any investigation that renders the research questions into a prediction (Lund, 2021). It includes the population, variables, and the relationship between the variables. Moreover, a hypothesis tests the relationship between two or more variables. The null hypothesis provides a statement contrary to the hypothesis, affirming no relationship between independent and dependent variables. The following lists the null and alternative hypotheses for all the research questions:

$H1_0$ (Null hypothesis for RQ1): There is no significant correlation between improved patient safety culture and TeamSTEPPS implementation.

$H1_\alpha$ (Alternative hypothesis for RQ1): There is a significant correlation between improved patient safety culture and TeamSTEPPS implementation.

$H2_0$ (Null hypothesis for RQ2): There is no significant correlation between an institution's determination to implement and maintain a robust TeamSTEPPS program and its leadership's buy-in for culture change.

$H2_{\alpha}$ (Alternative hypothesis for RQ2): There is a significant correlation between an institution's determination to implement and maintain a robust TeamSTEPPS program and its leadership's buy-in for culture change.

$H3_0$ (Null hypothesis for RQ3): There is no significant correlation between a facility's need to cultivate its safety culture and its predisposition to undergo a TeamSTEPPS program.

$H3_{\alpha}$ (Alternative hypothesis for RQ3): There is a significant correlation between a facility's need to cultivate its safety culture and its predisposition to undergo a TeamSTEPPS program.

$H4_0$ (Null hypothesis for RQ4): There is no significant correlation between sustaining an organization's robust TeamSTEPPS program and its commitment to evaluate and review its progress.

$H4_{\alpha}$ (Alternative hypothesis for RQ4): There is a significant correlation between sustaining an organization's robust TeamSTEPPS program and its commitment to evaluating and reviewing its progress.

Nature of the Study

One of the desirable essentials for successful research is selecting the appropriate methodologies. The author used a quantitative correlational study to find the connection between TeamSTEPPS, organizational culture, and safety culture. The nature of this study encompasses a description of the sample and the process used in data collection. It explains the sources and tools utilized in resolving the research questions. Consequently, the results of the quantitative analysis specify the correlation among the various variables in a specific population (Zyphur & Pierides, 2020).

The general purpose of a quantitative study is to generate knowledge and create understanding about a specific sphere (Cortina, 2020). The quantitative analysis process seeks to account for the numerous expectations established in a given research. Moreover, quantitative research entails quantifiable data gathering, analysis, and interpretation to verify the study's developed assumption. Quantitative research likewise determines a situation's occurrence rate or its effects on the sample population (Zyphur & Pierides, 2020).

Quantitative research aims to explain the fundamental issues more comprehensively due to their development from a general perspective (Faems, 2020). Quantitative studies highlight objective metrics. For instance, surveys, feedback forms, opinion polls, or manipulating pre-existing statistical information using computational systems collect mathematical, statistical, or numerical data analysis. This study collects numerical data and generalizes them within various teams upon undergoing TeamSTEPPS training.

Discussion of Research Paradigms

The research community verifies research paradigms, which have been in practice for several years. Most research paradigms emerge from the positivist or interpretivist approaches (Park et al., 2020; Turyahikayo, 2021). Every study applies one of the research models as a parameter for developing its methodology, ensuring the research venture's validity and appropriateness.

Positivism. Most quantitative studies apply positivism as a theoretical framework. Accordingly, experts prefer to use positivism in pure sciences due to its experiential nature to investigate facts (Cortina, 2020). Quantitative research reflects a probabilistic prototype defined by earlier research (Turyahikayo, 2021).

When dealing with social and behavioral sciences, quantitative scholars concurred that human behaviors could be explored and predicted quantitatively (Park et al., 2020). They believe in the capacity to explain behavior using a scientific method. Proponents trust that a study's findings can be generalized to similar research irrespective of the environment and situation.

Positivists held that science serves as an instrument for unraveling the truth. Positivism underlines a scientific inquiry's reliance on measurable and observable shreds of evidence instead of individual experiences (Nyein et al., 2020). Consistent with this epistemological standpoint, scholars obtain knowledge through sensory information. Thus, this does not qualify as knowledge if expertise involves personal boundaries.

The principle for assessing a scientific theory's validity lies in the consistency between the researcher's knowledge claims or theory-based predictions and the information they acquire using their senses. The positivist model states that actual occurrences can be empirically observed and logically explained. The positivist research method, also known as methodological individualism, underlines testing in a laboratory-like setting that decreases the convolution of the external environment (Park et al., 2020).

Experts recognize that the positivist stance yields greater internal validity (Turyahikayo, 2021), which means the experimental observations are valid within a given framework. On the other hand, although the outcomes attained from experimental approaches offer valued insights into the nature of reality, they may lack external validity. Thus, laboratory observations may parallel the more intricate external sphere where more influences interact.

Interpretative. Most qualitative studies involving the social sciences utilize the interpretative research method. Interpretivism accepts that human behavior is multidimensional and not pre-defined by probabilistic representations (Bergen & Labonté, 2020; Frechette et al.,

2020). This paradigm depends on the situation, primarily ascertained by environmental components other than inherent factors. Human behavior is distinct from an easily controlled scientific variable. Numerous factors are primarily subjective and may affect human behavior. Therefore, interpretivism more willingly studies human behavior in daily life than in the controlled milieu.

The interpretative research archetype understands the link between scientific knowledge and reality. This scientific prototype involves qualitative research, seeking an exhaustive study to understand its topic fully. Rather than merely seeking general and causal accounts, interpretivism grounds an innate sense of reality and its underlying causes. Hence, interpretative research is divergent from the quantitative pattern, more evident in pure sciences (Frechette et al., 2020; Howard-Grenville et al., 2021).

For interpretative scientists, any research affects the principles and perspectives of the individual investigator (Darby et al., 2019). This paradigm represents the disciplines that study human beings, such as sociology, anthropology, and psychology. Apart from other quantitative research, Interpretative studies do not pursue general explanations for occurrences based on particular cases. Alternatively, its principal intention is to comprehend the object of study through observation principally.

The supporters of the interpretive paradigm perceive reality as relatively changing and dynamic (Darby et al., 2019). They counter the positivists' assumptions which strive to see the reality before forming projections. Consequently, researchers place a greater emphasis on practice than theory, as this paradigm characteristically does not devise prominent theoretical figures to account for reality. The interpretive concept merely endeavors to uncover the truth.

Post-Positivism. This study applied the post-positivism concept developed from the positivist model. It considers the bias of reality, pulling away from the neutral position assumed by the logical positivists (Tanlaka et al., 2019). Post-positivists refuse the notion that an individual can view the world entirely as it is. Though positivists believe that the investigator and the study participant are separate, post-positivists acknowledge that the scholar's assumptions, experiences, values, and knowledge can affect an observation. Therefore, post-positivists defend imperfect knowledge, justifying that truth comes from an inferior source (Tanlaka et al., 2019).

Experts agree that while positivist principles such as realism and liberalism focus on exercising power, post-positivist approaches underline the experience of power, converging on distinct agents and subject matters (Ellaway et al., 2020). The post-positivist systems' limitations generally ascribe to their participatory and interactive nature. Purposely, scholars performing these studies situate close to the inquiry setting.

Experts analyze positivism and post-positivism as independent perspectives from philosophies involving scientific inquiry (Deal et al., 2021). Positivism centers on empiricism, accentuating the significance of objectivity and the necessity of studying discernible elements. Contrariwise, the post-positivist attitude rejects positivism and introduces new ideas to unravel the truth. The underlying argument of positivism and post-positivism establishes their differences, setting them apart.

While positivism and post-positivism are grounded in objectivity, they have substantial distinctions. Post-positivists presume that researchers are prejudiced due to their cultural philosophies and cannot attain pure neutrality. Post-positivists suggest that observations are subject to error and unreliable. Experts regard post-positivists as critical realists who do not

count on a single scientific inquiry method, as they assume that every methodology can have inaccuracies (Deal et al., 2021; Young & Ryan, 2020).

The author's paradigm identifies with post-positivism because it influences the researcher's input reception and personal interpretation. Merely thinking that one possesses an objective viewpoint does not make it so. The author believes that everything one sees, hears, and experiences inevitably distort one's unique reference frame without any mindful grasp of the process. Essentially, the author believes that any task completion in research depends on one's version of the truth.

All individuals have diverse life encounters, special relationships, and unique insights influencing their viewpoints. While a researcher tries to become empirical, defining his surroundings is subjective objectivity. Thus, a post-positivist stance explains why different people who see or hear the same phenomenon have a distinct impression of their experience.

Discussion of Design

Research designs are valuable in limiting inaccuracies and supporting a study's optimum reliability (Duckett, 2021). These designs gather essential study resources, offering valuable conceptions of the tools needed for the desired research subject. Appropriately, research designs lead the inquiry in the right direction. Qualitative, quantitative, and mixed approaches are the most common design methods. These strategies enable scholars to determine the crucial data types required to respond to the study questions.

Fixed. Researchers use the fixed research method to describe variables, examine their relationships, and determine cause-and-effect interactions (Aspers & Corte, 2019). It investigates social phenomena systematically and empirically by employing statistical, mathematical, or computational techniques. Its measurement procedure is fundamental to quantitative research

because it affords the central connection between empirical observation and mathematical quantitative relationships' expression (Liu, 2022).

Fixed research methodology is the preferred approach in pure sciences (Faems, 2020). This research design is predetermined and established before the data collection phase. Moreover, this design is usually theory-driven, or it is unreasonable to understand the variables researchers need to control and measure in advance. Frequently, these variables are quantitatively measured.

Unlike experimental models, this study's fixed design and non-experimental approach does not involve manipulation. Experts often call non-experimental designs correlational studies because they are concerned with the associations between variables (Morgan et al., 2020). Additionally, researchers draw non-experimental studies on the frequency of co-occurrence in two groups: correlation and dependence (Faems, 2020; Morgan et al., 2020). Although correlation does not specify a causal relationship, it recognizes the dependence of a variable on another.

Flexible. Experts developed the flexible design methodology to minimize the effect of uncontrolled variation by modeling potential design and manufacturing corrections in the product development process (Liu, 2022). Using this flexibility methodology, researchers evaluate the different defect modes and the likelihood of these defects occurring. Investigators analyze all design change options for every defect mode, including the cost and probability of selection. The researchers then determine the initial design's expected cost, including design changes, allowing the development of improved, more flexible designs (Aspers & Corte, 2019).

The flexible design methodology reduces the overall cost by reducing the design changes due to prediction errors. Its goal is not to improve the robustness against uncertainty but rather to

reduce the negative impact of uncertainty (Liu, 2022). The method evaluates the possible defect modes due to uncertainty and analyzes the possible design changes. Thus, it predicts the likelihood of certain defects and identifies the variables to be changed to resolve the defects (Aspers & Corte, 2019; Bouncken et al., 2021). This process improves design flexibility, resolving defects using economic design changes.

Flexible designs grant more autonomy than fixed designs during the data collection phase. The flexible design methodology generally centers on data collection utilizing informal exchange. Flexible research designs usually involve non-numerical information, lessening the restrictions during the data-gathering period (Aspers & Corte, 2019; Bouncken et al., 2021).

Mixed. Over time, debates emerged regarding the best application in the social sciences resulting in a mixed-method paradigm. This approach utilizes a nascent research methodology to expand qualitative and quantitative data collection within a single investigation. Accordingly, this approach integrates data during analysis, collection, and discussion (Matović & Ovesni, 2021; Younas et al., 2021).

Mixed methods can help researchers gain a complete image because it integrates the benefits of both qualitative and quantitative methods. A mixed-methods design involves incorporating quantitative and qualitative data collection to provide in-depth evidence or develop cases for comparative analysis (Matović & Ovesni, 2021). Mixed methods research typically applies in the behavioral, health, and social sciences, specifically in multidisciplinary settings and complex situational or societal research (Rouleau et al., 2021; Younas et al., 2021).

Mixed methods research commences with the assumption that investigators collect data based on the theoretical orientation and nature of the research question. For instance, a social inquiry targets various sources and levels influencing a given problem. Quantitative and

deductive methods are ideal for measuring the pervasiveness of known phenomena and central association patterns, including causality inferences (Younas et al., 2021). Conversely, qualitative and inductive methods allow identifying previously unknown processes, explaining a phenomenal occurrence, and the range of their effects (Mulisa, 2021). Mixed methods are appropriate when the quantitative or the qualitative approach is insufficient to develop multiple perspectives and a complete understanding of a research problem or question.

The author intends to apply a fixed correlational design for this proposed study, which focuses on finding the link between TeamSTEPPS implementation and an organization's culture. The author believes a fixed design provides directionality, testing knowledge or attitude as dependent variables before and after intervention with team training as independent variables. Using fixed designs assesses participants' mindsets or insights proportionate to an event. Accordingly, these designs measure the subjects' comfort levels when employing the materials offered upon introducing a new idea.

The flexible and mixed methods were not the best choice for this TeamSTEPPS correlational research. Scholars generally use flexible configurations to reassess the sample size after the initial data analysis (Bouncken et al., 2021). The author personally concurs that because the statistical processes for flexible design analysis vary, it is inappropriate for this particular quantitative study on team training and organizational culture.

Additionally, experts argue that triangulated research employed in mixed designs may risk taking up too many vague questions (Matović & Ovesni, 2021). After perusing several scholarly articles, the author establishes that mixed data from different sources can disrupt a study's focus. Therefore, the author perceives that the fixed design filters out personal subjectivity, disregarding the illusion that one individual is the sole keeper of true objectivity.

Discussion of Method

Scholars use fixed research designs to define variables, examine their connections, and determine causes and effects among variables. The following are three types of fixed designs:

Experimental. Experimental methods determine how to operationalize the measured variables. These methods employ tools that abide by a scientific study, estimating the cause-effect association between the dependent and independent variables (Batt & Kahn, 2021). Researchers conduct experimental research in a laboratory to take precise dimensions; the researcher can likewise survey field locations. Therefore, it is essential to measure the variables to ensure utilizing the most appropriate processes to answer the research question.

Furthermore, researchers must consider the experimental design's statistical analysis. They must account for the study's expectations and the analysis of this outcome. Lastly, the investigator must consider the practical limitations of an experimental design in conjunction with the data set or experimental setup to represent real situations (Siegmund & Siedlecki, 2021).

Non-Experimental. The non-experimental research method does not entail independent variable manipulation. Non-experimental research methods do not require control of the circumstances or participants' experiences. This research aims to measure variables as they occur naturally, devoid of any synthetic aid. Scholars should apply this investigation type for broad-ranging research questions, a single variable provoking a unique experience, or non-causal interactions between variables (Mohajan, 2020; Rouleau et al., 2021).

Non-experimental research designs generally classify into three groups. First, relational techniques, also called correlational studies, measure a range of variables. Correlations do not indicate causality, as it indicates the variables' interdependence. Correlational methods support link identification and signify the co-occurrence rate among variables or clusters (Mulisa, 2021;

Ranscombe, 2020). The second type constitutes comparative research. These methods evaluate two or more groups on one or more variables. The third type of non-experimental research is the longitudinal design, which analyzes variables in a specified group over time.

Quasi-Experimental. Quasi-experimental research methods determine the variables' cause-and-effect relationship. These studies demonstrate causality between results and interventions. Investigators can employ quasi-experimental methods to review previous research before and after an intervention (Mulisa, 2021). Quasi-experimental studies integrate a wide array of non-randomized intervention studies. Scholars apply these methods when conducting a randomized controlled trial is not logistically viable or ethical.

Researchers perform quasi-experiments in field settings where an arbitrary designation is challenging or impractical. Researchers repeatedly perform this method to gauge the value of an educational intervention. Though experimental purists sometimes ignore quasi-experiments, they are instrumental in instances where conducting an experiment or randomized control trial is not possible or appropriate (Mulisa, 2021).

The author believes that the non-experimental method is the best choice due to the correlational nature of this TeamSTEPPS study. Non-experimental methods provide insufficient or no evidence about causal agents, as it has a descriptive nature. This method defines the subjects' characteristics, measures data trends, compares circumstances, and validates current provisions deemed appropriate for the proposed topic. Furthermore, it measures the strength of the relationships to determine significance. Although the lack of a random selection process in non-experimental methods results in the lack of ability to reach a generalizable result, the author believes that manipulating control variables in experimental research may bring about the researcher's personal bias.

Summary of the Nature of the Study. Recognizing the more extensive uses of qualitative and quantitative research and the straightforward approaches utilized to collect and analyze the corresponding data are essential. Quantitative methods use deduction, working from theories to observations. Additionally, quantitative analysis minimizes the impact of researchers attempting to understand occurrences through measurement or objectivity. Conversely, qualitative research studies the nature of occurrences and is appropriate for determining the cause, assessing complicated multi-factor interventions, and converging on improvements noted after an intervention.

Research paradigms represent reality differently, considering their value and implication in knowledge growth and development. Specifically, positivism characterizes neutrality, quantifiability, predictability, and probability. In contrast, anti-positivism or interpretivism is administered with subjectivity, examining human behavior in a real-life setting.

Obtaining relevant evidence generally demands testing a theory, evaluating a program, or accurately describing a phenomenon. The appropriate research design enables investigators to address the research problem efficiently and unequivocally. However, researchers begin their analyses before considering the information required to resolve the study's research questions. Without attending to these design issues ahead of time, the researcher may draw weak conclusions, failing to address the overall research problem satisfactorily.

Theoretical Framework

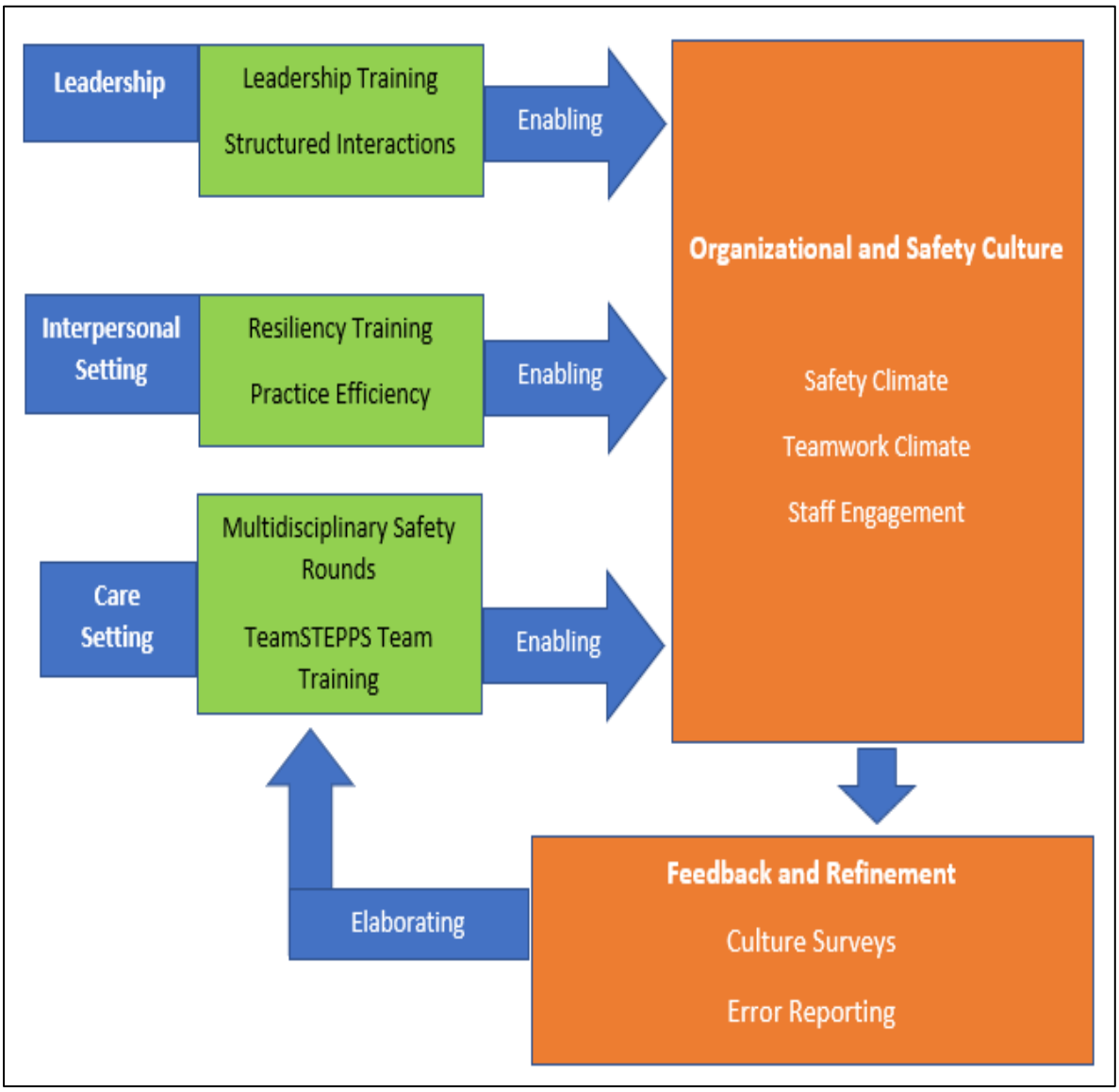
Theories challenge prevailing expertise within the boundaries of crucial expectations. They present a systematic way to understand events or situations. Moreover, they embody concepts, definitions, and propositions that explain, predict, or illustrate the relationships between variables (Morgan et al., 2020). The author selected the theories based on their

pertinence, simplicity of use, and explanatory power. These principles clarify the meaning, nature, and challenges often experienced but unexplained. A theoretical framework limits the extent of the relevant information by converging on specific variables and shaping the researcher's standpoint during data analysis and interpretation. Understanding the study's concepts and variables builds understanding by substantiating or questioning its theoretical statements.

Figure 1 explains the theoretical context linking the drivers, consequences, and feedback processes related to organizational and safety culture. This diagram exhibits leadership, social, and care milieus as enabling elements for enhanced workplace conditions and staff commitment. Accordingly, this representation enumerated the elaborating aspects of process refinement and program feedback. Moreover, Figure 1 shows the connection between all the components integrated into the framework, displaying the flow of information, activities, and concepts that lead to beneficial consequences.

Figure 1

A theoretical framework linking the drivers, consequences, and feedback mechanism related to organizational and safety culture.



Specialists propose ensuring vital representation to bring together a team of staff members and leaders with the mandate, proficiency, integrity, and motivation necessary to drive a thriving TeamSTEPPS program (Aaberg et al., 2021). For example, conducting surveys and maintaining error reporting systems provide feedback and support safety reinforcement.

Moreover, leadership engagement and other unit-specific training help build an enhanced culture.

Researchers similarly advise formulating a strategy for continuous process improvement utilizing TeamSTEPPS intervention, ongoing assessment of its usefulness, monitoring encouraging effects, and recognizing prospects for additional improvements (Borckardt et al., 2020). Hence, health care facilities must continue evaluating the intervention's effectiveness, measures and standards, data source, data collection methods, and responsible parties. Lastly, scholars agree that organizations should support and propagate reasonable modifications, including enticements, feedback, assimilation, continuous coaching, and conveying lessons learned (Jafarpanah & Rezaei, 2020; Stewart et al., 2020).

Theories

Formal theories accrue knowledge across methodical research to enhance certain practices and policies. These theories connect with this TeamSTEPPS study, aiming to identify the association between organizational culture and team training. These principles convey the specific problem of data shortage of determining the TeamSTEPPS link to organizational and patient safety culture and distinguishing the challenges in employing and maintaining a solid TeamSTEPPS initiative.

Hierarchy of Needs. Among the founders of Psychology, Abraham Maslow is arguably one of the more profound ones (Hoffman, 2020). He stressed the importance of focusing on individuals' positive qualities, which led him to create the hierarchy of needs. This theory suggests five motivation levels; one must fulfill each before progressing to the next level. These five levels involve physiological, safety, belonging, esteem, and self-actualization (Noltemeyer et al., 2021).

The first need in team building involves some form of compensation or revenue to continue its survival. The second need refers to the trust and faith in the skill sets of the individual team members to enable one's support of another. The third need denotes the interpersonal relationships resonating with the team's mission and values. Next, esteem needs for a team signify branding, achieving intense competency levels, professionalism, and compliance with high industry standards. The last need represents self-actualization, where the team strives to achieve its ideal form, utilizing an individual's strengths and weaknesses to complement one another.

Maslow also emphasized that while he initially thought that the needs of humans had strict guidelines, he came to believe that the chain of command is interconnected rather than sharply separated (Desmet & Fokkinga, 2020; Noltemeyer et al., 2021). For example, esteem and self-actualization needs are not strictly disconnected. Thus, a team's subsequent level of survival and safety is as crucial as team belongingness and core competency development.

In his later years, Maslow discovered another level called self-transcendence. If a team were to reach this level, it would give itself a higher goal outside the team (Hoffman, 2020). For instance, the organization would aim to develop and reshape the industry, concentrating on developing leaders to lead its vision.

The *Hierarchy of Needs Theory* founded this study's groundwork. Abraham Maslow established this theory to inspire individuals, constructing the foundation for effective teams (Noltemeyer et al., 2021). This philosophy aspires to determine how teams develop their motivation; therefore, specific levels need conditions to continue to the subsequent stage. Maslow's theory suggests that projections for advancement encourage groups similar to high reliability organizations (HROs) that tend to become more productive and innovative whenever a

need arises (Desmet & Fokkinga, 2020). The power of this model lies in bringing higher awareness to the team and its leaders and serving them with the next step in their growth.

Social Identity. Social identity theory proposes that a person identifies more closely with social group members than with members from other groups (Davis et al., 2019). Tajfel and Turner originally developed the theory in 1986 to understand the social-psychological basis of intergroup discrimination and the conditions that would lead group members to show prejudice in support of the *in-group* to which they belonged and against other *out-groups*. Experts argued that individuals categorizing themselves as group members was sufficient to lead them to display in-group favoritism (Bochatay et al., 2019). After being categorized as a group member, individuals seek to achieve self-esteem by positively differentiating their *in-group* from a comparison *out-group*.

A closely related approach is the realistic conflict theory, which assumes that groups holding divergent objectives have hostile and discriminatory intergroup relations, whereas groups with common objectives display conciliatory behavior (Cuevas & Dawson, 2021). Hostility between groups results from direct competition for limited and valued resources. Intergroup hostility maximizes the outcomes of two competitively interdependent groups. Consequently, intergroup hostility emphasizes negative out-group stereotypes, increasing in-group solidarity and cohesiveness (Cuevas & Dawson, 2021). Conversely, cooperatively interdependent groups reduce intergroup hostility, cumulatively improving intergroup relations.

Experts employed social identity theory to explore and understand the nature of interprofessional teamwork (Arshad et al., 2022). Different professions have distinct occupational cultures, leading to distinct tribal groups. Accordingly, each professional group develops its characteristic communication and language style, resulting in stereotypical

judgments (Arshad et al., 2022). Thus, social identity theory demonstrated that negative stereotypes are difficult to change, given the nature of intergroup discrimination.

The theory of social identity implies that teamwork training raises productivity by acknowledging a member's effort. The most effective teams involve participants with a consistent, collective social identity (Davis et al., 2019). This principle states that an individual's groupings contribute to his self-assessment (Bochatay et al., 2019). Social identity theory suggests that the rationale for working as a unified group forms socially. Highly productive collaboration demands that members acknowledge the team as a desirable unit. Thus, social identity theory can improve teamwork mindsets toward interaction, resulting in increased enthusiasm for collaboration.

Kirkpatrick. The Kirkpatrick Model, also called Kirkpatrick's Four Levels of Training Evaluation, is necessary for a facility's training effectiveness evaluation. This model builds a practical blueprint to identify targets, evaluate outcomes clearly, and detect zones of significant influence. This paradigm, generally recognized as one of the most significant training assessments, involves four stages: response, learning, comportment, and outcomes (Potnuru et al., 2019; Wood et al., 2020). Examining data at each process enables organizations to assess the connection between each phase better to better comprehend the training effects, empowering teams to realign plans and alter the course throughout the learning period. This analysis allows organizations to modify the learning path when necessary to comprehend the connection between each training phase better.

This evaluation model, first introduced in 1959 by Donald Kirkpatrick, has undergone several iterations. It remains a popular and widely used evaluation strategy due to its simplicity and relevancy across industries and organizations. Researchers have shown a significant

disconnect between the training organizations offer and their employees' actual needs (Potnuru et al., 2019). The Kirkpatrick Model helps businesses bridge the learning gap by measuring training effectiveness and improving instructional designs for future initiatives.

This model has some advantages that make it a striking choice for trainers and other business leaders (Potnuru et al., 2019; Wood et al., 2020). First, it provides clear evaluative steps, making it easy to work with traditional and digital learning programs. Next, it provides leaders valuable insight into their overall training programs and their impact on business outcomes. Additionally, its simple approach is highly flexible and adaptable across industries and applications, making it easy for trainers to implement the model.

However, there are limitations and tradeoffs (Potnuru et al., 2019; Wood et al., 2020). The system can be onerous and involves costly investment to complete all the pre-tests, post-tests, and evaluations of learning outcomes. Likewise, it is challenging to directly link business results to specific training, as efficacy and return on investment (ROI) are often complex and multifaceted, requiring further resources and expertise.

Actors

Actors are teams or companies associated with the proposed research. The core group involves team members and leaders engaged in direct or indirect patient care. The following actors play a vital role in defining this study's topic:

Care Teams. The healthcare team comprises several professional groupings with wide-ranging capabilities and expertise. Each team member simultaneously performs their duties with the rest of the team to optimally serve their patient's therapeutic, physiological, emotional, and psychosocial demands. The core team must safeguard situation monitoring, awareness development, and effective communication between participants.

Health care teams complete simple problem-solving and planning tasks in addition to complex, rigorous psychomotor duties requiring coordination and crossing the full range of team categorizations. Most health care team research concentrates on hospital settings and treatment zones such as emergency, surgical, and trauma teams. These teams must have sufficient participants to provide the necessary skill overlap to facilitate workload sharing and redeployment, forming a collective conceptual model (Wood et al., 2020).

Team Leaders. Competent health care leaders encourage the workforce to perform at their maximum capacity to help patients, collaborators, and their respective organizations. Each core team has a key leader whom all team members immediately recognize. Team leaders encompass nurse supervisors, providers, and administrators, who oversee the teams' daily processes. A team leader must maximize the team's activities by understanding team actions, sharing information, and ensuring adequate team resources (Berry et al., 2020).

Public Facility. The New York City Health and Hospitals (NYC H+H) is an integrated system of hospitals, neighborhood health centers, long-term care facilities, nursing homes, and home care services. Its hospitals extend primary, specialty, and acute care services to emphasize health improvement and disease prevention. As with private hospitals, multiple core teams exist in NYC H+H public facilities. This public health system established a procedure for designating team affiliations to accelerate communication flow and coordination. Moreover, this study's index hospital has a team allocation plan that specifies each core team's assignment, enabling the appropriate resource allocation across each unit depending on workload variations.

Variables

A variable refers to a specific individual or organizational attribute that can be measured or observed, varying among the studied subjects (Morgan et al., 2020). Categorically, variables

correspond to any fluctuating feature, having at least two possible values (Cortina, 2020; Duckett, 2021). Typically, a variable vacillates in two or more groups or on a range of scores, and it can be calculated or evaluated on a scale. In quantitative research, variables affiliate with answering a research question or formulating hypotheses. Researchers create variables by developing constructs into quantifiable forms. The author defined the following variables in this purported research study:

Organizational Culture. Organizational culture represents the underlying values, beliefs, and intermingling theories that influence the distinctive psychological and social business atmosphere. Moreover, it indicates the deep-rooted principles, morals, mindsets, and assumptions that organizational participants share. Modifying these principles is deemed challenging due to its focus on each member's opinions of the value of safety. Leaders must identify team expectations by distinguishing appropriate behaviors for various situations (Jafarpanah & Rezaei, 2020; Khan et al., 2020). Scholars concur that organizational culture influences the power to implement quality improvement and patient safety initiatives (Berry et al., 2020; Lee, McFadden, et al., 2021).

Patient Safety Culture. Culture directly influences patient safety by defining accepted practices; similarly, it indirectly impacts patient safety by acting as an impediment or catalyst to embracing behaviors that support teamwork (Stewart et al., 2020). Recognizing the factors and influencers of culture and evaluating the current safety culture status is crucial to offering the safest patient care. Cultural assessments can raise the consciousness of patient safety issues, evaluate the current safety culture status, assess interventions, and monitor the effectiveness of improvements over time (Berry et al., 2020; Staines et al., 2020). A safety culture survey can determine workplace conditions that may result in patient harm and adverse events.

TeamSTEPPS Training. Teamwork means partnership within a cluster to achieve a mutual purpose. It is a considerable business component, as associates must work concurrently, employing their skills and offering helpful advice, despite individual disagreements (Bochatay et al., 2019). Studies revealed that theory-centered training such as TeamSTEPPS provides the most meaningful opportunities for process improvement and goal achievement (Matzke et al., 2021; Prochnow & Tschannen, 2022).

TeamSTEPPS involves compiling guidelines, resources, and means to strengthen and drive a positive teamwork program from the preliminary planning, implementation, and sustainment. Numerous institutions have created team training curricula, but many focus on different contexts or disciplines (Harolds, 2021). The author decided to study TeamSTEPPS due to its reputation as an evidence-based collaboration program. Earlier TeamSTEPPS investigations have encouraged improved overall organizational culture and teamwork mindset (Borckardt et al., 2020).

Leadership Support. Studies demonstrate that leaders' attitudes toward engagement directly relate to workforce enthusiasm (Bababekov et al., 2021). When leaders support their employees' engagement plan, personnel commitment increases. Appropriately, staff engagement grows when leaders value their staff members, setting the right direction. The absence of prominent leadership assistance is a substantial barrier to a practical personnel engagement plan, more than the impediments due to high expenses and inadequate resources (Bababekov et al., 2021; Erickson et al., 2021).

Organizations are progressively becoming unstable and dynamic. This development has given rise to greater dependence on teams and increased intricacy regarding team composition, skills required, and degree of risk involved. High reliability teams promote safety through task-

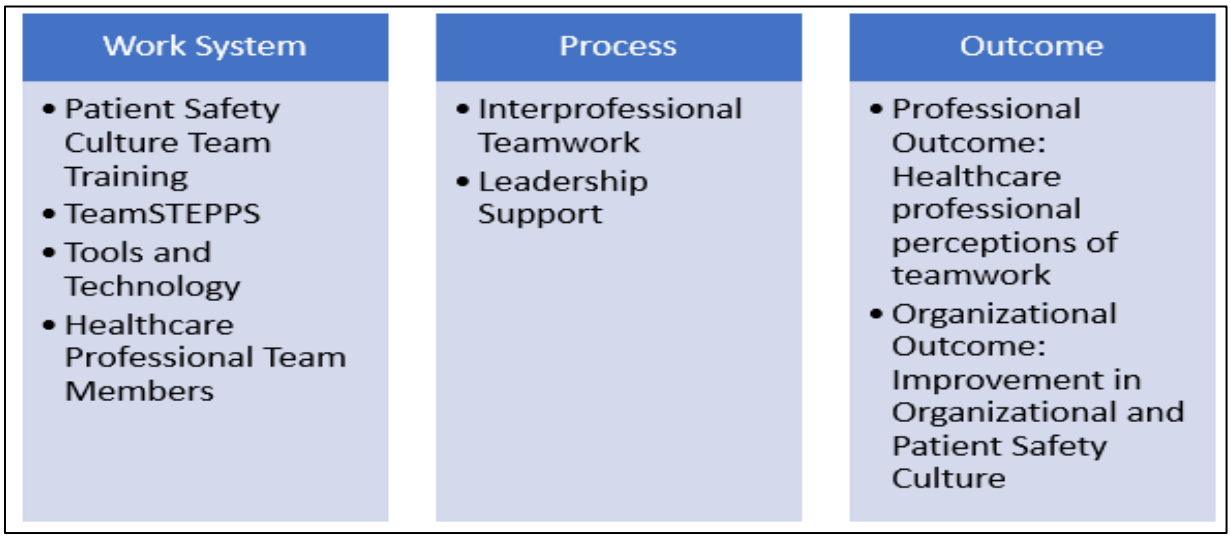
relevant knowledge, high levels of communication, and adapting to the environment. These teams are practical, social, and feature team members with high task interdependency and shared mutual values (Cantu et al., 2020; Grabowski & Roberts, 2019).

Figure 2 depicts the different variables enumerated above. High-reliability teams flourish with teamwork and exist in hazardous environments where the consequences of errors are high, but the occurrence of errors is enormously low. Health care systems hinge on the synchronized interfaces of various teams working in an active, complicated, and risky environment.

Patient safety specialists concur that communication and other teamwork abilities are vital in preventing patient injury and medical blunders (Garavan et al., 2021). Although the implication of teamwork is widely recognized, most health care providers' core curriculum lacks teamwork training, and not all medical facilities incorporate teamwork tenets (Prochnow & Tschannen, 2022). Therefore, teamwork skills are not intrinsic and must be studied and exercised.

Figure 2

Teamwork training prototype elements demonstrate this study's feedback and result on TeamSTEPPS training and organizational culture.



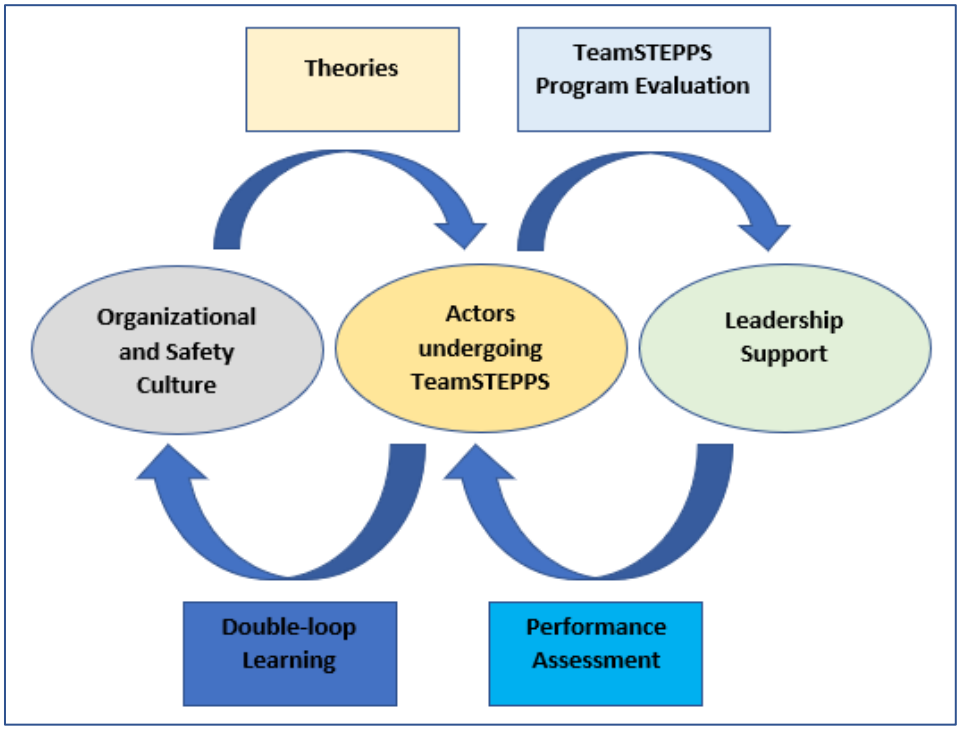
Relationships Between Theories, Actors, and Variables. The organizational core values commence with its leaders. These ideals guide the workforce, resulting in gradual, consistent behaviors. Accordingly, a solid organizational culture emerges when teams develop cooperative behavior, values, and beliefs. This process ensures behavior change, minimizes disputes, and establishes a desirable working environment (Staines et al., 2020).

Furthermore, an institution can achieve a positive culture when leaders express their commitment to change and empower team members to communicate safety information freely. With a robust safety culture, staff members are habitually eager to report unsafe conditions and adverse events without fear of retaliation; additionally, they agree that reporting would serve as a learning opportunity (Baloh et al., 2021). Leaders must catalyze culture change by expressing their dedication to safety and acquiring adequate resources to reach the desired results. Their directives must be steady and constant, as it takes considerable time to improve culture. Experts recommend analyzing the impact of any program, training, or initiative by conducting surveys that evaluate personnel insights on safety culture (Shea, 2020).

Figure 3 shows the relationship among this study's theories, actors, and variables. Individuals are not only urged to adjust; they must take necessary action. Inertia encountered during safety issues is an anathema, and in the end, the demand to act initiates from leaders and peers. There is no opportunity in a safety culture for individuals who senselessly blame others or convey that safety is not their concern (Kagan et al., 2019).

Figure 3

Relationship among actors, theories, and variables.



There is not much disagreement about the value of teamwork in providing quality care and the demand for team training. Experts found that various teams' core TeamSTEPPS knowledge has noticeably improved since its launch, but there is a lack of understanding of how to transform and maintain organizational culture (Alsaqqa & Akyürek, 2021; Chen et al., 2019). Therefore, sustained success relies on the continuing alliance between investigators and implementers.

Summary of the Research Framework. Organizational culture plays a significant part in achieving a sound and desirable workplace. It conveys collective expectations, standards, and attitudes, holding everything together like an adhesive. A solid culture signifies a practice that determines how employees conduct themselves. Thus, organizations with a robust culture have a set of codes of conduct and shared values to accomplish their functions and objectives.

Scholars observed that leadership's support and encouragement, transparent vision, and competence could induce a positive culture (Aaberg et al., 2021; Khan et al., 2020). Experts also found that the factors related to a sound culture do not exclusively rely on an individual's environment but also include relations between working colleagues (Bababekov et al., 2021; Chen et al., 2019; Lee, McFadden, et al., 2021). Instead of a single entity, a team frequently calls clinical and patient care determinations.

Definition of Terms

Undefined data risk inconsistency and might not give the same results upon replication. Hence, a detailed operational definition of terms ensures consistent data. The following operational definitions explain the technical terms and measurements that the author utilized during data collection:

Brief: Brief is a TeamSTEPPS tool used at the start of each shift. It designates the fundamental functions to determine expectations, anticipated results, and possible eventualities. They denote timed events at the start of a shift, reviewing items such as roles and responsibilities, patients' clinical status, care plans, and any resource issues (Bath & Collier, 2021). Briefs establish clear goals, and using a checklist can help facilitate them (Bath & Collier, 2021).

Debrief: Teams conclude their shift with a debriefing. The TeamSTEPPS application phase includes a debriefing that assists the learner with transferring their new knowledge and skills to their clinical settings. Each debriefing includes a chronological discussion of the events and clinical interventions for consistency in documentation (Clapper et al., 2019).

Handoff: Handoffs signify the transmission of professional responsibility, patient information, and accountability between caregivers. It transmits information or knowledge,

authority, and responsibility among providers during care transitions and throughout the care continuum. Effective handoffs include interactive communication that allows for questions between the giver and receiver, providing targeted information related to the patient's care, treatment, services, and changes in condition. Additionally, it involves an established verification process to confirm the exchange of information, allowing the receiver to review historical data with limited interruptions (Appelbaum et al., 2021).

Huddle: Huddle is an impromptu planning process that can strengthen the current plan or evaluate and adjust the plan accordingly (Aldawood et al., 2020). It aims to improve healthcare workers' communication and interaction, building trust by acting whenever a concern or patient safety issue at the unit level arises. A huddle is a prevailing tool to form an unbiased condition where frontline staff can speak up at will about daily patient safety concerns (Aldawood et al., 2020). The huddle results in a more active and open discussion with unit leadership to perform the right action at the right time.

Knowledge, Skills, and Attitudes (KSAs): Teamwork defines interrelated knowledge, skills, and attitudes (KSAs) that facilitate an adaptive performance that supports teammates, objectives, and mission. Although teamwork differs from taskwork and operational skills, both are required for teams to be effective in complex environments (Hebles et al., 2019; Zhang et al., 2021, 2022). However, knowledge and skill at the task level do not suffice. Teamwork depends upon team members' ability to anticipate the needs of others, adjust to each other's actions and the changing environment, and have a shared understanding of how a procedure or plan of care should happen (Clancy & Tornberg, 2019).

Mutual support: Experts define mutual support as providing feedback and coaching to improve performance or, when a lapse is detected, assisting teammates in performing a task and

completing a task for the team member when they are overloaded (Haruna et al., 2022). This skill evaluates and anticipates other team members' needs, aiming to attain stability during different workloads or pressure demands. Commonly referred to as backup behavior, it involves team members' involvement in assisting one another, providing and receiving feedback, and assertive and advocacy behaviors when patient safety issues occur (Haruna et al., 2022).

Organizational culture: Organizational culture is the set of ideas, expectations, and methods that guide all team members' actions. Culture provides a shared and stable system of beliefs, values, and assumptions, which provides approved modes of thought and behavior maintained through social interaction (Hald et al., 2021). A health care organizational culture framework is a network of ideas and phenomena anchored around an articulated central concept employed to study and modify a human healthcare system (Pavithra, 2022).

Safety culture: Safety culture is a set of procedures and standards to cope with the risks related to any health care activity. This term relates to the norms and practices surrounding health and safety within an organization and is highly related to safety climate or perceptions of safety priority (Upadhyay et al., 2020). A sound safety culture includes senior management's commitment to safety, a shared concern for hazards, realistic norms, procedures for managing risk, and continual reflection and organizational learning processes (Shea, 2020; Tear et al., 2020).

Situation awareness: Situation awareness is the ability to understand an ambiguous situation, detecting and grasping the crucial elements of the plan of care. It considers the relationship between the individual and his environment and how complex information breaks down into coherent and manageable steps. It is the process of creating intelligence and understanding to support decision-making under uncertainty to understand connections among

people, places, and events to anticipate their trajectories and act effectively (Jonsson et al., 2021; Scott & Unsworth, 2020).

Situation monitoring: Situation monitoring is continuously examining and evaluating any situation to sustain an awareness or understanding of the team's situation. This skill enables team members to promptly identify potential issues or minor deviations to correct and handle them before they become a problem or harm the patient. This process enables individuals to adapt to changes in circumstances and create opportunities to support other team members when needed. It is moderated by communication, allowing for sharing of new and emerging information with other team members to develop and maintain a shared mental model.

Assumptions, Limitations, Delimitations

The following enumerates this study's assumptions, limitations, and delimitations. Researchers and peers recognize assumptions as truthful or reasonable. Furthermore, limitations are elements that the researcher cannot control, causing restrictions on this study's methodology and conclusions. Lastly, delimitations are choices made by the researcher, describing the boundaries set for the study.

Assumptions

Strategic cultural change proponents characteristically make several inherent assumptions. First, various health care businesses hold distinct cultures, which influence performance and quality (Hsiung et al., 2021). Healthier workplace culture is assumed to relate to positive patient results, such as decreased length of stay and mortality, improved quality of life, and reduced pain.

Second, while cultures may resist change, they are impressionable and practicable (Andres et al., 2019). Culture develops and strengthens through continuous practice and idea

exchanges, eventually becoming an organizational component. Transformation shapes a new direction and seeks to build something new, considering the past's frameworks.

Third, finding distinct cultural characteristics that enable or impede the desired performance is feasible, facilitating managers to model organizational change strategies (Wolf et al., 2022). Experts identify several factors to effectively carry out change initiatives, including employees' sentiments and perceptions, influencing their responses to change, communication, and decision-making participation (Metwally et al., 2019). Leaders must assess the current culture's state that supports their modifications or hinders their new directions.

Leaders can communicate the values framework when organizational goals are clear and the workforce identifies the benefits of a cultural transformation. The more a culture requires transformation, the more likely it opposes the change. Finally, experts assume that any gains from the change can overshadow dysfunctional outcomes (Gosen & Mielly, 2021). Due to these assumptions, numerous researchers and legislators showed new interest in quantitative organizational culture measurement to ascertain its correlation with the quality of care and overall performance (Lumamuly et al., 2021).

Limitations

The study's limitations are influences the investigator cannot control, triggering boundaries on this study's methodology and conclusions. These restrictions can exist due to constraints on research design, methodology, and materials, among others. Future research can address the following limitations:

First, quantitative statistical models can only determine correlation but not causality. Correlations between variables exhibit a data pattern, as some variables tend to move simultaneously. Furthermore, correlations do not demonstrate that one variable produces the

other. Often, this situation is due to both variables' association with a different causal variable, which overlaps with the measured data. Moreover, researchers can discover a reliable correlation with statistical significance between two variables that are not causally associated (Zyphur & Pierides, 2020).

The requirements for successful statistical result confirmation prove challenging in quantitative research as the hypothesis must be proven with few experiments when the results are ambiguous. Experts recommend retesting and refining the results several times for an unambiguous conclusion to mitigate this limitation (Zyphur & Pierides, 2019, 2020). While correlational research cannot establish causal relationships between variables, it does allow researchers to achieve many other essential objectives. These objectives include establishing reliability and validity, providing converging evidence, describing relationships, and making predictions (Zyphur & Pierides, 2019, 2020).

Second, this study uses the TeamSTEPPS methodology, limiting the capacity to explain differences in innovation attributes, the generalizability of findings, and the prospect of continuous improvement. Therefore, the methodology used in this study must include other teamwork interventions to assess other potentially complementary combinations. For instance, principle-based training, such as Crew Resource Management (CRM) and simulation-based training, seem to provide the most significant opportunities for improving team functioning (Buljac-Samardžić et al., 2021).

Lastly, this study limits its setting to a public hospital; thus, its findings do not relate to other health care backgrounds. Further research must explore standardizing dimensions for these constructs in private health care systems. Compiling results from different settings can help researchers make more informed decisions on team training measures (Hsiung et al., 2021).

Delimitations

Delimitations represent the researcher's choices relating to the boundaries set for the study. This quantitative correlational study describes the TeamSTEPPS approach to patient safety culture and organizational culture to create highly efficient medical teams that accomplish the safest patient care, ultimately transforming organizational culture in a Brooklyn, New York City public hospital. Program evaluation provides feedback on results, accomplishments, or impact to inform policymakers and administrators about its usefulness. Furthermore, these metrics offer clear guidance on maintaining and improving its TeamSTEPPS implementation to develop patient safety and organizational culture.

The study included clinical and non-clinical staff members who underwent TeamSTEPPS training on orientation and completed the Press Ganey Patient Safety Culture Survey in September 2021. The author conducted correlation tests utilizing IBM's Statistical Package for the Social Sciences (SPSS). The Hierarchy of Needs, Social Identity, and Kirkpatrick theories convey the specific issue of data shortage, defining the TeamSTEPPS connection to organizational and patient safety culture and distinguishing the challenges in employing and maintaining a solid TeamSTEPPS initiative. These theories connect with this TeamSTEPPS study, aiming to identify the association between organizational culture and team training.

Significance of the Study

Care delivery proved intricate and ever-changing in highly active academic medical facilities, producing a high-risk atmosphere. These complex situations require a shared approach to care delivery, where defined teamwork and communication methods engrain daily practice. Teamwork is necessary for patient safety because high-functioning teams make fewer errors.

Progressively, hospitals aim to reinforce leadership training and enhance team dynamics (Costar & Hall, 2020).

TeamSTEPPS enriches collaboration, interaction, leadership, and patient satisfaction (Khan et al., 2020; Parker et al., 2020; Prochnow & Tschannen, 2022). This process offers an evidence-based construct to improve patient outcomes by developing teamwork skills and exchange among health care teams. Efficient communication founded on the importance of safety, mutual trust, and shared perceptions distinguishes facilities and systems with a healthy safety culture (Reis et al., 2020; Tear et al., 2020). Still, a collective insight does not always convert to a clinical setting's effective communication.

Improving organizational culture poses a challenge. Although rooted in most institutions' mission statements, patient safety and quality must entrench the organizational culture (Silva et al., 2021; Tan et al., 2019). As the workforce learns team skills, many organizations need to improve teamwork and communication competencies, incorporating these skills into regular processes. Health care facilities currently acknowledge that patient safety teamwork training is a valuable initiative. With their origins in the aviation industry, these training programs seek to level the hierarchy, stimulate communication intelligibility, and highlight a team-oriented patient care approach. Thus, effective communication and mutual support teams lessen error likelihood and enhance patient safety, organizational culture, and improved clinical performance (Alsabri et al., 2022; Neville et al., 2021).

Reduction of Gaps in the Literature

This research element identifies a direction for potentially new and stimulating research and determines the issues in this study's critical motivating issue not addressed by the literature. A gap limits the ability to conclude a specific research question and involves an area with

unaccounted-for or unsatisfactory information. The following are some opportunities for future research to broaden team training understanding to execute best and propagate this health care concept:

First, numerous studies investigate a single organization's health care teams or units performing a particular procedure or tasks such as emergency, resuscitation, or surgical teams. Limited studies investigate teamwork over extended periods in intricate multi-team structures (De Andrade et al., 2021). Interprofessional health care involves the symbiotic effort of multiple care teams, necessitating a designated care coordinator or patient navigator as a lead, which is not the case for most patients. This backdrop requires many patients or relatives to coordinate, synthesize communication from various providers, navigate the complex payment procedure, and bridge limitations between teams and clinicians (De Andrade et al., 2021). Connecting multifaceted patient consequences such as mortality, hospital readmission, care experience, and expenditures to a specific team disregards the complicated multi-team structures and individuals providing care.

Second, health care teams' research presents a prospect to improve the knowledge of team virtuality. Virtual care teams have been implemented extensively in payment prototypes and policies in the United States. Telemedicine promises to heighten multidisciplinary care access and deal with the severe specialist and primary care clinician shortages. Still, less research analyzes the influence of virtuality on patient outcomes and teamwork practices (Rogers et al., 2021).

Third, future studies should focus on the providers' tendency to strongly connect with team members of equivalent professional qualifications (Kolbe et al., 2021). Moreover, it should explore effective leadership sharing among various teams to attain care coordination and positive

patient outcomes. This endeavor would solidify evidence-based interprofessional education methods for scholars and licensed health care professionals, including multilevel interference approaches to expand multidisciplinary care. This type and nature of care grow with more complicated functional structures (Kolbe et al., 2021).

Fourth, upcoming studies should concentrate on developing team metrics. Even with several available measurement tools, criterion validity evidence is scarce (Ballangrud, Husebø, et al., 2020; Lakatamitou et al., 2020). Additionally, the science of health care team metrics must prioritize the measures that forecast patient and organizational outcomes (Zhang et al., 2022). A major challenge in integrating conclusions within and across clinical spheres is the lack of the underlying measurements' competency and academic standards. There are noticeable discrepancies in operationalized measures and competencies. This situation describes the demand for future studies examining the measurement system attributes that generate reliable and valid ratings with reduced logistical expenses (Zhang et al., 2022).

Fifth, health information technology portrays a progressively vital care delivery role. Several findings document the limitations of electronic health records. Still, inadequate evidence exists to detect health information technology features that develop team functioning, bridging the mismatches between providers and patients (Svensson, 2019). Health information technology introduces a prospect to survey how teams adapt to change. Thus, health care systems must understand how these techniques can support the targeted teamwork competencies and behaviors.

Lastly, team performance measurement systems must take strides with the changing interdependency and compositional arrangements. For instance, sensor-based measurement is a promising field for stabilizing the compromises to survey and observational methodologies

(Nyein & Gregory, 2021). These measures apply computerized tools such as infrared devices and radiofrequency recognition chips to dynamically obtain team members' composition, speech content, and behavior data. Activity traces can add to sensor-based indicators to recognize behavior patterns and capture the result of information system applications such as paging systems, e-mail activities, and electronic medical record documentation (Nyein & Gregory, 2021).

Implications for Biblical Integration

Bible principles incorporate into people's lives and pursuits without a deliberate and sentient decision to use the principles. For example, God instructs His believers to forgive others as He has forgiven them. In this case, the faithful do not typically evaluate all Scriptural tenets and restrictions connected with clemency to consider the effect of their choices (Bingemer, 2019). Instead, God's believers exercise the Biblical doctrine because it is right to do.

The Bible implies the importance of conducting research to enrich one's knowledge (Zagonari, 2019). Similarly, research links to many things in individuals' everyday lives. Moreover, the Scriptures serve as a guidebook for any business undertaking (Bernacchio, 2019). The following are the implications for this study's Biblical integration:

Significance of Conducting Research. Practically, everybody partakes in research. For instance, a child handles toys to discover unique hues and textures while biomedical researchers investigate cancer cures. The toddler and the scientists' intentions may differ, but each shows interest in research. While many do not acknowledge it, Biblical philosophies and research concepts affect individuals' lives.

Christians are certain that God speaks to them through His word, revealing His character (Bergel, 2019). The Bible provides the foundation for truth systematically and orderly,

supporting a believer's life and hope. In addition to revealing the world's origin, The Scriptures trace man's separation from God and God's reconciliation with sinners (Keller & Alsdorf, 2012). The blueprint of redemption and restoration of God's image in the human soul are the fundamental themes of the Bible. It raises life's most important question: What should individuals do to be saved (Bergel, 2019)?

Experts define research methodology as a resolute and methodical procedure that accomplishes many purposes (Cleveland, 2021). Research aims to respond to a question, define, rationalize an occurrence, or assess a theory. Stating the hypothesis, identifying the population, variables, instruments, or types of equipment employed, data collection procedures, data analysis, and interpretation are all grounded on answering the research question.

Non-experimental, experimental, quantitative, or qualitative research contributes to the knowledge pool in a specific discipline. As researchers approach their studies systematically and orderly, God's requirement for men to improve their intellectual abilities laid the groundwork for research. He designed man's elaborate cerebral capacities to think, understand, and act accordingly. Appropriately, the Bible stated, "God breathes out all Scripture for teaching, reproof, correction, and righteousness training" (New International Version, 2011, 2 Timothy 3:16).

God has provided man with the capacity to think, learn, and do (New International Version, 2011, Proverbs 2:2). Therefore, developing an inquisitive mind manifests faith, hope, and love for God, representing man's response to His self-revelation. God's entire creation, involving the human body's intricacies, the sky's wonders, and the earth's natural riches, presents myriad prospects for the practice of research.

Forming a Sound Organizational Culture. Creating organizational values is a critical phase in constructing a healthy business culture. The Bible offered advice in forming meaningful workplace values: “God has shown you, O man, what is good. And what does the Lord require of you? To act justly and to love mercy and to walk humbly with your God” (New International Version, 2011, Micah 6:8). These requirements explore a standard to gauge a structural value system. Integrity, devotion, and humility result in dependability, servant leadership, and humility, as each Scriptural interface is a critical piece of an ideal organizational culture.

Benefits to Business Practice and Relationship to Cognate

Effective teamwork can positively impact patient safety and outcome (Silva et al., 2021; Tan et al., 2019). The demand for effective teams has grown because of increasing co-morbidities and care specialization complexity. Thus, health care evolution and the universal call for quality patient care require corresponding professional training with boundless attention to a patient-centered teamwork methodology. Institutions can only accomplish this goal by placing the patient in the center of care and sharing a widely based culture of principles and values (Hallgren et al., 2021; Wolf et al., 2022).

Health care teams can expand patient outcomes, prevent medical errors, improve efficiency, increase patient satisfaction, and improve organizational culture when all clinical and non-clinical staff collaborate effectively (Metwally et al., 2019; Parker et al., 2020; Profit et al., 2020). Practical team training helps form and expand an effective team that delivers outstanding patient care. Motivating teams must acquire practical skills and strategies to accomplish specific objectives and conquer challenges. This study underscores the correlation between organizational values, team principles, and a pragmatic approach to delivering safe, quality patient care.

In health care administration, a team training program includes a rapid-cycle method for continuous quality improvement, helping teams obtain critical thinking skills, establishing quantifiable goals, and utilizing data for process improvement. This program encourages front-line staff to apply their knowledge, skills, and attitudes to build care innovations and lead tests of change. Therefore, members are expected to develop a learning culture and shared leadership as team members, ultimately improving organizational culture.

Summary of the Significance of the Study. The motivation to deliver quality patient care depends on high performance with patient-focused teams. Still, health care leaders need to minimize the gap between conventional practices and the new mindsets acquired from an efficient team to accomplish such a significant endeavor. Thus, health care institutions should provide extraordinary patient care by adopting a wide-ranging team-based culture. This strategy shares specific values and principles with transparent communication among team participants, including patients, placing them in the center of care.

Even highly skilled, driven experts are susceptible to errors attributable to human limitations. Communication breakdowns and lack of teamwork can adversely influence patient care quality. TeamSTEPPS offers health care institutions the knowledge, resources, and tools to enhance the quality of care, increase employee engagement, and increase patient safety. These components ultimately lead to improved safety and organizational culture.

Many hospitals and care systems utilize TeamSTEPPS to increase their teamwork communication, perceptions, and culture. TeamSTEPPS training has driven appreciable quality improvement in numerous health care delivery zones. Current literature concurs that TeamSTEPPS strategies can embed in an organization’s processes, new staff orientation, organizational policies, and annual competencies. Lastly, health care systems should

meticulously weigh logistic procedures and cautiously develop TeamSTEPPS sustainment and implementation plans to improve health care delivery quality, safety, and efficiency.

A Review of the Professional and Academic Literature

Organizational culture represents shared ways of thinking, feeling, and behaving. It is crucial to an organization's services' functionality, performance, and quality. Accordingly, health care businesses comprise numerous groupings, which may initiate change or destabilize initiatives. Organizational culture generates a sense of distinctiveness for every health establishment while serving as a reference frame for decisions and actions.

A thriving teamwork culture comprises an atmosphere marked by the collective credence that an institution can advance most efficiently when teamwork and collaboration are the centers of thinking, planning, and decision-making. Organizational culture provides operating conditions such as norms of interaction that promote effective teamwork. Thus, workplace context influences team processes and outcomes (Strawser, 2021).

Health care team training has broadened its characteristics and objectives to adapt to organizational change, the work environment, and the staff members' needs. Practical team training enhances unique capabilities and utilizes a strategic tool to govern team processes. Team training is strategically essential to foster individual and organizational learning. Additionally, it is crucial to enhance human resource practices with a significant stimulus on developing and maintaining personal and organizational capabilities.

Investment in optimizing health care teamwork has increased in the past years (King et al., 2021). The need for effective teams has grown due to increasing co-morbidities and the complexity of care specialization. Consequently, evidence regarding the effectiveness of these interventions has also increased. This literature review focuses on the current state of team

science and practice in acute care settings, demonstrating the relationship between TeamSTEPPS, patient safety culture, and organizational culture.

Impact of Team Training in Health Care

Understanding the workplace culture and its bearing on team functioning and dynamics makes an efficient team. An effective team arises when the team members, including the patients, communicate and merge their observations, proficiency, and decision-making duties to optimize patients' care (Kim et al., 2019). Experts have extensively studied team training and its link with personnel culture in health care, underscoring the value of strategic implementation to enhance patient safety (Alsabri et al., 2022; Dodge et al., 2021). Moreover, studies show improvements in quality and performance outcomes (Borckardt et al., 2020; Prochnow & Tschannen, 2022), workforce attitudes (Clancy & Tornberg, 2019; Matzke et al., 2021), insights (Ballangrud, Aase, et al., 2020; Buljac-Samardzic et al., 2020), and total health care delivery (Aaberg et al., 2019; Karlsen et al., 2022).

Enhanced Patient Safety. An effective medical error reduction strategy depends on an environment of safety for both clinically-based and systems-oriented patients. Formal teamwork training serves as a systems approach to achieving these ends. Team training improves patient safety (Alsabri et al., 2022; Dodge et al., 2021; Han et al., 2020; Shea, 2020). The current literature analyzed weaknesses and error patterns in specific departments (English et al., 2021; Monazam Tabrizi & Masri, 2021), periodically assessed teamwork (Wooding et al., 2020), and prospectively evaluated a formal teamwork training intervention (Kilpatrick et al., 2020). These studies found improvements in crucial teamwork measures with a significant reduction in clinical errors.

Health care has focused on teamwork's value in reducing risks. Patient safety initiatives are at the forefront of medicine and have mobilized health care personnel to identify and implement many strategies to reduce error. Recognizing the contribution of system mechanisms to the contributory chain of medical errors has widened the foundation for investigating incidents and identifying solutions (De Kam et al., 2020).

Improved Quality and Performance Outcomes. Patient safety experts agree that teamwork skills are essential for providing quality health care and improving performance outcomes (Borckardt et al., 2020; Prochnow & Tschannen, 2022; Sclafani, 2021; Sculli et al., 2022). Other team training courses include a rapid-cycle approach to quality improvement, helping teams achieve brainstorming skills, forming measurable aims statements, working with data, and presenting findings. Generally, team training programs empower front-line staff to apply their skills, knowledge, and ingenuity to lead tests of change and develop care innovations. This approach strengthens and transforms organizations by creating a shared leadership culture with a sense of responsibility and accountability for changes that improve quality and performance (Song et al., 2020).

Improved Worker Attitudes. Team training leads to positive worker attitudes (Clancy & Tornberg, 2019; Karlsen et al., 2022; Matzke et al., 2021). Improving perceptions and attitudes about teamwork and promoting effective communication is the first step in enhancing the quality in hospitals to a broader audience, thus improving the global quality of care and facilitating social change. Various attitudes can decrease team morale and weaken effective communication among its members. Team training initiatives demonstrated that team behaviors improved, proving that teamwork did not increase workload and staff attitudes towards collaboration were enhanced (Klasmeier & Rowold, 2022).

Improved Employee Perception of Teamwork. Team training develops employee insights into teamwork (Aaberg et al., 2021; Ballangrud, Aase. et al., 2020; Buljac-Samardzic et al., 2020; Hall-Lord et al., 2020). Some studies recommend using a teamwork effectiveness metric, where specially trained nurses and physicians observe teamwork functioning during high-intensity situations such as cardiac arrest and other acute episodes of care (De Brún, Anjara, et al., 2020). This approach underlines the systematic use of check-backs and cross-monitoring to prevent an adverse event. A check-back is a closed-loop communication approach used to substantiate and corroborate information exchange. This strategy encompasses the sender starting a message, the receiver accepting the message and confirming the information, and the sender validating the receipt of the message.

Mutual accountability for outcomes is a dominant component in teams and represents a noteworthy shift in thinking for health care professionals, whose education and training have historically focused on fostering individual responsibility. Furthermore, mutual accountability is not a substitute for individual accountability but represents a developmental step in professional commitment. In a high-reliability team, each member accepts personal accountability and becomes accountable for the team's actions and outcomes measured against established standards (Prakash & Srivastava, 2021).

Improved Health Care Delivery. The benefits of high-quality teamwork in health care are well recognized. Specifically, collaboration is associated with improved outcomes in primary care (Crosson, 2020) and cancer care (Taylor et al., 2021). Studies showed that team training augments health care delivery (Aaberg et al., 2019; Borckardt et al., 2020; Karlsen et al., 2022). The link between non-technical skills, such as teamwork, and adverse events is now well established (Mohsen et al., 2021). The collective burden of chronic disease management, co-

morbidities, and aging populations requires a coordinated and multidisciplinary approach to care (Wang, 2020). Team training analysis contended that training health professionals as teams constitute a pragmatic, effective strategy for enhancing healthcare delivery.

Sustainment Over Time. Sustainability is a constant evolution; therefore, the focus must be on training and providing sufficient time for teams to continue practicing teamwork strategies (Hunter et al., 2020). TeamSTEPPS training and implementation revolutionized how teams work together continuously. Hospital system leaders should play an active role in accentuating the importance of maintaining a safety culture with the support of TeamSTEPPS principles.

Businesses must identify how to sustain and advance team training. They train the teams and help with implementation and coaching. Although sustainment is customizable, consultant and council are two prominent sustainment models (Hunter et al., 2020). Expertise is centralized in a single department in the Consultant Model, and master trainers work with groups or departments upon request. In the Council Model, expertise spreads across the organization, giving departments a stronger sense of ownership. Each department or service line develops councils that report to organizational leadership.

Benefits of TeamSTEPPS

TeamSTEPPS imparts integrating teamwork principles into daily practice throughout the organization. It helps create a culture of situational awareness, mutual support, and a shared mental model for those who work in high-stress areas such as surgical suites, critical care, labor and delivery, the emergency department, and other units throughout the hospital. This program's attributes improve communication and shift the organization into a culture known for high quality and patient safety reliability. Current literature concurs that TeamSTEPPS improves

teamwork, communication, leadership, and patient satisfaction (Baloh et al., 2021; Borckardt et al., 2020; Clancy & Tornberg, 2019; Karlsen et al., 2022).

Dynamic Teamwork. In health care, individuals work together every day with the common purpose of providing high-quality patient care. Nevertheless, often they have little or no training in effective team behaviors that can improve patient safety outcomes. Teams learn to form a shared effort converging on making complex situational judgments, resulting in more effective outcomes than actions achieved individually. According to various researchers, team interventions are most effective with tasks that require diverse responsibilities, high-level judgment, complex decision-making, high investment, and accountability for the outcomes (Hall-Lord et al., 2020; Paguio & Yu, 2020; Shortridge et al., 2019; Zhu et al., 2020).

Since health care establishments operate with explicit or implicit teams, the prospect exists for formal teamwork training and collaborative changes to satisfy safety needs not met by other system changes (Augustsson et al., 2021). However, effective teamwork does not instinctively occur when individuals work together (Dodge et al., 2021). Instead, it requires long-term organizational and training investments.

Synergistic Communication. Communication signifies information exchange or transfer between a sender and a receiver. More explicitly, communication is a process where information is clearly and accurately taken to another team member using a recognized and known method by all involved. It includes asking questions, seeking clarification, and acknowledging the understanding of the received message. One crucial outcome of effective communication is the shared understanding between the sender and receiver.

TeamSTEPPS research showed that communications founded on mutual trust and shared perceptions of the importance of safety characterize institutions with a robust safety culture

(Alsabri et al., 2022; Dodge et al., 2021; Sclafani, 2021; Zhu et al., 2020). Nevertheless, a common perception does not constantly render effective clinical setting communication. Accordingly, staff members must learn team skills; many health care organizations find the importance of improving teamwork and communication skills and incorporating them into standard operations.

Furthermore, engaging patients and families are essential to improving healthcare communication. Research shows a connection between improved patient and family engagement and fewer adverse events (Park & Giap, 2020). Ascertaining how patients and their families want to be involved in designing their care plan increases their understanding of tests, procedures, and anticipated care outcomes, including a successful discharge. Health care teams that interconnect effectively and collaboratively reduce the likelihood of error, resulting in improved clinical performance and patient safety.

Proactive Leadership. TeamSTEPPS leadership holds a teamwork system together (Baloh et al., 2021; Hamm et al., 2021; Shortridge et al., 2019). There is a clear difference between the leadership of individuals and team leadership. The leader diagnoses a problem, generates possible solutions, and implements the most appropriate solution. In contrast, team leadership does not involve handing down solutions to team members but rather consists of defining team goals, setting expectations, coordinating activities, organizing team resources, and guiding the team toward its goals.

Team leadership training may improve team performance. Team leaders can improve performance by promoting collaboration, coordination, and cooperation. Various studies identified four important leadership themes: (a) team management (Cornell, 2020; Ohlsson et al., 2020), (b) establishing a vision (Kett et al., 2022; Smith, 2019), (c) communication (Baker &

Gilkey, 2020; Fibuch & Ahmed, 2019), and (d) personal attributes (Baker et al., 2019; Studer, 2020). Therefore, a skilled leader can better improve group dynamics, manage group conflicts, plan for professional training, and provide technical assistance to staff.

Patient Satisfaction. Patient satisfaction and comfort are essential to a health care facility's success. According to some studies, teamwork issues among health care professionals and patients are significant reasons for poor patient satisfaction (Baloh et al., 2021; Borckardt et al., 2020; Clancy & Tornberg, 2019; Karlsen et al., 2022). Departmental culture serves as the groundwork for patient care, which results in a high satisfaction rate. Fostering staff members' internal motivation to care may intensify the frequency of caring behaviors toward others and, subsequently, patient satisfaction (Drossman et al., 2022).

Effective Risk Management. Risk managers have an additional framework for evaluating events and proposing management changes when an institution applies a formal teamwork approach and considers teamwork an element of its operational infrastructure (Ferdosi et al., 2020). For instance, various evaluation tools can be used in a root cause analysis to support management reviews of team performance in specific units, support institutional trend analysis regarding teamwork breakdowns, and flag essential teamwork failures for reviews.

The risk manager has more means to integrate a teamwork valuation into the root cause analysis when he uses a structured teamwork approach. For example, when mutual accountability for clinical outcomes is a behavioral expectation shared by all team members, the focus of the investigation shifts from individual errors to team performance failure (Zadeh et al., 2019). This broader understanding discloses more opportunities for interdisciplinary coordination strategies that have a lasting influence on patient safety.

At the organizational level, the risk manager must sponsor and uphold the concept of teamwork as a vital structural intervention for error reduction and global liability mitigation. Examining the trends correlated to team performance can identify teamwork and system weaknesses that need reinforcement through formal and informal educational sessions. At the executive level, the risk manager likewise has a role in discussing the main occurrences and trending data that contribute to poor outcomes and raise the potential for liability.

Correlational Effect

Correlational studies on teamwork and performance metrics showed medium to large effect sizes (Paguio & Yu, 2020; Stucky & De Jong, 2021). These studies illustrate that teamwork relates to performance regardless of the team or task characteristics. Therefore, health care organizations should recognize the value of teamwork and emphasize approaches that maintain and improve collaboration for the benefit of their patients.

Inputs, processes, and outputs (IPO) often describe team performance. Outputs involving quality care, errors, or performance influence team-related communication, coordination, or decision-making processes. Furthermore, various inputs relating to team members' experience, task complexity, and time pressure, among others, influence these processes.

The IPO framework emphasizes the team processes' critical role as the mechanism by which participants combine their abilities and resources to resolve team task demands shaped by the context. It has been the basis of other more advanced models despite its simplicity. However, it is still the most popular framework and helps systematize the mechanisms that predict team performance (Marsicano et al., 2020).

Studies confirm that teamwork across various team compositions represents a robust process to improve patient care. Good teamwork is achievable by utilizing joint reflection about

teamwork during clinical event debriefings (Toews et al., 2021), team training (Liaw et al., 2019), and system improvement (Yiu et al., 2019). All health care organizations should recognize these results and place constant efforts into improving and maintaining teamwork for their patients' benefit.

Malpractice Claims and Communication Issues

The health care system cannot overemphasize the importance of developing patient rapport. When physicians do not communicate with caring concern, especially when the care is painful, difficult, or results in less-than-optimal outcomes, miscommunication occurs among patients, families, and physicians. Effective communication skills are a vital instrument that assists the care provider in establishing an optimal patient rapport.

Under these situations, patients who express their anger and frustration may cause the physician to respond defensively so that patients may perceive them as hostile or arrogant. This response often causes the patient to seek the advice of a lawyer since poor communication between a physician and patient can make an already irate, displeased patient believe the care was substandard even when it was entirely appropriate (Birkeland et al., 2021).

Malpractice claims analysis shows that communication issues affect provider performance in about one of four cases (Humphrey et al., 2021; Sclafani, 2021). These claims involve communication breakdowns between providers and patients across health care services and settings. While communication failures are varied, the implications involve unsafe patient care.

When a claim stems from provider-to-provider communication failures, it is more likely to result in compensation than cases with provider-patient communication issues. Moreover, communication difficulties do not only pertain to providers lacking people skills or patients with

linguistic or knowledge deficits. Every system and mode where caregivers and patients share health-related information is susceptible to failure (Humphrey et al., 2021; Sclafani, 2021).

Root Causes of Adverse Events

More than half of adverse events' root causes are teamwork and communication issues (Han et al., 2020; Zhu et al., 2020). Communication deficiencies and teamwork issues have commonly contributed to adverse events. Estimations are challenging, considering the inconsistencies in definition, reporting, and measurement. Still, some studies strengthen the concept that communication and teamwork are crucial elements of safe health care systems (Alsabri et al., 2022; Clancy & Tornberg, 2019; Dodge et al., 2021).

The expansion and implementation of team-training initiatives in acute care settings have increased significantly in the last decade with enhancements in methods, content, and assessment models. Training content, implementation, and evaluation improvements have progressed from over three decades of data analysis on team performance across a wide range of high-risk work conditions (Matzke et al., 2021; Shortridge et al., 2019). These advances formally recognized teamwork as a leading patient safety approach promoted for acute care settings adoption.

Business Practices

Like any other business, the health care industry gains from practices encouraging growth and innovation. Health care providers deliver unique services, which does not ensure success. The services offered must signify a consistent grasp of consumer interaction and best practices compliance to meet their demands. The following business practices relate to TeamSTEPPS and improved overall organizational culture:

Team Training. Team training is a systematic methodology for optimizing health care teams' communication, coordination, and collaboration. Team training is a constellation of the

specific skills, knowledge, and attitudes that underlie targeted teamwork competencies, tools, and delivery methods that form an instructional strategy, an essential component of safe health care systems (Alsabri et al., 2022; Clancy & Tornberg, 2019; Dodge et al., 2021). This strategy combines specific content with formative feedback, opportunities for practice, and tools to support the daily transfer of care training.

Health care organizations must establish a systematic, proactive, organization-wide approach to developing team-based care through teamwork training, skill-building, and team-led performance improvement interventions that diminish preventable harm to patients. Training programs should analytically apply the principles of effective team leadership, team formation, and team processes. The critical element defining team training focuses on refining, developing, and reinforcing knowledge, skills, or attitudes that underlie effective teamwork behaviors (Wooding et al., 2020).

Previous reviews found that the most targeted teamwork competencies include communication, situational awareness, leadership, role clarity, and coordination (Hebles et al., 2019). To this end, team training activities aim to develop transportable, generalizable teamwork competencies that learners can apply across different teams and settings. These activities distinguish team training from learning activities focused on technical, clinical skills such as differential diagnosis and procedural skills, along with team-building exercises focused on developing emergent states such as trust or cohesion among members of an entire team.

Recent literature reports associations between several teamwork qualities and clinical performance. These qualities include situational monitoring (Hall-Lord et al., 2020; Shen et al., 2020), communication (Abu Dalal et al., 2022; Alsabri et al., 2022), and leadership (Hamm et al., 2021; Shortridge et al., 2019). Other qualities involve trust (DelNero & Vyas, 2021), shared

mental models (Aaberg et al., 2021; Karlsen et al., 2022), and clinical performance (Hall-Lord et al., 2020; Shortridge et al., 2019). For instance, research has indicated increased death and complications when teams demonstrate undesirable teamwork behaviors such as inconsistent information sharing during handoff phases and less briefing.

Situational Monitoring. Health care teams and other sectoral clusters working in dynamic milieus need to assess and monitor external and internal systems, allowing for identifying changes that can affect the final goal. Situation monitoring actively assesses and scans the circumstantial elements to maintain or gain an accurate awareness or understanding of the team's functional condition (Hall-Lord et al., 2020; Shen et al., 2020). Correspondingly, situation awareness is a feature of the team and individual cognitive states characterized by environmental awareness, patients' states, and how those conditions affect their tasks (Jonsson et al., 2021).

Poor situation monitoring contributes to clinical errors, whereas high situation awareness links to increased team performance needed for patient care. Auspiciously, situation awareness is learnable expertise, and health care providers can intensify their understanding and perception of this concept through training programs. A study found that health care providers gained significant improvements in situation monitoring on simulated training with TeamSTEPPS tools (Beneria et al., 2020).

Similarly, another study found significant pre- and post-training changes in situation monitoring within a trauma team after training with TeamSTEPPS (Hoang et al., 2020). It enables health care providers to increase their awareness of the patient's condition, the environmental state, and fellow team members. Thus, situation monitoring embodies a set of behaviors taken by an individual to perform various functions that help the team actively scan

critical elements of the surrounding environment or situation (Hoang et al., 2020). This practice enables the individual and group to facilitate strategy implementation, engage in team learning and regulation, and correct problems before they occur.

Communication. Organizations cannot devalue the significance of building an effective team within the workplace. All effective teams need to appreciate the significance of group communication since it is central to their success (Abu Dalal et al., 2022; Alsabri et al., 2022). Effective team communication builds a common purpose among team members, allowing them to reach their goals.

Influential team leaders know that group communication drives organizational efficiency (Smollan & Morrison, 2019). As employees understand their work standards, they are more eager to reach out for help when they require it, empowering a more capable team. Effective communication defends patients from possible harm arising from misunderstandings.

While communication failures leading to serious harm, such as amputation of the wrong leg, are rare, minor shortcomings can have serious repercussions (Stevens et al., 2021). For instance, communication errors between contemporaries can result in medication errors, where staff can give the wrong medication or patients take an incorrect dose of the correct medication. Poor communication in an end-of-shift handover can result in patient harm if teams do not share critical information from one professional to another.

Leadership. Leadership and teamwork directly impact an organization's ability to carry out its mission (Hamm et al., 2021; Shortridge et al., 2019). Accordingly, leaders take on the role because they are elected, appointed, or emergent. An authority designates an appointed leader to serve in that capacity, regardless of the group’s thoughts or wishes. The appointee may serve as the leader and accomplish all the assigned tasks, but it can be challenging if the group does not

agree to take their role. An appointed leader without the group's endorsement may experience challenges to their authority. Experts note that storming ensues as group members communicate more freely and come to know each other (He et al., 2020; O'Donovan et al., 2021).

The democratic leader involves the group in decision-making and ensures group ownership of the resulting decisions and actions. A democratic leader is designated or selected by the group but may encounter grave difficulties. If individual members or essential groups feel ignored or abandoned, they may underline that the democratic leader does not embody their interests (Perez, 2021). Open and accessible deliberations are illustrative of this process, and the democratic leader recognizes this multiplicity of opinions.

An emergent leader diverges from the first two roles by growing into the part, often due to necessity (Taha et al., 2022). When the appointed leader does not possess expertise in a specific theme or context, group members may logically look to the senior member with the most leadership experience. If the democratic leader does not represent the whole group or fails to unify the group, subgroups may form, each with an informal leader serving as a spokesperson.

Trust. Trust is vital to an effective team because it affords safety. When team participants feel safe, they feel comfortable acting, taking appropriate risks, and exposing vulnerabilities (DelNero & Vyas, 2021; Van Huy et al., 2020). Trust induces innovation, collaboration, creative thinking, and productivity, and members spend less time protecting themselves and their interests, helping the group attain its goals.

Trust is also essential for knowledge sharing. A study found that trust was crucial in a team's knowledge acquisition (Tu et al., 2020). Trust among team members equates to knowledge sharing and open communication. Trust between team members connects to team performance and other aspects, such as trust in past team performance and the team leader.

Moreover, a descriptive study confirmed a positive relationship between trust and team goal achievement (Liu, 2021).

Small teams that concentrate their decision-making responsibility seem to prioritize trust. Conversely, trust is the least priority for teams where individuals can work independently to complete their work. Experts theorize that increasing trust among team members helps them acknowledge their vulnerability (Delgado et al., 2021), enabling them to collaborate to achieve the team's goals. Therefore, trust enables members to work through differences and openly share perspectives, increasing the quality of their work.

Thus, trust matters more when team members hinge on one another for technical skills, clear decisions, and to complete tasks. When people appraise others' trustworthiness, they often emphasize three factors: ability, benevolence, and integrity (Breuer et al., 2020). Some researchers have specified that having team members share practical past experiences helps them build trust by highlighting areas of competence and similarity among team members (Lyndon et al., 2020). Additionally, leaders must maintain team visibility mainly through face-to-face communication to help foster trust (Breuer et al., 2020).

Shared Mental Model. The notion of shared mental models denotes the shared understanding among team members when managing different circumstances. Shared mental models overlap individuals' knowledge and assumptions that act as the basis for understanding and decision-making between individuals. Shared mental models facilitate effective healthcare teamwork and influence clinical decision-making and performance. Promoting a shared mental model is a fundamental element of teamwork-enhancing techniques and programs such as TeamSTEPPS (Aaberg et al., 2021; Karlsen et al., 2022).

As health care teams rapidly grow and expand, it is critical to understand and correctly use shared mental model measurement methods to assess optimal team performance (Majid, 2020; Morag & Zimerman, 2021). Inopportunely, consensus on correctly measuring shared mental models within health care remains diffuse. People differ in their traits, thinking patterns, perceptions, and word use. The challenge for communication is to overcome those possible differences and reach a state of shared understanding or a platform of shared knowledge, presuppositions, and beliefs to help achieve mutual goals (Majid, 2020).

In health care, a shared mental model is an individually held knowledge structure that helps team members function collaboratively in their environments. Studies establish that shared mental models improve the team's ability to communicate and coordinate (Morag & Zimerman, 2021). Shared mental models aid cognition, reasoning, and decision-making and are needed to enhance safe and effective care. Efforts to improve team functioning can benefit from the broader deployment of shared mental models.

Improved Clinical Performance. Psychological and organizational barriers inherent to health care can hinder performance, affecting clinical outcomes. Many health care disciplines have established multidisciplinary teams as a best practice for optimal patient care (Hall-Lord et al., 2020; Shortridge et al., 2019). The practical barriers to these teams reaching optimal clinical outcomes can include differences in training, professional values, problem-solving approaches, and understanding of critical issues (Mohsen et al., 2021).

The health care industry operates in a high-reliability context and needs to constantly develop team performance due to the enormity and seriousness of sub-optimal performance. Patient outcomes impact clinical, administrative, and research teams. Consequently,

comprehending the aspects that reinforce team performance across different health care functions is essential to promoting team effectiveness in health care.

High Reliability Organization (HRO). High reliability defines a structural culture that endeavors to attain error-free performance and safety in each process while functioning in intricate, hazardous settings. HROs are institutions with consistent and repeatable practices that catch and correct potentially devastating errors before they occur (Cantu et al., 2021; Mossburg et al., 2019). For example, one general theme across these attributes is a continuous state of consciousness to identify errors and interfere before impacting patient safety immediately.

HROs have reliable and repeatable practices that catch and correct errors before they occur (Cantu et al., 2021; Mossburg et al., 2019; Moy et al., 2022). They have systems that make them remarkably consistent in avoiding potentially catastrophic errors and accomplishing their goals. First, they prioritize the safety and performance of shared goals across the organization (Pariès et al., 2019). Second, they recognize the culture of reliability that concurrently centralizes and decentralizes operations allowing authority decisions to drift toward lower-ranking members (Veazie et al., 2022). Third, they use trial-and-error learning to modify their processes following accidents, incidents, and near misses (Shea, 2020). Lastly, they utilize the strategy of behavior redundancy, such as one person stepping in when a task needs completion (Grabowski & Roberts, 2019).

HROs embody patient safety improvements in health care by eradicating unnecessary care delivery deviation while improving patient outcomes and lowering costs (Sculli et al., 2022; Serou et al., 2021). This degree of medical and operational distinction often involves cultural transformation and shifting organizational beliefs, attitudes, values, and goals. Other high-risk businesses, such as the military, commercial aviation, and energy, have implemented high

reliability policies. Still, other industries exceed health care delivery systems' safety and quality levels (Adelman, 2019; Sawyerr & Harrison, 2020).

Employee Engagement. Employee engagement is a terminology that defines an employee's connection with his workplace, team, function, and company culture. When continuously exposed to heightened stress, employees become disenchanted with their job, leading to conflicts, transfer requests, extended leaves of absence, and turnover. Employee burnout and loss of engagement are considerable concerns in any industry (Shah et al., 2021; Sijbom et al., 2019).

Health care entails human capital investment and must focus on employee engagement (Bas & Çınar, 2021; Dellosso, 2020). The decline in practitioner engagement, coupled with an increased nurse and physician burnout, has become a serious concern continuing in a negative trend. A study found that 40% to 50% of U.S. physicians said their work is physically and mentally demanding (Rehder et al., 2021). Thus, there is a clear link between employee engagement, productivity, and wellbeing.

Due to the critical terrain of health care processes, employee engagement should be a business priority for health care leaders. Employee disengagement can result in high employee turnover (Bas & Çınar, 2021), provider burnout (Rahman et al., 2020), and reduced quality of care and patient satisfaction (Dellosso, 2020; Waheed et al., 2021). Businesses need to promote a culture that supports meaningful work and strengthens their employees' discretionary efforts to nurture employee engagement (Abu Dalal et al., 2022; Suomi et al., 2021).

Studies show that nearly 20% of health care employees are disengaged (Aodton et al., 2021). Moreover, about 40% of health care workers are not actively engaged (Palumbo, 2021). Disengaged employees have low morale levels, are likely to spread negativity to other team

members, have higher levels of absenteeism, are less productive with poor job performance, and are more likely to make mistakes.

Implications. Disengaged healthcare staff contribute to poor patient outcomes due to workloads, stress, and burnout. Employee disengagement can lead to high employee turnover (Bas & Çınar, 2021). In addition to recruitment costs, the high staff turnover has consequences for patients, including decreased patient access, patient safety, and quality of care.

While burnout and disengagement are different, employees often find them together if they see no forthcoming improvements to their situation. Employee disengagement can lead to burnout (Rahman et al., 2020). Some facilities engage medical staff by providing mental health and wellbeing resources such as Employee Assistance Programs, free counseling, and other resources to assist with stress and help reduce burnout.

Employee disengagement leads to decreased patient satisfaction and quality of care. Research has found that higher worker engagement levels link to patient satisfaction (Dellosso, 2020; Waheed et al., 2021). There have been associations between disengaged and engaged health care professionals and the health care organization's performance in terms of efficiency of service, patients' satisfaction, revisit or readmissions, and the chances of patients endorsing the service to others.

Even with technological advancements, health care remains a people-intensive industry, and increasing patient satisfaction rates and reducing hospital-acquired infections entail human capital investment, centering on employee engagement (Bas & Çınar, 2021; Dellosso, 2020). Employee engagement sets the organizational culture, empowering teams to feel valued. Employee engagement positively affects workforce collaboration in healthcare, creating a genuine, compassionate mindset and atmosphere for patients. However, studies reveal that nearly

one in five health care employees are disengaged (Aodton et al., 2021), while about 40 percent are merely content rather than actively engaged (Palumbo, 2021).

Just Culture. Traditionally the health care sector, the legal system, and patients have held the caregiver accountable for medical errors (David, 2019; Marx, 2019). Errors and accidents result in morbidity, adverse outcomes, and sometimes mortality in health care. One organizational approach has been seeking out errors and identifying the responsible individual. Individuals operate within structures designed by an organization. Although an individual may be at fault, the system is frequently at fault. Punitive action without altering the system only prolongs the problem rather than solving it (Foslien-Nash & Reed, 2020; Paradiso & Sweeney, 2019).

Healthcare systems must collect, analyze, and act upon productive investigative data to improve patient safety. Equally, an organization's workforce must believe that they must report errors. Medical institutions cannot afford a blame-free culture due to some errors warranting disciplinary action. Just culture identifies a balance between punishment and blamelessness (Foslien-Nash & Reed, 2020; Paradiso & Sweeney, 2019).

A fair and just culture reinforces patient safety by empowering employees to monitor the workplace proactively and participating in safety efforts. Health care experts recommend three practices to establish a just culture. First, routinize processes aimed at human error prevention (Adelman, 2019; Barkell & Snyder, 2021; Wasserman et al., 2020). Second, limit negative consequences when human errors occur (Paradiso & Sweeney, 2019; Wang et al., 2021). Lastly, support and educate staff members who make errors (Fencl et al., 2021; Foslien-Nash & Reed, 2020).

In a just culture, employees are accountable for their actions and choices. Still, they are also responsible for each other, which may help some members overcome the intrinsic resistance to dealing with inept or impaired colleagues (Fencl et al., 2021). Accordingly, improving patient safety reduces risk by managing human behavior, helping others manage their behavior, and redesigning systems.

The secondary benefits of a just culture include developing a favorable patient safety profile to respond to regulatory firms such as the Joint Commission (David, 2019; Marx, 2019). When implemented, a just culture nurtures cross-departmental communication and innovation. For instance, the opportunity to revitalize the morbidity and mortality conference to cross specialty lines and develop a patient-centered focus strengthens the safety culture (David, 2019; Marx, 2019).

The patient safety movement has embraced a central thesis that most medical errors stem from inadequate systems rather than incompetent workers (Marx, 2019). This thesis has resulted in an evolution of a *no-blame* culture, encouraging health care providers to report their near misses and errors. This way, organizations can employ systems processes to understand the underlying latent conditions contributing to errors. Moreover, this process develops programs to identify and fix dysfunctional systems. In a just culture, the business and its workforce hold each other accountable while converging on systems design, risk, patient safety, and human behavior (David, 2019).

The just culture philosophy builds upon foundational elements that differentiate innocent from blameworthy mistakes. While the blameless approach is largely appropriate and is responsible for the field’s shift to a blameless culture, it needs to balance with accountability

(Wasserman et al., 2020). For instance, individual practitioners should not be held accountable for system failures that they cannot control.

Additionally, *just culture* distinguishes that many errors embody expected interactions between human operators and their work systems and recognizes that competent professionals make mistakes. Furthermore, it acknowledges that even talented professionals develop unhealthy norms such as shortcuts, workarounds, and routine rule violations (Wasserman et al., 2020). Lastly, all practices must have zero-tolerance for reckless behavior.

When anyone in the institution reports adverse events or outcomes associated with patient harm using predefined triggers such as deaths and complications, a defined algorithm assesses if the individuals involved are in some way culpable. Many organizations have policies that describe a nonpunitive error response. However, barriers to speaking up include negative reactions and the risk of discipline from leaders (Barkell & Snyder, 2021). Thus, leaders need to understand the nature and scope of errors, actively redesign faulty systems, and value voluntary reporting.

A just culture perspective advocates a punitive response for those who have willfully and irreparably caused harm. Even with the best meticulous efforts, physicians and other health care clinicians unavoidably make mistakes by omission, commission, or simply due to human nature and imperfections of work environments (White & Delacroix, 2020). Accordingly, punishment creates blame-based workplace cultures that deter error reporting, interfering with patient safety.

Consequently, the just culture model guides health care systems and institutions by integrating human factor design (Barkell & Snyder, 2021) and error prevention (White & Delacroix, 2020). Its goals are to form a reasonable and open atmosphere to encourage learning, guide the implementation and design of safety systems, and support sound behavioral choices.

Facilities must formulate action plans to contain errors' costs before they become critical (Wasserman et al., 2020).

The Problem

The general problem involves the challenges encountered by health care leaders to detect strengths and weaknesses in executing and upholding a vigorous TeamSTEPPS initiative resulting in the lack of data measuring the relationship between TeamSTEPPS training, organizational culture, and patient safety culture. Consequently, health care teams lacking knowledge, skills, and attitudes can negatively impact organizational culture (Aaberg et al., 2019; Baloh et al., 2021; Cantu et al., 2020) and compliance with patient safety guidelines (Alsabri et al., 2022; Han et al., 2020; Harolds, 2021; Parker et al., 2019; Shea, 2020). Moreover, studies revealed that TeamSTEPPS implementation barriers remain challenging due to the numerous resources required to provide teamwork training (Aaberg et al., 2019; Karlsen et al., 2022; Parker et al., 2020). Similarly, there is a palpable lack of staff commitment to the program (Aaberg et al., 2021; Parker et al., 2019).

Lack of Knowledge, Skills, and Attitudes. Accordingly, team training alone does not guarantee organizational culture improvement. It must involve the following components: First, workforce enthusiasm brings out more ideas and fosters individual and team knowledge (Ballangrud, Aase, et al., 2020; Rabkin & Frein, 2021). While apathy increases team excuses, enthusiasm increases team accomplishments. Second, continuous improvement efforts provide opportunities for skill development (Paguio & Yu, 2020; Prochnow & Tschannen, 2022; Sclafani, 2021). The only way to preserve and sustain a continuous improvement culture is to concentrate on developing new competencies. Organizations can challenge employees to improve their skills and knowledge by applying continuous improvement. This approach

ultimately allows the company to stay one step ahead of its competitors. Lastly, senior leadership's support enables the team to contribute their expertise, allowing them to become more than their parts (Bas & Çınar, 2021; Min et al., 2020; Shen et al., 2020).

Specific Problem. The specific problem to be addressed involves the potential challenges health care leaders encounter in identifying strengths and challenges in implementing and sustaining a robust TeamSTEPPS program resulting in the lack of data measuring the relationship between TeamSTEPPS, patient safety culture, and organizational culture within a New York City public hospital. Health care organizations recognize teamwork training related to patient safety as an important initiative. For example, Patient-Centered Medical Home (PCMH) standards require teamwork training (Gendelman et al., 2021). PCMH implements new strategies and health care delivery guidelines across the health care workforce. As it becomes evident that teams must learn collaboration competencies, many healthcare organizations must improve teamwork and communication skills and integrate those skills into standard operations.

Health care personnel who do not commit to their roles and report unsafe conditions, unacceptable behaviors, and errors do not demonstrate conformity with safety culture guidelines (Harolds, 2021). Refining the safety culture within healthcare institutions is an indispensable constituent of preventing or reducing errors and improving overall quality. Researchers have noted extensive variations in perceptions of safety culture across organizations and functional descriptions (Meena & Shetty, 2021). In prior surveys, physicians have steadily commented on the lack of a blame-free environment (Brborović et al., 2019), and providers at all levels have noted issues with a logistic commitment to establishing a culture of safety (Akkaya, 2020). Thus, the primary explanations for the underdeveloped safety culture are multifaceted, with poor communication and teamwork, a culture of low expectancy, and authority gradients playing a

role. Studies demonstrate that team training institutions provide workers with the knowledge and tools to systematically adapt to changing situations (Berry et al., 2020; Borckardt et al., 2020).

Implementation Barriers. TeamSTEPPS implementation barriers remain challenging (Baloh et al., 2021; Parker et al., 2019). Therefore, an initial assessment entails identifying opportunities for improvement and determining the institution's readiness. This assessment includes establishing leadership support (Bas & Çınar, 2021; Min et al., 2020; Shen et al., 2020), identifying potential barriers to implementing change (Baloh et al., 2021; Parker et al., 2019), and determining the resources in place to successfully support the initiative (Parker et al., 2019). The team must detect the recurrent problem threatening patient safety and determine how this issue results from prevailing processes and procedures.

Theories

The theoretical framework strengthens the study because assumptions permit the researcher to appraise them critically. The theoretical framework ties the scholar to existing knowledge, providing a basis for the hypotheses and choice of research methods. Articulating the theoretical assumptions allows the transition from simply describing an observed phenomenon to generalizing the various aspects. The following theories identify the association between organizational culture and team training. These principles convey the specific problem of data shortage of determining the TeamSTEPPS link to organizational and patient safety culture and distinguishing the challenges in employing and maintaining a solid TeamSTEPPS initiative.

Hierarchy of Needs. The Hierarchy of Needs Theory founded this study’s groundwork. Abraham Maslow established this theory to inspire individuals, constructing the foundation for effective teams (Noltemeyer et al., 2021). This philosophy aspires to determine how teams develop their motivation; therefore, specific levels need conditions to continue to the subsequent

stage. Maslow's theory suggests that projections for advancement encourage groups, similar to high reliability organizations (HROs), that tend to become more productive and innovative whenever a need arises (Desmet & Fokkinga, 2020).

The power of this model lies in bringing higher awareness to the team and its leaders and serving them with the next step in their growth. As humans strive to meet their most basic needs, Maslow's theory contends that they also seek to satisfy a higher set of conditions until they become self-actualized (Noltemeyer et al., 2021). This theory could mean discovering a deep purpose and passion in one's role and delivering true excellence in the workplace.

Maslow believed that individuals could only address the higher-level needs of self-esteem and fulfillment once the minimum requirements have been partly satisfied. However, he explained that it was unnecessary to fully satisfy a level of need before the next level emerged as a motivational force (Hoffman, 2020). Meeting these needs helps motivate employees to learn continually, grow and perform better for themselves and their organizations. Maslow's model can help teams identify their needs and formulate strategies.

The Hierarchy of Needs Theory inspires individuals and creates the foundation for effective teams (King et al., 2020; Noltemeyer et al., 2021). If a manager can grasp an employee's role in the hierarchy, he can identify the best way to motivate that individual. Groups are more productive and innovative whenever a need arises (Desmet & Fokkinga, 2020; Poirier & Devraj, 2019). Maslow wrote that certain conditions are direct fundamentals for fulfilling needs, such as the liberty to speak, express, or defend oneself, justice, fairness, and honesty. A threat to these conditions is perceived almost as a threat to their needs.

Social Identity. The theory of social identity implies that the most effective teams involve participants with a consistent, collective social identity (Cheong et al., 2020; Davis et al.,

2019). This theory implies that teamwork training raises productivity by acknowledging a member's effort. This principle states that an individual's groupings contribute to his self-assessment (Bochatay et al., 2019; Willetts & Garvey, 2020). Social identity theory suggests that the rationale for working as a unified group forms socially. Highly productive collaboration demands that members acknowledge the team as a desirable unit. Thus, social identity theory can improve teamwork mindsets toward interaction, resulting in increased enthusiasm for collaboration.

The social identity theory addresses how social identities affect people's attitudes and behaviors regarding their groups. Social identities are most dominant when individuals consider membership in a particular group central to their self-concept and feel solid emotional bonds to the group. Affiliation with a group confers self-esteem, which helps to sustain social identity. Some critical processes associated with significant social identities include within-group assimilation, such as pressures to follow the ingroup's norms, and forms of intergroup bias, such as positively evaluating one's ingroup relative to the outgroup and possibly negatively evaluating the outgroup. Social identity theory has been used in developmental psychology to explain conformity and group-based prejudice in peer groups (Kim et al., 2020; Prayag et al., 2020).

Kirkpatrick. The *Kirkpatrick Model*, also called *Kirkpatrick's Four Levels of Training Evaluation,* is necessary for a facility's training effectiveness evaluation. This model builds a practical blueprint to identify targets, evaluate outcomes clearly, and detect zones of significant influence. This paradigm, generally recognized as one of the most significant training assessments, involves four stages: response, learning, comportment, and outcomes (Low et al., 2018; Wood et al., 2020). Examining data at each process enables organizations to assess the

connection between each phase better to better comprehend the training effects, empowering teams to realign plans and alter the course throughout the learning period.

Among the many aspects that can affect whether training programs achieve their desired outcomes, one of the most critical parts of training program implementation is accurately assessing their impact using a suitable method (Low et al., 2018; Wood et al., 2020). This analysis allows organizations to alter the learning path when necessary to comprehend the connection between each training phase. This model allows teams to connect between each training phase and modify the learning path when necessary (Bari et al., 2021; Cullinane et al., 2020).

One of the approaches utilized to evaluate educational programs is Kirkpatrick's model. In addition to measuring learners' satisfaction, this method measures learners' and teachers' input, training process, and output, such as participants' behavior (Shin & Kim, 2021). This model's characteristics include process simplicity, easy evaluation criteria, measurement of a limited number of variables, and distinctiveness from individual and environmental variables. Experts concur that this assessment is an appropriate model for evaluating team training programs (Bari et al., 2021; Cullinane et al., 2020).

Variables

A variable signifies an intervention technique or any element that changes quantitative research. It varies among the studied subjects and refers to a specific individual or organizational attribute that can be measured or observed. There are two categories of variables: independent and dependent. In the simplest terms, the researchers use independent variables to attempt to change their dependent variable (Morgan et al., 2020).

Categorically, variables correspond to any fluctuating feature, having at least two possible values (Cortina, 2020; Duckett, 2021). Typically, a variable vacillates in two or more groups or on a range of scores, and it can be calculated or evaluated on a scale. In a quantitative study, variables are linked to answering a research question or formulating hypotheses. Researchers create variables by developing constructs into quantifiable forms. The author defined the following variables in this purported research study:

Organizational Culture. Organizational culture includes a company's expectations, experiences, philosophy, and values that guide member behavior. Members express it as self-image, inner workings, interactions outside the workplace, and future expectations. Researchers base culture on written and unwritten rules shared attitudes, beliefs, and customs, developed over time and considered valid (Heyes, 2020).

Organizational culture is not stagnant. Accordingly, members develop a shared belief as they learn what yields success and interact over time. When collective beliefs and assumptions lead to less than successful outcomes, the culture must evolve for the business to stay relevant in a changing environment.

Organizational culture transformation is thought-provoking, as teams repeatedly struggle with change and can turn against a new culture. Hence, leaders must influence their employees on the benefits of change, showing through new behaviors and collective experience that the new culture is the best way to accomplish goals (Hald et al., 2021). Leaders must identify team expectations by distinguishing appropriate behaviors for various situations (Patel, 2018; Tan et al., 2019).

Studies show that organizational culture influences the power to implement quality improvement and patient safety initiatives (Berry et al., 2020; Lee, McFadden, et al., 2021).

Leadership should empower staff to infuse quality and safety into their daily work by ensuring they have the necessary awareness, knowledge, skills, resources, and support. This employee empowerment can be accomplished by incorporating quality and safety into staff orientations, including job descriptions and performance appraisals, providing ongoing training opportunities, granting authority to make decisions, and eliminating the fear of consequence or placing blame (Hald et al., 2021).

Patient Safety Culture. Safety culture is critical to healthcare quality (Odom-Forren, 2019). Its components include the attitudes and behaviors relating to patient safety and appropriately promoting it. Leaders must adequately assess their workplace safety culture and formulate a framework to guide personnel on their duties to increase safety within their units (Odom-Forren, 2019).

Culture directly influences patient safety by defining accepted practices and behaviors that support teamwork (Alsabri et al., 2022; Berry et al., 2020; Han et al., 2020; Stewart et al., 2020). Regular, front-line cultural measurements related to safety, followed by action, allow health care organizations to compare their safety record with other organizations, promote safety-focused attitudes, initiate interventions, and measure intervention effectiveness (Hsiung et al., 2021; O'Donovan et al., 2019). A strong patient safety culture serves as a successful predictor of medication errors and falls injuries, treatment errors, and workplace injuries and accidents (Han et al., 2020; Reis et al., 2020).

Culture directly influences patient safety by defining accepted practices; similarly, it indirectly impacts patient safety by acting as an impediment or catalyst to embracing behaviors that support teamwork (Stewart et al., 2020). Recognizing the factors and influencers of culture and evaluating the current safety culture status is crucial to offering the safest patient care.

Cultural assessments can raise the consciousness of patient safety issues, evaluate the current safety culture status, assess interventions, and monitor the effectiveness of improvements over time (Berry et al., 2020; Staines et al., 2020). A safety culture survey can determine workplace conditions that may result in patient harm and adverse events.

Cultural assessments evaluate the following: Current safety culture status (Alsaqqa & Akyürek, 2021; Van Huy et al., 2020), interventions (Hsiung et al., 2021; Mrkonjić et al., 2019), and effectiveness of improvements over time (Andres et al., 2019; Berry et al., 2020; Staines et al., 2020). The Joint Commission holds leaders accountable and is responsible for periodically evaluating their organizations' safety culture (Jeong et al., 2019). A safety culture survey, particularly a unit-based survey, can measure workplace conditions that lead to patient harm and adverse events. This cultural assessment can promote patient safety awareness, evaluate the safety culture's current status, track the effectiveness of improvements over time, and prompt new interventions.

TeamSTEPPS Training. Teamwork signifies a partnership within a cluster to achieve a mutual purpose. It is a considerable business component, as associates must work concurrently, employing their skills and offering helpful advice, despite individual disagreements (Bochatay et al., 2019). Studies revealed that theory-centered training such as TeamSTEPPS provides the most meaningful opportunities for process improvement and goal achievement (Prochnow & Tschannen, 2021; Shen et al., 2020).

TeamSTEPPS involves compiling guidelines, resources, and means to strengthen and drive a positive teamwork program from the preliminary planning, implementation, and sustainment. Numerous institutions have created team training curricula, but many focus on different contexts or disciplines (Harolds, 2021). Earlier TeamSTEPPS investigations

demonstrated improved overall organizational culture and teamwork mindset (Matzke et al., 2021; Parker et al., 2019; Staines et al., 2020).

Leadership Support. Leadership and teamwork act together to help organizations accomplish goals, become accustomed to changing conditions, and stay relevant in a dynamic environment (Akdere & Egan, 2020; Arghode et al., 2022; Hamm et al., 2021). Influential leaders play a crucial role in teams' productivity by ensuring team members understand their tasks and have the resources to achieve goals within the set timeline and key performance indicators. These leaders work to build positive relationships and trust with their teams and between team members.

Studies demonstrate that leaders' attitudes toward engagement directly relate to workforce enthusiasm (Alsaqqa & Akyürek, 2021; Bababekov et al., 2021; Erickson et al., 2021). When leaders support their employees' engagement plan, personnel commitment increases. Appropriately, staff engagement grows when leaders value their staff members, setting the right direction.

The absence of prominent leadership assistance is a substantial barrier to a practical personnel engagement plan, more than the impediments due to high expenses and inadequate resources (Bababekov et al., 2021; Erickson et al., 2021). There has been significant debate about the characteristics and styles of leadership that engender optimal team performance. Similarly, experts have studied and emulated the constituents of remarkably effective teams (Akdere & Egan, 2020; Arghode et al., 2022; Hamm et al., 2021), as leadership and teamwork cannot exist without each other.

Related Studies

Communication problems in health care are considered the leading cause of medical errors and often the root cause of sentinel events (Lee, Khanuja, et al., 2021). Hospitals and health systems must compare the lessons learned after implementation to implement and sustain a successful TeamSTEPPS program. This literature review focuses on implementing TeamSTEPPS and seeks to identify the challenges, successes, and failures in the execution process. Table 1 lists the following studies employing TeamSTEPPS training in clinical settings and explores its effects or correlation with organizational culture and patient safety improvement.

Table 1

Studies Analyzing TeamSTEPPS, Organizational Culture, and Patient Safety Culture

Author(s)	Conclusion/Findings
Aaberg et al. (2021)	This study designed a pre-post evaluation with baseline assessments, after six and after 12 months of intervention. Its analysis found a significant association between programs such as TeamSTEPPS and participant learning, training transfer, and organizational outcomes.
Aldawood et al. (2020)	TeamSTEPPS helped with the staff members' awareness of their workflow and unit responsibilities in a pediatric intensive care unit. The daily safety huddle dimmed several misconceptions and errors between nursing and medical teams, providing an effective strategy for strengthening practice inconsistencies, such as infection control issues and hand hygiene.

Author(s)	Conclusion/Findings
Alsabri et al. (2022)	Communication and teamwork training interventions improved the Emergency Department safety culture and positively affected patient outcomes. This study suggested implementing safety culture programs in other high-risk units to decrease adverse events.
Baloh et al. (2021)	Team training initiatives require the configuration of senior and middle leadership support to sustain organizational activities over time, ensuring continuity. Non-sustainment highlights the implementation processes' intricacy and the barriers to maintaining leadership engagement.
Borckardt et al. (2020)	Implementing TeamSTEPPS impacted patient safety culture and significantly improved three of the twelve dimensions in the intervention group. The controlled differences in baseline scores showed a significant improvement in one dimension. This study suggests that TeamSTEPPS can enhance patient safety culture, specifically in high-risk environments.
Clancy and Tornberg (2019)	This study underlined the significance of standard metrics for all levels of team training evaluation. Similarly, the authors highlighted ongoing coaching and monitoring to reinforce teamwork behaviors. Recommendations include completing a preliminary assessment to optimize the implementation process, initiative simplification due to an

	overburdened system, and senior leadership engagement before beginning the training.
Lee, McFadden, et al. (2021)	Seven months after participating in a 3-hour TeamSTEPPS didactic training, this study showed no significant changes in perceived teamwork behaviors in leadership and communication. Findings suggest that sustained change in teamwork behaviors benefits from reinforcement activities incorporated into continuing education programs for team members.
Prochnow and Tschannen (2022)	A small, rural hospital exhibited improved outcomes after undergoing TeamSTEPPS training. Eight months after training, this study demonstrated improved teamwork perception, communication skills, and patient safety outcomes. Attitude improvement ensured solid teamwork and communication, providing optimal patient care.
Staines et al. (2019)	Two maternity wards completed a pre-post culture evaluation using the HSOPS at the reference point and one year after implementing TeamSTEPPS. Although other dimensions showed no significant changes, three dimensions (Actions Promoting Safety, Supervisor, and Manager Expectations) of patient safety culture demonstrated a substantial increase in scores.

Summary of the Literature Review. Health professionals were uncertain if they would find value in TeamSTEPPS training during its inception. However, individuals throughout the

world have trained and used the program. Furthermore, TeamSTEPPS stimulated research on the health care team's function, care coordination improvement, and the association between teamwork, clinical processes, and outcome measures. Currently, there is little disagreement about teamwork's importance in delivering safe, quality care and the necessity for team training. Given the extensive dissimilarity in health care and cultures, this literature review found that the need for improved care coordination is universal, and the core TeamSTEPPS tools and strategies, including briefs, huddles, and debriefs, are generalizable across organizational cultures.

Although interprofessional education is the framework for enhanced patient safety and improved care coordination, research shows that it is more challenging to change established behaviors than to communicate the correct behavior from the start. This literature review provides insights about team training in health care from TeamSTEPPS implementation. The selected journal articles focused on conducting TeamSTEPPS in clinical settings to improve patient safety and organizational culture through better teamwork.

Organizational culture sets the framework for what outlines an enterprise. Because businesses and circumstances differ significantly, there is not one culture prototype that satisfies the requirements of all companies. Moreover, organizational culture defines a team's task completion and interaction. The cultural model encompasses numerous views, standards, formalities, and codes that oversee the daily operations of the various teams. This model binds the workforce and clarifies its business direction.

A robust culture is a common element among the most successful businesses. All have accord about cultural importance, and those values focus on the organization and its goals, not individuals. Successful leaders practice their cultures daily while communicating their cultural

identities to employees and potential new hires. They are unequivocal about their ideals and how those standards describe their organizations.

During organizational change, the major challenge may be to modify its culture, as the teams may have a particular manner of performing a given procedure. Businesses should likewise safeguard culture and performance management systems incorporation. Otherwise, leaders must redirect their systems to support congruence between employee behavior and goal achievement.

Solid corporate cultures point to a shared mental model. The ensuing rapport and trust effectively build teams When ideals and theories parallel business objectives. The teams' bonds help them focus on task completion and circumvent conflicts. Moreover, a positive culture means that employees know the expectations, performance evaluations, and incentives.

The health care industry established the role of teamwork in delivering safe, quality care. TeamSTEPPS catalyzed research on the health care teams' functions, its effect on care coordination, and teamwork's link with outcome measures and clinical processes. Despite some progress, experts have yet to identify the best implementation strategies to sustain the team training tools in diverse clinical settings.

Over time, the health care sector continues to collide with change initiatives. Experts consider TeamSTEPPS as a substantial drive towards quality care. Since its launch, the participants' expertise has considerably increased, but scholars have yet to explore data on organizational culture change and its sustainment.

In conclusion, team training could likely grow, particularly since acute care reimbursements align with quality and safety. Therefore, TeamSTEPPS could flourish as organizations find it could help them with performance and reimbursement. Continuous success

hinges on ongoing collaboration among researchers and implementers. Both groups anticipate extending the possibilities regarding the importance of teamwork, team training, patient safety, and organizational culture.

Summary of Section 1 and Transition

The previous section covered the problem, the nature of the study, the research framework, and a review of the professional and academic literature. Section 1 endeavored to demonstrate the possibility of improving organizational performance through culture change using the TeamSTEPPS methods and models. The literature review revealed the following insights: First, leaders must become aware of their organization's current operating culture. Next, they must define an aspirational target culture. Lastly, they must apply the core change practices and configure them with leadership alignment, organizational dialog, and a logistic plan. Leading with culture may be among the limited sources of today's maintainable competitive healthcare advantage. Thus, successful team training must utilize culture improvement as a fundamental management tool.

The subsequent section covers the project, the presentation of findings, and supporting material. While the advantages of teamwork seem instinctual to health care providers, little formal training on the mandatory skills or assessment of collaboration's effectiveness occurs. Fully instigating and comprehending a teamwork model is the groundwork for learning and considering clinician error chains. Consequently, this approach provides a methodology for corrective actions for continuous quality improvement. It also helps fulfill the regulatory requirement for teamwork training, focusing on effective communication in the care delivery process. An organized teamwork structure empowers senior leadership and board members to

monitor concrete and measurable improvement indicators of teamwork and patient care assessment.

Section 2: The Project

Until recently, health system reforms tended to focus primarily on structural change. The introduction of managed care in the United States (Loeppky, 2019), the establishment of standard-setting bodies such as the National Institute for Health and Care Excellence or NICE (Garbi, 2021) in the United Kingdom, the development of medical error reporting systems in Australia (Walton et al., 2019), and the primary care restructuring in the United Kingdom and Canada (Fletcher et al., 2021; Huddlestone et al., 2020) are examples of this approach. However, recent studies show that structural changes alone do not deliver anticipated improvements in quality and health care performance (Barbazza et al., 2021). As a result, cultural transformation is wrought alongside structural changes to deliver quality and performance improvements (Castiglione & Lavoie-Tremblay, 2021).

Experts have conducted the study of organizations from within various theories or paradigms. Organizational culture theory emerges from organizational psychology, social psychology, and social anthropology. Researchers see the development of organizational culture as a subject of study as an elaboration of the human relations and social systems approach (Bisbey et al., 2021; Maesschalck & Paesen, 2021). Organizational culture designates various social phenomena that help outline an organization's character and norms. Given this diverse array of phenomena, little agreement exists over a precise definition of organizational culture, its observation or measurement, or how distinct methodologies inform routine administration or organizational change (Dyck et al., 2019).

While some researchers see organizational culture as specific and measurable variables, traits, or processes, others see it as a global challenge to capture culture as an intrinsic property of the social milieu that forms whenever people are brought together in a collaborative

enterprise. Another approach sees organizational culture as an anthropological metaphor or a paradigm to analyze organizations as micro societies (Schmiedel et al., 2019). Still, other studies reinforce that organizational culture is the pattern of shared basic assumptions (Hald et al., 2021). These assumptions are invented, discovered, or developed by a group as it learns to cope with external adaptation and internal integration issues.

Advocates of strategic cultural change typically make several implicit assumptions (Arefin et al., 2021; Churruca et al., 2021; Pavithra, 2022). First, health organizations possess discernible cultures, which affect quality and performance. Second, although cultures may resist change, they are malleable and manageable. Third, it is possible to identify particular cultural attributes that facilitate or inhibit good performance, and it should be feasible for managers to design strategies for cultural change. Finally, any benefits from the proposed change outweigh any dysfunctional consequences. While there are not much empirical data to support the said assumptions, some academics and many policymakers show renewed interest in the quantitative measurement of organizational culture to determine its relationship with safety culture, performance, and quality of care (Arefin et al., 2021; Churruca et al., 2021; Pavithra, 2022).

Purpose Statement

The purpose of this fixed quantitative correlational research is to determine the link between the TeamSTEPPS approach and patient safety culture to create highly efficient medical teams that achieve the safest patient care, ultimately transforming organizational culture in a New York City public hospital. Program evaluation provides feedback on results, accomplishments, or impact to inform policymakers and administrators about its usefulness. Furthermore, these metrics offer clear guidance on maintaining and improving its TeamSTEPPS implementation to develop patient safety and organizational culture.

Although patient safety has focused on continuous improvement, building on various demands to action, there are rising demands for health care quality improvement (QI) initiatives (Harolds, 2021). Various interferences utilized in QI programs strongly emphasize collaboration and communication dynamics. Still, in the face of extensive attempts and some encouraging outcomes, experts report that QI initiatives' accomplishments are primarily considered transitory, insufficiently resolving multifaceted, obstinate, and profoundly ingrained safety and quality challenges (Wong et al., 2020).

In addition to business processes in health care delivery, regular expert logistics and interdisciplinary team practices encompass many factors. These aspects frequently reveal the local culture and people's beliefs. Consequently, valuable change initiatives necessitate a blend of interventions on numerous levels and issues, resulting in the local perspective of intertwined practices and behaviors in conjunction with the change management strategies (Baloh et al., 2021; Shen et al., 2020).

This study's coverage involves TeamSTEPPS implementation in a public hospital in Brooklyn, New York City. This facility primarily conducts TeamSTEPPS training during the orientation phase and administers annual competencies for all staff members. Its leadership expects all personnel to advance patient safety and health care quality through TeamSTEPPS implementation. This index hospital initially implements TeamSTEPPS through new employee orientation simultaneously in different departments, with multidisciplinary physicians, nurses, and other affiliated health care specialists. Subsequently, annual employee aptitudes are mandated to ensure continuous competencies.

Role of the Researcher

Correlational researchers utilize a potent avenue for acquiring and analyzing information. This path is a non-experimental research method wherein researchers investigate and assess the statistical relationships between two research variables without controlling any influencers or the variables involved. Scholars utilize correlations to determine if a relationship between two or more variables occurs, but the researchers do not control the variables. Though correlational research can explain the relationship between variables, it cannot establish that altering one variable changes another. Thus, correlational studies cannot prove cause-and-effect relationships, as correlation does not equal causation (Mesfin et al., 2020). This approach means that while correlational research can suggest a connection between two variables, it cannot verify that one variable could change another.

For example, this study endeavors to perform a correlational study that suggests a relationship between successful team training and improved organizational culture. However, the study cannot show that practical team training changes an organization's safety culture. To determine why the relationship exists, the researcher would need to experiment and deliberate with other variables, such as the organization's various external and internal relationships, human resources, and personnel engagement.

Correlational and experimental researchers use quantitative approaches to examine relationships between variables. A correlational researcher investigates relationships between variables without controlling or manipulating them. Additionally, a correlation reflects a relationship's strength and direction between two or more variables. Table 2 shows the essential differences in the researchers' data collection and the types of conclusions drawn.

Table 2

Differences Between Correlational and Experimental Researchers

	Correlational Researchers	Experimental Researchers
Purpose	Tests the strength of association between variables	Tests the cause-and-effect relationships between variables
Variables	Observes variables without manipulation or intervention	Manipulates an independent variable and observes a dependent variable
Control	Uses limited control so that other variables may play a role in the relationship	Controls extraneous variables so that they cannot impact the variables of interest
Validity	Generalizes conclusions to other populations or settings due to high external validity	Concludes causation due to high internal validity

Correlational researchers gather data quickly from natural settings, helping them generalize their discoveries to realistic situations in an externally valid manner. It is appropriate to investigate non-causal relationships to offer insights into complex actual relationships, helping researchers make predictions and develop new theories (Mesfin et al., 2020). For instance, this study seeks to correlate leadership support for culture change and the institution's effort to execute and maintain a robust TeamSTEPPS program. It is more likely that other variables, such as the organization's inclination to embark on an initiative, its need to improve its safety culture, and its willingness to measure and assess TeamSTEPPS progress, influence both. However, a strong correlation could help make predictions about organizational culture.

Unlike experimental research, correlational research is descriptive and relies entirely on scientific methodology and hypothesis. Correlational researchers observe two variables to establish a statistically corresponding relationship between them. The correlational researcher aims to identify variables with some degree of relationship such that a change in one generates some change in the other. Correlational researchers establish the statistical pattern between two seemingly interconnected variables, allowing the linkage between two variables by observing them in their most natural state.

Unlike experimental research, correlational research does not emphasize the causative factor affecting two variables. However, it is quicker, more accessible, less expensive, and more convenient than experimental research. Accordingly, this relationship makes the data from correlational research subject to constant change.

Research Methodology

The research methodology chosen for this study is the fixed quantitative correlational technique. Quantitative research methods highlight objective measurements and the mathematical, statistical, or numerical data analysis compiled through referendums, surveys, and questionnaires or by employing statistical information utilizing computational systems. Quantitative research collects numerical data and simplifies it across clusters, explaining a particular phenomenon (Zyphur & Pierides, 2020).

A quantitative research study determines the relationship between an independent variable and an outcome or dependent variable within a population or group. Quantitative research designs are either descriptive, where subjects are usually measured once, or experimental, measured before and after treatment. This study uses descriptive investigation, which demonstrates associations between variables; conversely, an experimental study

establishes causality, which is not this study's goal. Moreover, quantitative research deals with numbers and logic, characterizing an objective stance. The chosen methodology focuses on numeric, unchanging, and detailed data with convergent reasoning (Morgan et al., 2020) rather than divergent reasoning, generating various ideas about a research problem spontaneously and freely.

Quantitative research is the practice of collecting and scrutinizing numerical data. It can find patterns and averages, make predictions, test causal relationships, and generalize results to broader populations. Quantitative methodology is the opposite of the qualitative approach, which involves collecting and analyzing non-numerical data such as text, video, or audio. Physical and social disciplines such as biology, chemistry, psychology, economics, sociology, and marketing apply the quantitative research method.

Quantitative research standardizes data collection and generalizes findings. Accordingly, this approach includes some strengths. First, this methodology characterizes replication (Zyphur & Pierides, 2020). Study duplication is possible due to standardized data collection protocols and quantifiable designations of abstract concepts. Second, this method affords direct comparisons of results (Morgan et al., 2020). Investigators can reproduce them in other cultural settings, times, or with different groups of participants, comparing the results statistically.

Additionally, quantitative research accommodates large samples using reliable and consistent procedures through quantitative data analysis (Morgan et al., 2020). Lastly, this methodology can perform hypothesis testing. Using formalized and established hypothesis testing procedures carefully considers and reports the research variables, predictions, data collection, and testing methods before concluding (Zyphur & Pierides, 2020).

Despite the advantages of quantitative research, it is occasionally insufficient in clearing up complex research topics (Zyphur & Pierides, 2019). The first limitation is superficiality, as restrictive and precise operational descriptions may ineffectively represent complex concepts. For instance, the team training concept represents a mere number in quantitative research but remains elaborated in qualitative research. The second limitation is a narrow focus. Predetermined variables and measurement procedures may ignore other relevant observations.

Another limitation is structural partiality. Even with standardized processes, structural biases can still influence quantitative research. Missing data, inappropriate sampling, or inaccurate measurement methods are partialities that can bring about the wrong conclusions (Zyphur & Pierides, 2019). The last limitation is the lack of context. Quantitative research often uses unnatural settings such as laboratories or does not reflect historical and cultural perspectives that may impact data collection and results (Zyphur & Pierides, 2019).

Discussion of Fixed Design

A sound research design maximizes reliability and minimizes collected and analyzed data bias. Experts recommend a design with the least experimental error (Siegmund & Siedlecki, 2021). Quantitative research designs tend to be more fixed and deductive, with variables and hypotheses clearly defined before data collection. A fixed design follows a preset or predetermined design or sequence before data collection, usually determined by theory.

The fixed design deemed appropriate for this study to determine the correlation between team training, safety culture, and organizational culture utilizing data from the Surveys on Patient Safety Culture (SOPS), the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ), and the TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ). Its goal is to expand the scientific understanding of patient safety culture in health care. Specifically, the HSOPS asks

health care providers and staff how their organizational culture supports patient safety. Health care organizations can use the various survey assessment tools to (a) raise staff awareness about patient safety, (b) assess the current status of patient safety culture, (c) detect strengths and patient safety culture improvement areas, (d) observe trends in patient safety culture change over time, and (e) assess the cultural influence of patient safety initiatives and interventions.

Discussion of Quantitative Design

The quantitative correlational method examines the association between team training and organizational culture (Siegmund & Siedlecki, 2021), excluding the qualitative or semiqualitative approaches. The fixed quantitative correlational research design is deemed appropriate for this research study because some academics and many policymakers showed renewed interest in the quantitative measurement of organizational culture to determine its relationship with performance and quality of care (Siegmund & Siedlecki, 2021). Accordingly, various quantitative and correlational studies demonstrate the appropriateness of this design for TeamSTEPPS and organizational culture (Serou et al., 2021; Wooding et al., 2020).

Various tools designed to measure organizational culture have been developed and applied in health care settings. These tools attempt to address the different layers of culture, including artifacts, espoused values, and unspoken assumptions (Serou et al., 2021; Wooding et al., 2020). This paper includes the quantitative results of an extensive review of these instruments to serve as a link between team training and organizational culture. The author prioritized instruments for which some data were available on their statistical validity and reliability as measures of organizational culture in health care settings. Furthermore, team training evaluation measures are valid in assessing cultural dimensions, including leadership, communication, teamwork, commitment to innovation, and attitudes to change.

TeamSTEPPS intends to provide tools and prepare institutions to improve their process delivery systems. A facility must quickly modify its practices and ethos to expand collaboration and sustain patient safety. The desired outcomes include accepting the demand for change, forming a culture consenting to change, and encouraging changes in staff strategies and health care delivery practices (Staines et al., 2020). These changes support workers' self-sufficiency and foresight, enabling them to utilize team-driven decisions.

Any health care facility embarking on a TeamSTEPPS program must have objective and satisfactory data to confirm the need for improving specific units (Wong et al., 2020). For instance, numerous sources such as adverse events, near-miss or good catch reports, root cause investigations, or failure modes and effects analyses provide factual information. Also, administering patient safety culture surveys, staff or patient satisfaction assessments, and gauging unit-specific procedures and outcome measures such as patient flow, infection control rates, and avoidable deaths offer statistics to support the implementation of TeamSTEPPS.

Organizations must consider culture change as a course of action rather than a mere event (Andres et al., 2019). Thus, institutions must continuously measure the accomplishment of their team training intervention. This practice verifies effective interventions and ascertains the need for additional staff support or program modification. Likewise, this process entails determining additional patient safety and quality improvement measures (Parker et al., 2019). After recognizing the improvement prospects, facilities need to implement adjustments to revolve around the TeamSTEPPS initiative.

Health care institutions must underpin the positive effects and process improvements, rewarding positive teamwork behaviors and incorporating them into practice (Costar & Hall, 2020). Leaders, team-training champions, trainers, and coaches should recommend continuing

feedback within the institution. Leaders must appropriately acknowledge and display their teams' accomplishments, as these activities strengthen the drive to support teamwork and safety culture.

Summary of Research Methodology

Quantitative fixed correlational research entails gathering data or searching out records of a specific population and determining the relationships among the variables of interest. The interest is in defining how one variable's measures relate to measures on another variable. Such research requires neither random assignment nor manipulation of an experimental variable. Participants' random assignment and variable manipulation are absent in correlational research since the events of interest are naturally occurring or have already transpired.

Participants

The selection of study participants relies on the goal of this correlational study. Generally, an investigator conducts a census to raise staff awareness about the subject, ensuring every person's input counts (Parsaeian et al., 2021). The researcher may survey everyone or concentrate on particular staff positions or departments. In a small hospital, experts advise performing a census and surveying all clinical and non-clinical staff to safeguard adequate responses (Schmidt et al., 2021). However, the index hospital has many clinicians and staff members, which may necessitate many resources to oversee a census. In addition, all providers and staff do not need to take the survey to get a representative group of respondents (Schmidt et al., 2021); therefore, the author selected a sample.

Description of Eligible Individuals

This study examines the relationship between TeamSTEPPS, patient safety culture, and organizational culture from a hospital staff perspective. These participants include staff members oriented in June 2021 or earlier, measuring at least one year of TeamSTEPPS sustainment.

Additionally, eligible participants include those with immediate patient contact, those who work with patients directly, such as physicians and mid-level practitioners, and those classified as administrators, managers, or supervisors. Thus, all personnel invited to complete the surveys must possess sufficient knowledge of the index hospital and its processes and must have undergone TeamSTEPPS training at orientation to offer informed responses to the survey questions. Experts anticipate a satisfactory level of knowledge sustainment for at least one year after team training (Dyck et al., 2019; Karlsen et al., 2022).

Population and Sampling

A population is an entire group from which the study aims to make conclusions. Conversely, a sample denotes a particular class to compile data. The sample size has fewer than the total population size. Population sampling is selecting a subsection of respondents representing the entire population. Accordingly, a sufficient sample size warrants a sound statistical analysis (Parsaeian et al., 2021). Investigators generally perform sampling due to the impracticability of testing every person in the population. Moreover, this process saves time, resources, and effort. When selecting the study population, the research question or purpose suggests a suitable definition of the population in terms of location and restriction to a particular group (Schmidt et al., 2021).

The index hospital's care providers and staff members correspond to the population. Typically, the ideal scenario for every researcher is to assess all the individuals to gain consistent, accurate, and valid outcomes. If this method is not viable, experts suggest relying on sampling techniques (Samaranayaka et al., 2021). Sampling signifies selecting sampling units or participants from the sampling frame. It approximates the population characteristics by observing a section of the entire population. The researcher must specify the sampling strategy before

survey administration, provided that the sampling technique affects the sample size estimates and selection bias stems from an unclear and inaccurate sampling plan (Parsaeian et al., 2021).

Discussion of Population. All hospital staff, such as environmental services, hospital police, nurses, and physicians, can complete the surveys. However, the author determined that this study's survey tools best suit the following: (1) staff with a direct patient interface or contact; these comprise non-clinical staff such as unit clerks or clinical staff such as nurses; (2) employees who have indirect patient interaction or contact but whose responsibilities directly impact patient care who include pharmacists, pathology staff, and laboratory personnel; (3) hospital-employed providers, affiliates, or contract practitioners who work in various hospital units such as the emergency department, laboratory, and inpatient units; (4) administrators, managers, and supervisors; and (5) workers who have relevant work qualifications, employed for more than three months. Similarly, hospital-based care providers or outpatient practitioners can respond to the survey relating to the unit where they devote most of their time or offer most of their expertise.

This study focuses on a public hospital in Brooklyn Borough, Kings County, New York, centering on this facility's Nursing Department. This department's population (1,500) as per function or title comprises the following: Registered Nurse (450 or 30%), Licensed Practical Nurse (300 or 20%), Nursing Assistant (300 or 20%), Administrator (150 or 10%), Clerical (150 or 10%), and Transport Services (150 or 10%). This division faced teamwork and culture barriers with processing various diagnostic results, getting timely provider verification, and communicating results to patients. These impediments resulted in late appointment procedures or further testing for patients with abnormal investigative results, presenting a patient safety and quality issue.

While resources may restrict the total of staff surveyed, more participants have a more likelihood that the desired population has adequate representation. One can assume to obtain completed responses from about 15 to 20% of the sample (Fowler et al., 2019; Jeong et al., 2019). Table 3 below shows recommended minimum sample sizes according to a conventional sampling size calculator and manual computation, according to the number of staff and providers in the hospital's index unit. The projected data assume a 20% response rate, 5% margin of error, 90% confidence level, 1.645 z-score, and 0.5 standard deviation. The following formula shows the equation for calculating sample size, where **ε** is the margin of error, $\hat{p}$ is the population proportion, N is the population size, and z is the z score (Conti et al., 2022; Morgan et al., 2020).

$$\text{Finite population} = \frac{n}{1+\frac{z^2 x\, \hat{p}\,(1-\hat{p})}{\varepsilon^2 N}}$$

Table 3

Minimum Sample Sizes by Total Number of Staff Population

Number of Staff Members	Sample Size (Minimum)	Anticipated Number of Responses (With a 20% Response Rate Projection)
1000	212	43
1500	229	46
2000	238	48
2500	243	49
3000	247	50

Discussion of Sampling

Researchers suggest that effect size, α level, power, and sample size signify misconstrued notions that engage prominent roles in research interpretation and design (Peterson & Foley,

2021). Effect size exemplifies the scale of a variation in a relationship's strength or outcome. Frequently, the effect size may mean more than merely counting on the α level because it informs the investigator of the actual disparity or relationship level. Additionally, confidence intervals can support this assessment. Power demonstrates the prospect of denying the null hypothesis when it is untrue. Thus, α level, effect size, and power are crucial in the sample size calculation.

Experts accept the importance of determining the sample size *a priori* and including the requisite number of participants in a study (Peterson & Foley, 2021). Disregarding all four aspects may reduce the capability of other scholars to duplicate the study's results, leading to obstacles in analyzing the study's conclusions (Jones et al., 2021). For instance, surveys with small sample sizes proportionate to the required number presented from a power analysis may produce false-negative findings. Conversely, surveys with exceptionally sizeable sample sizes may generate statistically significant results with clinically irrelevant small effect sizes. Table 4 demonstrates how varying effect sizes, α levels, power, β levels, and direction of statistical test impact sample size in correlational studies.

Table 4

Effect Sizes, α Levels, Power/β Levels, and Sample Sizes in Correlational Studies

Effect Size	α Levels	Power/β Levels	Test	Sample Size
1.1	0.05	0.80/0.20	One-Sided	11
1.1	0.05	0.80/0.20	Two-Sided	15
1.1	0.01	0.90/0.10	Two-Sided	27
0.6	0.05	0.80/0.20	One-Sided	36

Effect Size	α Levels	Power/β Levels	Test	Sample Size
0.6	0.05	0.80/0.20	Two-Sided	45
0.6	0.01	0.90/0.10	Two-Sided	85
0.1	0.05	0.80/0.20	One-Sided	1238
0.1	0.05	0.80/0.20	Two-Sided	1571
0.1	0.01	0.90/0.10	Two-Sided	2978

Note. Adapted from Peterson and Foley (2021).

Discussion of Sampling Method. Quantitative researchers are frequently concerned with generalizing groupings greater than their survey samples (Samaranayaka et al., 2021). Although there are occurrences when quantitative scholars depend on nonprobability samples for evaluation or exploratory investigations, quantitative researchers count on probability sampling methods. The techniques and targets linked with probability samples vary from nonprobability models. The following explores the unique goals and various probability sampling techniques deemed appropriate for this research:

Probability sampling refers to selecting a population section through chance selection based on the randomization principle. Probability sampling proves more intricate, tedious, and characteristically more costly than its non-probability counterpart. Still, the scholar can calculate each group's selection probability due to the randomly selected units from the population. Consequently, probability sampling produces consistent valuations and makes sound statistical assumptions about the population (Mutmainah et al., 2021).

There are numerous approaches to deciding on a probability sample. Functional limitations, such as the survey frame attributes, can influence the sampling technique. When

selecting a probability sample model, the purpose is to reduce the sampling error of the estimations for the most critical survey variables and concurrently decrease the cost and time of the survey (Mutmainah et al., 2021).

Within simple random sampling (SRS), each population's sample group has an equivalent likelihood of being incorporated into the sample (Chanie et al., 2021). Consequently, each potential sample has an equal probability of being selected, generally requiring a list of all units in the survey population. Experts concur that SRS is the most commonly used probability sampling method (Sanaullah et al., 2020). This technique does not demand data on the survey frame except the complete list of the unit's contact information and the study population. Additionally, since SRS has a simple structure and a well-recognized concept, basic formulations exist to define the sample size and the estimates with established formulas and calculators (Sanaullah et al., 2020).

This technique demands a listing of all population units. If a list does not currently exist and the target population is enormous, creating one can be exceptionally impractical. Moreover, SRS may not benefit from data that permits other procedures to be more effective, such as stratified sampling, if a list exists, including supplementary data (Chanie et al., 2021). Thus, for confrontational data collection, SRS could provide a widely spread sample across several areas, increasing survey duration and costs.

Systematic sampling implies a break, or gap, between each chosen sample unit (Shahzad et al., 2019). Each population member belongs to the selected samples with equal chances of being selected. The units' frame order defines the viable systematic random samples. Systematic sampling should yield similar results to simple random sampling for an arbitrarily distributed population on the frame. Accordingly, evaluators can apply this sampling practice when asking

participants to complete a survey. For example, the interviewer may pick every 10th individual who consents to complete a survey after randomly selecting the first participant.

An advantage of systematic sampling is more accessible sample selection (Shahzad et al., 2019). The investigator only gets one random figure, the random beginning, and the remainder of the sample repeatedly continues. Due to its list arrangement, the biggest obstacle to this process is its periodical aspect (Shahzad et al., 2019). This recurring feature coincides with the sampling interval, and the potential samples may not represent the target population.

This study may also apply the stratified sampling technique. Any variable with values readily available for the entire sampling frame can stratify a population (Cao & Shen, 2022; Kabito et al., 2020). Stratified sampling divides the population into uniform, reciprocally limited groups known as strata, where researchers select independent samples. Any probabilistic sampling method can test within each stratum. Furthermore, the sampling process can differ from one level to another.

A stratum can make the sampling plan more efficient (Kabito et al., 2020). Generally, estimation at a particular exactitude requires a greater sample size for minor variability characteristic that differs significantly among the units. For instance, if all participants in a population had identical test scores, an individual's sample is adequate to approximate the average score precisely.

Furthermore, if an investigator creates similar characteristics that are significantly distinct from other strata, he only requires a tiny sample from each stratum to assess the population precisely (Cao & Shen, 2022). Without stratification, the sample requires a more significant number than the sum of all stratum sample sizes to calculate the aggregate scores with equal

precision levels. Thus, one could merge these valuations to correctly estimate the whole population's total scores.

Moreover, stratified sampling confirms a sufficient sample size for a particular population's subgroups of interest. Each stratum grows into an autonomous population due to each sample size calculation. Stratification is most valuable when the layering variables are uncomplicated, easy to examine, and closely associated with the survey topic (Kabito et al., 2020).

Discussion of Sample Frame. The sampling frame, also called the survey frame, represents a tool utilized to gain access to the population (Watson et al., 2019). There are two sample frame categories: area frames and list frames. An area frame denotes a list of geographic areas. Instead of selecting units directly as one would with a list frame, geographic areas serve as a means to access units located in identified areas. In this study, an area frame identifies the specific location: a public hospital in Brooklyn Borough, Kings County, in New York.

On the other hand, a list frame is merely a list of the groups in a population. The list frame includes the information needed to access these units. A reasonable frame should be comprehensive and current. No survey population member is excluded from the frame or appears more than once, excluding units that are not population segments (Watson et al., 2019), such as employee attrition. The chosen frame impacts the selected survey population.

The sampling frame signifies the group of entities selected from the target population and the study's sampling process. Provided that the sample represents only a fraction of the target population, the investigator must thoroughly analyze if the selected sample frame fits the study hypotheses or objectives, specifically if there are approaches to overcome the sample frame limitations (Watson et al., 2019). For instance, if a list of corporate cell phone numbers

determines a sample, all employees without it are excluded from the survey population. This study's list frame involves the index hospital's nursing department, with a population of 1500. Further analysis of the desired sample and the sample size follows.

Discussion of Desired Sample and Sample Size. The index unit has a total of 1,500 employees. Therefore, according to Table 1, a sample size of at least 229 staff members would be required for this study. The author based the data on three assumptions: simple random or systematic random sampling, a 20 percent response rate, and a confidence interval of +/− 5 percent, per the sample calculator data in Table 1. However, the author referred to Table 2 for the sample size determination for this correlational research. Based on moderate effect size (0.6), 0.01 α level, 0.90 Power, 0.10 β level, and a two-sided test, the author determined the sample size as 85 (Peterson & Foley, 2021). According to the index department's staff proportions, the author recommends the following number of staff in the sample to achieve a proper saturation number: Registered Nurse (25 or 30%), Licensed Practical Nurse (16 or 20%), Nursing Assistant, (17 or 20%), Administrator (9 or 10%), Clerical (9 or 10%), and Transport Services (9 or 10%). The author chose the participants by utilizing a random or stratified sampling method proportional to the size and categorization of respondents in the index unit.

The author defined the sample as a finite subgroup of participants from the target population. The focus population parallels the entire subjects whose attributes interest the researcher. Accordingly, the investigator concluded the target population with a particular confidence level, following a statistical inference method.

Lack of representativeness can arise because of (1) flawed selection procedures or sampling bias and (2) non-response bias or the odds of survey non-participation and refusal (Samaranayaka et al., 2021). When the sample comprises a smaller number than the least amount

required but has preserved its representativeness, the statistical inference may compromise statistical power and precision to identify the associations of interest (Young & Jacobsen, 2022). Conversely, samples without representativeness may not be a dependable resource for conclusions on the reference population because statistical inference is impossible, although the sample size achieves the necessary number of participants.

Additionally, researchers must be aware that random errors can affect sample results (Singh et al., 2022). Each time an investigator selects a new sample, it is likely to obtain a different result. Consequently, the parameters of interest may diverge arbitrarily from one sample to another. These fluctuations attribute to random error due to different sample compositions, although they originated from the same population.

Regardless of this fluctuation, if one obtains 10 different samples of the same population, approximately nine samples would provide prevalence estimates very close to the actual estimate in the target population. Hence, the researcher must indicate the maximum satisfactory random error value when estimating the sample size. Nearly all population-centered research employs a two to five percentage points random error (Morgan et al., 2020; Singh et al., 2022). However, the scholar should be cognizant that the lesser the random error considered in the study, the greater the requisite sample size.

Summary of Population and Sampling

Frequently, scholars intend to generate conclusions on a specific population but do not have information for every person. The sampling logic provides a means to test conclusions on larger groups using only a small fraction of their members. A sample is a lesser group of members selected to represent the population. The inferential statistics field enables one to make educated suppositions about a large group’s numerical characteristics.

A random sample denotes that every member of a population has an equal chance of being selected. Accordingly, the sample must be random to use statistics to learn about the population. The most frequently used sampling technique is a simple random method, requiring that every potential sample of the chosen size has an equal likelihood of being used.

Data Collection and Organization

Accurate data collection is vital to preserving research integrity regardless of the field of study or preference for quantitative or qualitative data. Data collection signifies measuring and gathering evidence on variables of interest in a systematic, established mode that enables resolving the stated research questions, testing hypotheses, and evaluating outcomes (Aguinis et al., 2021). Although techniques differ by discipline, the emphasis on ensuring accurate and reliable collection remains the same. Selecting appropriate data collection instruments and delineating instructions for their appropriate use decrease the likelihood of errors (Aguinis et al., 2021).

Data Collection Plan

Data collection in correlational research determines the linear statistical relationship between two variables. The survey method is the most conventional correlational research approach (Braekman et al., 2022). It entails random sampling of the variables or subjects where the respondents fill out a questionnaire focused on the study's interest. This approach is exceptionally adaptable as investigators can collect considerable data quickly. Still, it is prone to survey response bias, biased survey questions, or under-representation of survey participants.

Survey data gathers information from research respondents. It encompasses a fair representation of the target audience's opinions and perceptions, shaping the foundation of informed decision-making from several perspectives. The survey data quality from a systematic

investigation depends on the data collection method, the questions asked, and the researcher's degree of bias (Braekman et al., 2022).

This study used primary survey data. This data refer to first-hand information collected directly from the primary source or target audience. The researcher asks participants with direct knowledge of the research context to respond to questions. The author utilized questionnaires to gather feedback from original data sources. Data compiled from primary sources are current, unlike secondary sources. Moreover, primary data are more accurate than secondary survey data, and the investigator has exclusive ownership of the data.

Survey research represents a quantitative method that has two essential attributes. First, the investigator evaluates variables of interest utilizing self-reports. Survey researchers ask their respondents to report directly on their thoughts, feelings, and behaviors. Second, researchers must pay considerable attention to the issue of sampling. In particular, survey researchers strongly prefer random samples since they afford the most accurate estimates of what is true in the population. If researchers require gathering a large volume of data in a short period, a survey is the quickest, simplest, and cheapest option (Gupta & Ahluwalia, 2021).

Conducting a survey is a flexible method because it lets researchers utilize established data-gathering tools that help ensure they get the survey response data from a random sample of participants. Survey data might be easily accessible and cost-efficient, but it has drawbacks. First, the data are not always reliable, mainly poorly written survey questions or weak overall design or delivery (Gupta & Ahluwalia, 2021). Data are likewise affected by flaws, such as unrepresented or underrepresented samples. The author used established healthcare system questionnaires globally to ensure survey reliability and solid design or delivery. Furthermore, the

author used established correlation calculators to determine the sample size to ensure adequate sample representation.

Surveys are valuable means to obtain the respondents' information. To obtain unbiased survey responses, the author used existing surveys with proven reliability and validity with careful, diversified question phrasing. Accordingly, response bias is the participants' tendency to respond inaccurately to questions, often an unconscious behavior when people self-report in a survey.

Instruments

A research instrument is a tool utilized to measure, collect, and evaluate data related to the subject. Research instruments include tests, surveys, scales, questionnaires, or checklists. To ensure this study's strength, the author utilized previously validated and established instruments: Hospital Survey on Patient Safety Culture (HSOPS), TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ), and TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) to determine the relationship between effective team training, patient safety culture, and organizational culture.

The T-TAQ survey assesses a respondent's attitudes toward teamwork's core components to evaluate TeamSTEPPS training or ascertain the organization's site assessment to determine training needs. Results detect where poor attitudes toward teamwork exist within an institution or unit and can support an institution's TeamSTEPPS team in opting for specific TeamSTEPPS interventions. Moreover, the T-TAQ may be used to assess TeamSTEPPS effectiveness, ultimately ascertaining whether the TeamSTEPPS intervention generates desirable attitude changes concerning teamwork.

This survey assesses the impact of interprofessional education on health professionals' attitudes, knowledge, and team skills. The T-TAQ demonstrates if the achieved attitude changes at the end of TeamSTEPPS training are sustained (Karlsen et al., 2022). Likewise, the T-TAQ is used to measure how individuals approach team-related issues.

The T-TAQ is a reliable and valuable tool for assessing individual attitudes toward teamwork in health care delivery (Karlsen et al., 2022) as it has undergone significant field testing. The original T-TAQ English version validation showed acceptable values in all dimensions: Team Structure 0.70, Leadership 0.81, Situational Monitoring 0.81, Mutual Support 0.70, and Communication 0.74 (Karlsen et al., 2021). Cronbach's alpha was used to calculate internal consistency, and a value above 0.70 was considered acceptable (Karlsen et al., 2021). Thus, this survey can identify organizational attitudes towards teamwork, allowing an organization to determine if team training is warranted.

The author of this study believes that T-TAQ could generate more research on attitudes toward teamwork in health care. Researchers may use this tool alongside other training programs that target core teamwork skills (Karlsen et al., 2021). Data from the T-TAQ questionnaire can also determine changes in participant attitudes after training.

The T-TPQ survey evaluates health professionals' perceptions of interprofessional teamwork and group-level team skills and behavior (Dodge et al., 2021). Likewise, this survey assesses staff members' group-level team skills and behavior perception. Dissimilar to most behavioral skill metrics requiring independent and trained observers' direct observation, the T-TPQ is a self-reported teamwork indicator within a unit or department. Similar to the T-TAQ, the T-TPQ builds on the underlying TeamSTEPPS components involving team structure, leadership, communication, mutual support, and situation monitoring.

Organizational change can ensue with shifting performance levels on a given criterion, such as higher teamwork levels resulting from TeamSTEPPS training. Moreover, change can occur according to the participant's perception of a defined construct (Dodge et al., 2021), such as modifying the respondent's teamwork definition after TeamSTEPPS training. The T-TPQ evaluates perceptions toward teamwork's core components, determining an institution's training requirements or as an instrument to evaluate TeamSTEPPS training effectiveness.

The T-TPQ has undertaken noteworthy field testing. The hypothesized model of the five dimensions showed acceptable goodness-of-fit indexes (Hall-Lord et al., 2020). The total T-TPQ Cronbach's alpha coefficient was 0.94, Cronbach's alpha coefficients for the dimensions fluctuated from 0.79 to 0.92, and the intercorrelation coefficients oscillated from 0.27 to 0.74 (Hall-Lord et al., 2020).

Therefore, this survey determines whether the TeamSTEPPS involvement produces desirable changes in perceptions regarding teamwork. Results can identify where undesirable teamwork perceptions exist within an institution or unit and can assist the institution in choosing specific TeamSTEPPS interventions. Additionally, the T-TPQ may be used to evaluate TeamSTEPPS effectiveness.

The AHRQ issued the Hospital Surveys on Patient Safety Culture (HSOPS) in 2004 for clinicians and other personnel to measure a hospital's patient safety culture (Boussat et al., 2021). Since then, hundreds of health care facilities have employed the survey internationally and across the United States. In 2019, AHRQ distributed a new version, the HSOPS 2.0.

The HSOPS is a reliable and valid survey (Rahimi et al., 2020) devised to gauge provider and staff culture of safety perceptions within their organizational unit. This instrument encompasses seven unit-level safety culture elements, four hospital-level components, and four

outcome variables. HSOPS evaluates 12 components of patient safety culture. Two elements concentrate explicitly on teamwork within units and between units.

A study conducted an internal consistency analysis using Cronbach's alpha and demonstrated a value of 0.816 for the questionnaire's 42 items. In addition, the Spearman-Brown coefficient was 0.75, and the Guttman split-half coefficient was calculated as 0.74 (Rahimi et al., 2020). Cronbach's alpha calculation showed that the internal consistency reliability was appropriate for all items in the questionnaire, and construct validity was acceptable for all factors.

TeamSTEPPS endorses using HSOPS as part of a health care organization's site appraisal for defining their teamwork requirements and as an evaluation tool to establish whether HSOPS scores improve with TeamSTEPPS implementation. The HSOPS spotlights safety culture, and the teamwork scales do not segregate the crucial team performance subdomains. Therefore, experts suggest using HSOPS with T-TAQ and T-TPQ (Boussat et al., 2021; Dodge et al., 2021; Karlsen et al., 2022).

Archival data collects information prior to the beginning of the research study. Archival research is analyzing previously collected data. A researcher may observe or analyze study data to construct novel conclusions. As researchers prepare a study, they often consider archival data to best meet their research questions. The author has deemed that this study would not utilize any archival data.

Data Organization Plan

This study applied IBM SPSS Statistics 28.0 to organize data. This system is a statistical software enabling more effective tools than spreadsheets, databases, or standard multi-dimensional implements. SPSS Statistics manages complex patterns and associations,

empowering users to draw conclusions and make predictions. Experts agree that statistical programs handle data manipulation and procedures quicker than nonstatistical programs (Morgan et al., 2020).

Whereas tables present all the information, graphs simplify complex information and use images, emphasizing data patterns or trends helpful for summarizing, explaining, or exploring quantitative data. While graphs are useful for showing large amounts of data, they can be used instead of tables to present small data sets. Investigators must choose a graph format that best presents information so readers and reviewers can easily understand the information. This study used scatterplots to represent data.

Many research projects are correlational studies because they investigate the relationships between variables. Before investigating the relationship between two quantitative variables, creating a graphical representation that includes both variables are always helpful. A scatterplot is a graphical representation showing the relationship between two quantitative variables. One variable's value appears on the vertical axis, and another variable's values appear on the horizontal axis, as each data appears as point on the graph.

Scatter plots present data on the *x*- and *y*-axes and investigate an association between two variables. A point represents each individual or object, and an association between two variables can analyze patterns across multiple points. A regression line is added to a graph to determine whether the researcher can explain an association between two variables. The correlation level may not be apparent if multiple points exist at an exact location. Thus, a correlation coefficient or regression line can elucidate the correlation further (Gadhave et al., 2021; Morgan et al., 2020).

Summary of Data Collection and Organization

Although correlation does not automatically suggest causation, causation implies correlation. Correlational research is a foothold to the more effective experimental method and is more valuable than it may seem because some recently developed complex correlational designs allow for very limited causal inferences. Findings from correlational research can determine prevalence and relationships among variables and forecast events from current data and knowledge.

Data Analysis

Correlation analysis is a tool for understanding the nature of relationships between two individual variables. In correlational research, the most critical design process is identifying the variables. Researchers must utilize statistical tests to verify the statistical significance of observed relationships. Correlation and regression methods can analyze the extent and nature of relationships between different variables.

Statisticians compute the correlation coefficient *r* using the formula below (Morgan et al., 2020):

$$r=\frac{n\sum x\,y-\sum x\sum y}{\sqrt{\left(n\sum x^2-(\sum x)^2\right)\left(n\sum y^2-(\sum y)^2\right)}}$$

, where *x* and *y* are the variables' values, and *n* is the sample size. The researcher can interpret the correlation coefficient value in the following manner: (1) If *r* equals 1, the two values have a perfect positive correlation; (2) If *r* equals -1, the two values have a perfect negative correlation; and (3) If *r* equals zero, the two values have no correlation. The most common correlation analysis forms in business studies involve Autocorrelation, Spearman Rank correlation, and the Pearson product-moment correlation (Tsay, 2020).

Serial correlation or autocorrelation implies the relationship among the values of the same variables at various times. Researchers calculate the autocorrelation coefficient by changing lagged data with the Pearson product-moment correlation coefficient formula. Similarly, because a series of unshifted data expresses perfect correlation, the function begins with a coefficient of 1. Spearman Rank correlation requires sorted data and an assigned specific rank value, with *1* as the lowest value. Moreover, if data value appears more than once, equal values are specified as their average rank.

The Pearson product-moment correlation takes the ratio of two variables' samples to the product of the two standard deviations to illustrate the strength of the linear relationship. The correlation coefficient is not robust because solid linear relationships between the variables are not acknowledged. The correlation coefficient is susceptible to outlying points; hence, the correlation coefficient is not resilient.

Correlation analysis as a research method presents an array of advantages (Tsay, 2020). This method allows simultaneous data analysis from many subjects. Moreover, correlation analysis can study various variables and their interconnections. On the adverse side, correlation findings do not specify cause-and-effect relationships.

The Variables

Correlational research measures two variables and assesses their relationship without manipulating an independent variable. As correlation does not point toward causation, a statistical relationship between two variables does not automatically mean that one variable causes another. Researchers can manipulate or alter independent variables to ascertain their relationship with other variables. In contrast, dependent variables rely on other variables commonly measured or analyzed by a researcher. Table 5 below lists this study's variables:

Table 5

Variables

Variable	Variable Type	Data Type
TeamSTEPPS implementation, staff's TeamSTEPPS skills, knowledge, and attitude	Independent	Interval (Test scores)
Patient safety culture improvement, organizational culture change	Dependent	Ordinal (Likert-type questions)
Leadership's support for culture change	Independent	Ordinal (Likert-type questions)
Robust TeamSTEPPS program	Dependent	Ordinal (Likert-type questions)
Health care facility's inclination to embark on a TeamSTEPPS initiative	Independent	Interval (Test scores)
The need to improve its safety culture	Dependent	Interval (Test scores)
Organization's willingness to measure and assess TeamSTEPPS progress	Independent	Ordinal (Likert-type questions)
The sustenance of a robust TeamSTEPPS program	Dependent	Ordinal (Likert-type questions)

Descriptive Statistics

Data analysis aims to efficiently describe or measure the strength of relationships between variables or identify relationships between cross-tabulation factors. This analysis determines which variables are predictively related to a specific response variable or predict a response variable's future values. Correlation and regression analysis and measures of association constructed from tables provide the means for constructing and displaying such relationships.

Bivariate descriptive statistics allow the strong dependence of the relationship displayed in a scatter plot. This process efficiently summarizes equally as the univariate descriptive statistics provide efficient summaries of the information evident in univariate plots. However, the form of the relationship and possible external influences are best detected using descriptive plots or by specific analyses like regression (Davis et al., 2022).

The correlation coefficient is a detailed descriptive statistic shaping the strength of the linear relationship between two intervals or ratio scales, as pictured in a scatter plot. The value of the correlation coefficient *r* ranges from -1, indicating a perfect negative or inverse correlation, to +1, indicating a perfect positive or direct correlation. The scholar observes the two variables' relationship strength on a bivariate scatter plot, measured by the covariance or correlation between the two variables. The covariance scale relies on the units measuring the unique variables. Moreover, if the individual variables have unequal variances, the covariance may reflect that situation more than the strength of the relationship between variables (Davis et al., 2022).

Hypotheses Testing

The following research questions seek the relationship between team training, safety culture, and organizational culture:

RQ1: What is the relationship between TeamSTEPPS implementation and improved patient safety culture?

RQ2: What is the relationship between leadership's support for culture change and the institution's effort to execute and maintain a robust TeamSTEPPS program?

RQ3: What is the relationship between a healthcare facility's inclination to embark on a TeamSTEPPS initiative and the need to improve its safety culture?

RQ4: What is the relationship between an organization's willingness to measure and assess TeamSTEPPS progress and its sustenance of a robust TeamSTEPPS program?

Hypotheses are assumptions based on some evidence. This research element is the primary point of any investigation, translating the research questions into a prediction (Lund, 2021). It includes the population, variables, and the relationship between the variables. Moreover, a hypothesis tests the relationship between two or more variables. The null hypothesis provides a statement contrary to the hypothesis, affirming no relationship between independent and dependent variables. The following lists the null and alternative hypotheses for all the research questions:

$H1_0$ (Null hypothesis for RQ1): There is no significant correlation between improved patient safety culture and TeamSTEPPS implementation.

$H1_\alpha$ (Alternative hypothesis for RQ1): There is a significant correlation between improved patient safety culture and TeamSTEPPS implementation.

$H2_0$ (Null hypothesis for RQ2): There is no significant correlation between an institution's determination to implement and maintain a robust TeamSTEPPS program and its leadership's buy-in for culture change.

$H2_\alpha$ (Alternative hypothesis for RQ2): There is a significant correlation between an institution's determination to implement and maintain a robust TeamSTEPPS program and its leadership's buy-in for culture change.

$H3_0$ (Null hypothesis for RQ3): There is no significant correlation between a facility's need to cultivate its safety culture and its predisposition to undergo a TeamSTEPPS program.

$H3_\alpha$ (Alternative hypothesis for RQ3): There is a significant correlation between a facility's need to cultivate its safety culture and its predisposition to undergo a TeamSTEPPS program.

$H4_0$ (Null hypothesis for RQ4): There is no significant correlation between sustaining an organization's robust TeamSTEPPS program and its commitment to evaluate and review its progress.

$H4_\alpha$ (Alternative hypothesis for RQ4): There is a significant correlation between sustaining an organization's robust TeamSTEPPS program and its commitment to evaluating and reviewing its progress.

Testing the correlation coefficient's significance requires satisfaction with certain data assumptions. The premise of this test lies in the proper sampling of observed points taken from a larger population (Davis et al., 2022). Sampling concludes the linear relationship between x and y in the sample data, providing the population's robust evidence of x and y's linear relationship.

Testing the significance of the correlation coefficient and examining the scatter plot helps determine its appropriateness for this study. The regression line equation calculated from the sample data gives the best-fit line for the particular sample (Yuan et al., 2021). This best-fit line for the sample serves as an estimation of the population's best-fit line.

After data collection, the correlational researcher statistically analyzes the relationship between variables using correlation, regression analyses, or both. This strategy visualizes the relationships between variables with a scatterplot. Different correlation coefficients and regression analyses are appropriate for the data based on their measurement levels and distributions.

Using correlation analysis, the researcher summarizes the relationship between variables into a correlation coefficient. This coefficient represents a single number that describes the relationship's strength and direction, quantifying the degree between variables. Pearson's *r*, also known as Pearson product-moment correlation coefficient, is generally employed for evaluating a linear relationship between two quantitative variables.

The researcher can apply regression analysis, predicting the change in one variable as a modification in the other. The outcome is a regression equation that defines the line on a graph of the variables. This equation predicts one variable's value based on the other variable's given value. Experts recommend performing a regression analysis after conducting a correlation test between the variables (Morgan et al., 2020).

However, correlation does not imply causation. If two variables are correlated, one is a cause, and the other is an effect. The correlational research design does not allow the researcher to infer. To err on caution, researchers do not conclude causality from correlational studies.

Summary of Data Analysis

Data analysis refers to managing data to glean helpful information and make informed decisions. Extracting meaning from data empowers scholars to make better decisions. Scholars approach many data analyses as data summarization. The most direct effect of data summarizing is reducing information to a few fundamental summary values, often represented in a table or plot. It is an enormous mistake to theorize before acquiring data, manipulating facts to conform to theories instead of demonstrating theories to fit the facts.

Reliability and Validity

Reliability and validity are notions employed to gauge the research quality. They show how well a method, technique, or test measures the desired parameter. Reliability signifies the consistency of a measure, and validity denotes the accuracy of a measure. Quantitative research studies must consider reliability and validity when creating the research design, planning methods, and writing results. Table 6 below summarizes the comparison between reliability and validity.

Table 6

Comparison Between Reliability and Validity

	Reliability	Validity
Definition	The reproducibility of results when the researcher repeats the study under the same conditions	The extent to which the results truly measure what they are supposed to measure
Assessment	Check the results' consistency across time, different observers, and various parts of the test.	The degree to which the results resemble other measures of the same concept and established theories.

	Reliability	Validity
Relationship	A reliable measurement is not always valid. The results might be reproducible, but they are not necessarily correct.	A valid measurement is generally reliable. A test producing accurate results must be reproducible.

Reliability and validity are firmly related, but they represent distinct ideas. Reliability indicates how consistently a method measures the study's interest. The measurement is reliable if the investigator consistently achieves the same result via the same methods under the same circumstances. A reliable measurement may not be valid; however, a valid measurement is typically also reliable (Van Huy et al., 2020).

Validity describes how accurately a method measures what it intends to quantify. Research with high validity produces results corresponding to fundamental properties, characteristics, and variations in the physical or social world. High reliability is one indicator of valid measurement. If a process is unreliable, it probably is not valid. However, reliability by itself is not sufficient to ensure validity. Thus, a reliable test may not accurately reflect the actual situation (Van Huy et al., 2020).

Reliability. Researchers should consider reliability throughout the data collection process. When utilizing a tool or technique to collect data, experts suggest confirming that the outcomes are precise, stable, and reproducible (Clay-Williams et al., 2020). The author performed the following steps to ensure reliability for this study: First, the author must consistently apply the research method. Scholars recommend planning each research method carefully to perform the same steps in the same way for each dimension. This process is specifically crucial if multiple researchers are involved.

Second, when collecting data, experts concur on keeping a consistent condition to decrease the external factors' influences that might create results variation (Clay-Williams et al., 2020). This process is valuable in an experimental setup. Investigators must ensure that all contributors are given the same material and tested under the same circumstances.

Validity. This study used scores or ratings to measure team training variations, patient safety, and organizational culture. Scholars must consider validity in the earliest stages of the research, generally before the data collection phase. Therefore, the results must reflect the actual variations as accurately as possible.

The author conducted the following steps to ensure the validity of this study: First, the author has chosen appropriate measurement methods. Experts recommend high-quality methods and measurement techniques to measure what the study aims to discover (Clay-Williams et al., 2020). These techniques should be thoroughly researched and based on existing knowledge. Moreover, the author utilized standardized questionnaires considered reliable and valid, with carefully and precisely worded questions.

Second, experts suggest using appropriate sampling methods to select the respondents (Yuan et al., 2021). The author clearly defined the target population to produce valid, generalizable results, specifying the geographical location, staff characteristics, and the institutional unit of interest. The author ensured enough participants sampling to represent the population using established sampling calculators.

Summary of Reliability and Validity. Reliability and validity are the two most essential and fundamental features in evaluating any measurement instrument or tool for good research. Validity relates to what an instrument assesses and how well it does so. Reliability involves confidence in the data obtained from an instrument or the extent to which any measuring tool

limits random errors. The measurement error affects the ability to find significant results and can damage the function of scores to prepare for good quality studies. Without assessing the reliability and validity of the research, it is difficult to describe the effects of measurement errors on the theoretical relationships measured. The principle of reliability and validity establishment in research is to safeguard sound and replicable data with accurate results. By using various methods to collect data, a scholar can improve the validity and reliability of the collected information.

Summary of Section 2 and Transition

Section 2 has three segments. First, the project details include the purpose statement, the researcher's role, and the research methodology. The next segment discusses the participants, population, and sampling method. The final segment includes data collection and organization, data analysis, descriptive statistics, reliability, and validity. The subsequent section covers the processes involved in the research proposal, proposal defense, and IRB submission. Moreover, Section 3 includes the presentation of findings and supporting materials.

Section 3: Application to Professional Practice and Implications for Change

Health care specialists must synchronize their activities to make patient care efficient and safe. The team skills implemented from research on aviation crews involve developing an exhaustive case orientation, making assertions and inquiries, communicating, providing and receiving feedback, wielding leadership, and sustaining a constructive group climate. Other team skills include anticipating and planning, managing workload distribution, maintaining vigilance, and re-evaluating actions. Nevertheless, team members seldom train together as they derive from distinct disciplines and various educational curricula.

Overview of the Study

Given health care's interdisciplinary nature and the stipulation for cooperation among staff members, teamwork is critical to safeguard patient safety. Teams make fewer blunders than individuals precisely when they identify their and other team members' tasks (Adjei, 2022). However, merely training or installing a group structure does not guarantee that the team functions efficiently. Teamwork is not exclusively a result of co-locating individuals together. Instead, it hinges on an inclination to coordinate, cooperate, and communicate while remaining focused on attaining optimum patient outcomes. Teamwork does not necessitate that team members work together permanently; it must epitomize a commitment to a shared set of team knowledge, skills, and attitudes (KSAs), instead of perpetual tasks that carry over every day (Adjei, 2022; Hsiao et al., 2022).

Patient safety culture and organizational culture are interrelated notions, often utilized interchangeably. While safety culture comprises communication and collaboration between care providers, organizational culture refers to authority gradients and the chain of command. High reliability organizations uphold both a positive safety culture and a well-adjusted organizational

culture. This study found evidence to support this assumption, showing that a less hierarchical organizational culture positively associates with patient safety compliance across various TeamSTEPPS domains.

Organizational and safety culture likely impact an organization's capacity to implement quality improvement and patient safety initiatives effectively. Health care facilities differ in organizational culture, and the type of culture relates to their safety climate. This study's results align with prior studies, signifying that a health care organization's culture is critical in developing its patient safety climate and positively instigating quality improvement initiatives (Alsabri et al., 2022; Goncalves et al., 2022; Skoogh et al., 2022).

Developing a culture of safety remains a fundamental component of many endeavors to improve care quality and patient safety. Several studies show that safety culture and the associated idea of safety climate are interrelated to error reporting (Toren et al., 2021; Yang & Liu, 2021), adverse events reductions (Gharaee et al., 2020; Yesilyaprak & Demir Korkmaz, 2021), and decreased mortality (Appelbaum et al., 2021; Mohsen et al., 2021). Accreditation bodies recognize leadership standards for safety culture improvement and measurement, promoting a culture of safety (Gelinas et al., 2021). While much effort fixates on endorsing a safety culture, identifying the most effective approaches and implementation factors that may influence success are critical to accomplishing meaningful improvement.

Based on the organizational, social, and safety sciences, patient safety culture signifies a notable feature of an organization's culture. Explicitly, it personifies the shared norms, beliefs, values, and measures related to patient safety among organizational members of a team or unit. It affects staff and clinician behaviors, attitudes, and cognitions in the workplace by providing prompts about the relative patient safety priority equated with other goals, such as efficiency or

throughput (Alshyyab et al., 2022; Reis et al., 2020). Culture also forms clinician and staff insights about proper behavior related to patient safety in their work spheres. It informs discernments about commendable and punishable attitudes informally by fellow team members and colleagues or formally by leadership. Thus, culture influences one's motivation to engage in safe behaviors and the degree to which this motivation renders into daily practice.

Since safety culture can affect outcomes and care processes, health care facilities extensively implement efforts to assess patient safety climate over time (Azyabi et al., 2021). Feedback and measurement are essential means to encourage a culture of safety effectively. This research attempted to address these gaps by conducting a quantitative correlational investigation to identify the association among team training, adherence to patient safety guidelines, and organizational culture improvement. This study's results suggested possible positive effects for leadership engagement and support, together with TeamSTEPPS' multifaceted, unit-based interventions on survey measures of safety climate.

Presentation of the Findings

Although entrenched in most hospitals' mission, quality and patient safety must be part of organizational culture. Hospitals and care systems characterized by communications grounded on mutual trust and shared perceptions of patient safety have a robust safety culture (Granel-Giménez et al., 2022). However, a shared perception does not always translate to a positive culture change in a clinical setting.

In 2006, due to substantial numbers of sentinel events reported to The Joint Commission (TJC), the Agency for Healthcare Research and Quality (AHRQ), in alliance with the Department of Defense (DoD), developed team tools and strategies to improve patient safety and performance. The resulting program, called TeamSTEPPS, became the national healthcare

standard. Hospitals nationwide have implemented the TeamSTEPPS program, recognizing it as one of the required training methods for developing teamwork and communication skills (Baloh et al., 2021).

Studies show that TeamSTEPPS training provides health care teams with the knowledge and tools to adapt to changing situations systematically (Cooke & Valentine, 2021). With TeamSTEPPS training, teams develop a shared understanding of their care plans or other complex process. This shared mental model builds mutual trust and appreciation, thus creating effective teamwork. Teams also develop a positive attitude toward teamwork, reflecting its benefits and effect on patient safety. Higher-performing teams maximize the use of information, skills, and resources for optimal outcomes, resulting in improved organizational culture.

Health care organizations and systems must develop safer medical systems and adhere to standard guidelines and best practices to ensure patient safety. However, these approaches do not always result in satisfactory results because of many human factors. Experts concur with the importance of nontechnical skills defects than methodological skills regarding medical accidents and incidents. Therefore, staff members must improve their nontechnical skills to compensate for each other's defects based on a team approach (Buljac-Samardzic et al., 2020).

TeamSTEPPS can improve the nontechnical skills of each member and the team. TeamSTEPPS entails leadership sharing mental models among the team, conducting continuous monitoring and awareness for team activities, offering mutual support for workload and knowledge, and ensuring comprehensive communication approaches to enhance teamwork and patient safety. Other than improving nontechnical skills and teamwork, TeamSTEPPS decreases medical errors, improve patient outcomes and satisfaction, and cultivates organizational culture (Parker et al., 2019). For such purposes, experts utilized TeamSTEPPS to enhance performance

and patient safety in health care. This study aims to correlate TeamSTEPPS team training and organizational culture improvement.

Descriptive Statistics

Descriptive statistics summarize complex quantitative data, allowing for the ease of data visualization. It allows for a meaningful and understandable data presentation, resulting in a simplified interpretation of the data set. Furthermore, descriptive statistics allow for a data set's summarization and presentation through tabulated and graphical descriptions to discuss the results. Conversely, researchers find it challenging to analyze, trend, and determine raw data patterns. Accordingly, this study utilized correlational research with the following characteristics:

First, correlational research is non-experimental. It does not manipulate variables using a scientific methodology to agree or disagree with a hypothesis. In correlational research, the researcher observes and measures the natural relationship between two variables without subjecting either of the variables to external conditioning.

Second, correlational research uses backward-looking data. Correlational research does not consider the future as it only perceives and measures the current historical connection between two variables. Thus, the statistical pattern ensuing from correlational research is retrospective and can cease to exist.

Third, correlational research observes and measures historical patterns between two variables. Correlational research may disclose a positive relationship between the variables, but this may vary in the future. Lastly, correlational research stays dynamic. Statistical patterns between two variables that result from correlational research are dynamic. The correlation between two variables changes daily, so researchers cannot use it as fixed data for further

research. For instance, two variables can have a negative relationship for a certain period. After a specific time, the correlation between them can become positive. Thus, researchers cannot use correlational research data as a standard variable for further research.

A correlation coefficient signifies a substantial value that specifies whether the inter-relationship between two variables is positive, negative, or non-existent. It is usually represented with *r* and comprises an array of probable correlation coefficients from -1.0 to +1.0. Pearson's Correlation Coefficient (or Pearson's *r*) typically calculates the correlation strength between quantitative variables. A value of 1.0 points to a perfect positive correlation, a value of -1.0 specifies a perfect negative correlation, and a value of 0.0 shows no correlation.

The correlation coefficient helps determine the degree of statistical relationship between variables. A correlation coefficient only reflects the linear relationship between two variables. It does not capture non-linear relationships and cannot separate dependent and independent variables.

This study used the restricted or close-ended item, the most commonly used survey item in quantitative research, and included a restricted number of answer options. A restricted item does not allow participants to respond in their own words. Instead, the item restricts the finite number of options provided by the researcher.

Restricted survey responses can be easily entered or coded for statistical analysis purposes. These items often use a Likert scale for participants to respond. This numeric response scale uses a finite number of points for which a participant can respond to an item in a survey to indicate the participants' level of agreement with a question or statement. However, its analysis restricts the finite number of options provided to participants.

This study used the in-person survey, a method that can effectively get participants to respond to a survey due to the researcher's presence while participants complete the survey. More willing participants complete an in-person survey because the researcher explains the survey, observes the participants take the survey, and answers any questions they may have while they complete the survey. This method takes time, though, because it requires the researcher's presence while each participant completes the survey.

Obtaining representative samples becomes essential because scholars often use surveys to learn about the characteristics of a population of interest. Administering the survey in person can make it more likely that we can obtain a representative sample. On the other hand, administering the survey by mail, telephone, or internet can limit the sample's representativeness because often, only a tiny proportion of those who receive the survey respond and complete the survey.

During survey administration, researchers must obtain a high response rate. This rate indicates the participants who decide to complete a survey among all those asked to participate. When the response rate is high, we can be more confident that the sample of those who completed the survey represents the larger population of interest. Issues related to response rates center on the possibility of a non-response bias, which occurs when participants choose not to complete a survey or respond to specific items in a survey. Although at least a 75% response rate should be obtained to minimize bias, the typical response rate to surveys in published peer-review research is less than 50% (Holtom et al., 2022).

The issue with low response rates lies in the different characteristics of people who respond to surveys from those who do not. Because the researcher cannot collect data from people who fail to respond, it is taxing to establish the exact characteristics of this group of non-

responders. Consequently, one cannot know whether the survey results of those who respond represent the larger population of interest, including those who do not respond to surveys.

While the low response rates in published research can be problematic, there is good reason to publish results from these journals. Although low response rates can limit the population validity (a subtype of external validity) of results from a survey, researchers are not always interested in generalizing results to a population. To establish external validity, researchers often use survey results to generalize to a theory, called theoretical generalization, or generalizing to other observations, called empirical generalization. As long as survey results are rooted in existing theories and data, researchers can afford to be lenient about sample quality in academic research.

Scholars often use surveys with a correlational research design. They use this design to determine which factors cause a change in another. This design does not control other factors that could change the participants' behavior. Furthermore, the correlational research design ascertains the extent of the relationship between two factors, not the extent to which one factor causes changes in another. A correlational research design has two or more measurements for each specific observation. Each measurement represents a different variable believed to be related. The correlation establishes the extent to which two factors are related, such that values for one variable may predict changes in the values of a second variable.

After measuring these variables, statisticians compute the correlation coefficient to identify the extent to which two variables' values or factors are related or the observed change in an identifiable pattern. The correlation coefficient ranges from -1.0 (values change in opposite directions) to +1.0 (values change in the same direction) and is used to identify a relationship pattern regarding the strength and direction between two factors.

The researcher plots each pair of values called data points along the x-axis and the y-axis of a graph to see whether a pattern emerges. The scatterplot graph identifies the direction and strength of the correlation. The relationship strength between the two factors relies on the value of the correlation coefficient, r, with values closer to r = + 1.0, indicating a stronger relationship between the two factors. The relationship direction between two factors may have a negative or positive description.

The extent to which two factors are related regulates how far data points fall from a regression line as plotted in a graph. The regression line best fits the closest-fitting straight line to a set of data points. The best-fitting straight line signifies the contour minimizing the distance of all data points falling from it. Therefore, the regression line illustrates the direction and strength of a relationship between two factors.

In a scatterplot, a positive correlation means that as values of one factor increase, values of a second factor also increase. A negative correlation means that as values of one factor rise, values of the other factor lessen. Conversely, as one factor's values decrease, a second factor's values decrease in a positive correlation. If two variables have values that change in the same direction, investigators can display the correlation using a straight line. Similarly, scholars can graph the correlation using a straight line for two factors having values that change in the opposite direction.

A zero correlation ($r = 0$) means no linear pattern or relationship between the two factors. This outcome is rare because, by chance, some variable values demonstrate some relationship or pattern with another factor’s values. Thus, a correlation coefficient close to $r = 0$ is weak, and the two variables are less likely related. Conversely, a correlation coefficient closer to $r = \pm 1$ has a stronger correlation and the more likely that the two factors are related.

A correlation's strength reflects how the values consistently change for each factor. When plotted in a graph, a stronger correlation means that the values for each factor change in a related pattern. A stronger correlation shows that the data points fall closer to the regression line.

The most widely utilized formula for determining *r* is the Pearson correlation coefficient. The Pearson correlation coefficient formula measures the variance of data points from a regression line shared by the values of two factors, X and Y, divided by the variance measured. Scholars use this formula to ascertain the direction and strength of two factors' relationship in an interval or ratio measurement scale. Alternative formulas for correlation computation exist, as identified in Table 7; however, each alternative formula derives from the Pearson correlation coefficient formula:

$$r = \frac{\text{variance shared by X and Y}}{\text{total variance measured}}$$

Table 7

The Measurement Scales for Factors Tested Using Correlation Coefficients

Correlation Coefficient	Measurement Scale for Correlated Variables
Pearson	Both factors are ratio or interval data.
Spearman	Both factors are ordinal or ranked data.
Point-Biserial	One factor is continuous (interval or ratio data), and the second is dichotomous (nominal data).
Phi	Both factors are dichotomous (nominal data).

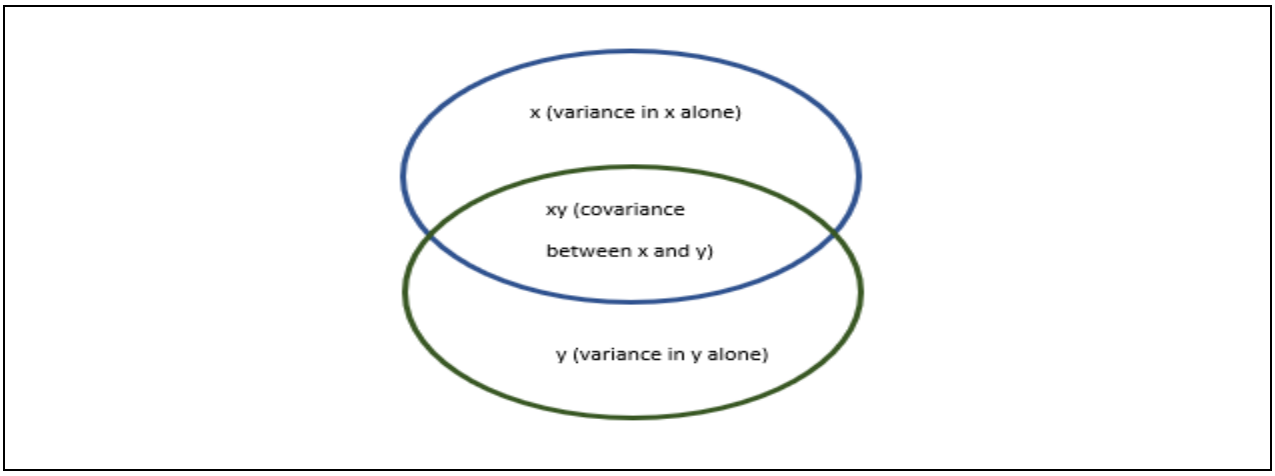
The correlation coefficient (*r*) computes the variance of factor X and factor Y, constituting the total measured variance. The total variance situates in the *r* formula's denominator. The variance in the denominator, called covariance, denotes the quantity or proportion of the total variance shared by factors X and Y. A greater covariance means that the

data points are closer to the regression line. When all data points for factors X and Y fall precisely on a regression line, the covariance equals the total variance, and *r* equals +1.0 or -1.0, contingent on the relationship direction between the two factors. If the data points fall farther from the regression line, the covariance is smaller than the denominator's total variance, resulting in a value of *r* closer to 0.

If one conceptualizes covariance as spheres (Figure 4), then the variance of each factor X and Y is contained within each circle. The two circles then contain the total measured variance. The total variance contained within each circle rests in the denominator. The covariance of X and Y reflects the extent to which the total variance or the two circles overlap. In computing r, the overlap or covariance situates in the numerator. The more the two circles overlap, the more the covariance in the numerator equals the independent variances within each circle in the denominator, and *r* is closer to ±1.0.

Figure 4

Covariance Between X and Y



In Figure 4, Each sphere represents the variance of a factor. The variances of the two factors covary since the two circles overlap. The more overlap or shared variance of two factors, the more the two factors are related.

The correlational method's fundamental limitations require a cautious interpretation of a significant correlation. The following discusses the many considerations for interpreting a significant correlation. These considerations include causality, outliers, and range restriction.

The correlational design shows that two factors are related but does not explain how or why they are related. A correlational design does not manipulate an independent variable and certainly makes little effort to control for other factors that may also vary with the two measured variables. Hence, a significant correlation does not show that one factor causes changes in a second factor (causality).

Reverse causality arises when the two factors' direction of causality occurs in either direction. It occurs when the direction of causality for two factors cannot be determined. Hence, changes in x could cause changes in y, or changes in y could cause changes in x. On the other hand, a confound is a random variable not accounted for in a research study that could be causing or associated with observed changes in one or more measured variables. It is impossible to prove causal relationships with correlation. However, examining and eliminating important alternate explanations for the correlation can evaluate the strength of the evidence for such a relationship.

Another limitation that can obscure the correlation or relationship between two factors is when an outlier is in the data. An outlier is a score that falls substantially above or below most other scores in a data set. Outliers can substantially inflate or deflate the correlation. An outlier can alter the direction and strength of an observed correlation.

When interpreting a correlation, it is also essential to avoid making conclusions about relationships that fall beyond the range of data measured. The restriction of range problem occurs when the range of data measured in a sample is restricted or smaller than the range of data in the general population. To avoid the problem of range restriction, a correlation's direction and

strength should only be generalized to a population within the limited range of measurements observed in the sample.

Scholars can use the information provided by *r* to predict values of one factor, given known values of a second factor. The *r* value can compute the equation of a regression line to predict values of one factor, given known values of the second factor in a population. This procedure is called linear regression. To use linear regression, investigators identify the predictor and criterion variables.

The predictor variable has known values and can be utilized to forecast the values of the criterion variable, plotted on the graph's x-axis. The criterion variable is the variable with unknown values, given the known values of the predictor variable, plotted on the graph's y-axis. To use this equation, we identify the following equation of a straight line: $Y = bX + a$.

In this equation, Y is a value we plot for the criterion variable, X is a value we plot for the predictor variable, b is the slope of a straight line, and a is the y-intercept, where the line crosses the y-axis. Given a set of data, researchers can find the values of a and b, then use the equation they found to predict Y outcomes.

The advantage of linear regression relies upon using the regression line equation to predict how responders behave or perform. However, this procedure cautions that smaller correlations, or those closer to $r = 0$, produce inaccurate predictions using the regression line equation because the data points fall far from them. Likewise, the stronger the correlation, or the closer to $r = \pm 1.0$, the more accurate the predictions made using the regression line equation because the data points fall closer to it.

In this quantitative study, correlation reflects the association's strength and direction between two or more variables. A correlation coefficient designates a single number describing

the variables' strength and direction relationship. Researchers utilize different types of correlation coefficients based on the data measurement and distribution levels.

Scholars apply the Pearson product-moment correlation coefficient (Pearson's *r*) to assess a linear relationship between two quantitative variables. Pearson's correlation coefficient signifies two variables' covariance divided by the product of their standard deviations. This definition involves a *product moment*, the product means of the mean-adjusted random variables; hence the modifier *product-moment* in its appellation.

This study's data assumptions met the following criteria to use Pearson's *r*: (a) both variables have an interval or ratio level of measurement, (b) data from both variables follow normal distributions, (c) the data have no outliers, (d) the data originated from a random or representative sample, and (e) the researcher expects a linear relationship between the two variables. Moreover, the sign of the coefficient represents the relationship's direction. Variables change in the same direction in a positive value, while variables change in opposite directions in a negative value.

A number's absolute value equals the number without its sign. The absolute value of a correlation coefficient shows the magnitude of the correlation: the more significant the absolute value, the stronger the correlation. Accordingly, a positive correlation shows that both variables change in the same direction. Furthermore, a negative correlation illustrates that the variables change in opposing directions. Lastly, a zero correlation means no relationship between the variables.

Karl Pearson developed the statistical measure, now known as Pearson's *r*, or the Pearson product-moment correlation coefficient, around the turn of the 20th century. This metric determines two variables' covariance given their standard deviations. Generally, aside from the

units and scale of the two variables, growth in one variable consistently reflects a comparable increase or decrease in the other. Consequently, Pearson's *r* ascertains the changes in variables as perfectly linear (+1) or inversely linear (-1) when considering their standard deviations.

Hypotheses Testing

Correlational studies intend to discover and conceivably measure relationships between two or more variables. From a research perspective, a relationship shows that an individual's status on one variable reflects his position on another. In a correlational study, the researcher examines the extent of an existing statistical relationship between two or more variables.

In correlational research, investigators select participants through an appropriate sampling method. The minimally acceptable sample size for correlational studies is 30 participants. A larger sample resolves the validity and reliability issues of the measured variables (Morgan et al., 2020).

The basic design of a correlational study remains straightforward: scholars collect scores on two or more variables of interest for each member of the sample. The scores must pair accurately for each participant upon compiling into a database, as randomly mixed scores in the data file are entirely inaccurate. Next, the researcher computes a correlation coefficient for the two scores making up the data set.

The correlational data analysis involves the calculation of a correlation coefficient. There are different categories of correlation coefficients, depending on the level of measurement for each variable. However, the data collection and analysis processes are essentially the same for any correlational research study.

The results of the correlational analyses should permit the researcher to answer the guiding research questions or address the hypotheses for the study. Next, the investigator draws

inferences about the relationship between the variables of interest within the population and asserts appropriate associational, but not causal, conclusions about the study. Accordingly, one strength of correlational research is its simple design.

In its simplest form, correlational design requires data for only two variables. While the design is simple, researchers must ensure that the limited data they are collecting exhibit the qualities such as sound validity and reliability necessary to draw generalizable conclusions about the relationships between variables. Failure to ensure that the data are of high-quality likely results in the inaccurate interpretation of the calculated correlation coefficient. Inferior data quality can lead to erroneous and misleading conclusions for the research study. Due to its more straightforward design, correlational research is often appropriate for novice researchers, provided they heed the warnings regarding correlational research and the dangers of inappropriately implying causation. Correlational studies present some substitute approaches for testing whether a linear association occurs between the predictor Y and the response Y in a simple linear regression model: H0: $\beta 1 = 0$ versus HA: $\beta 1 \neq 0$.

One is the t-test for the slope, while the other is an analysis of variance (ANOVA) F-test. For example, to find a linear relationship between two variables, one could estimate the regression line and apply the t-test to determine if the slope, $\beta 1$, of the population regression line, is 0. Alternatively, the investigator could perform an (analysis of variance) F-test.

Researchers can also utilize the linear lack of fit test to check for linearity. This test requires replicates or multiple observations of y for at least one value of x and concerns the following hypotheses: H0: There is no lack of linear fit; HA: There is a lack of linear fit.

Two measures, correlation coefficient r and the coefficient of determination r2, only review the linear relationship's strength in samples. If one obtained a different sample, one

would obtain different correlations, r2 values, and potentially different conclusions. Ideally, researchers intend to conclude about populations, not just samples. Thus, researchers must calculate a confidence interval or complete a hypothesis test for the population correlation coefficient ρ (rho).

Generally, when it is not apparent which variable should stand as the response, researchers utilize the hypothesis test for the population correlation ρ to determine the linear association between the predictor and response variables. In such cases, the scholar answers the research question using the t-test to test the population correlation coefficient. The following enumerates the standard hypothesis test procedures for conducting a hypothesis test for the population correlation coefficient:

First, the researcher specifies the null and alternative hypotheses with the following formula for null hypothesis ρ=0, and alternative hypothesis ρ≠0 or ρ<0 or HA:ρ>0. Second, the scholar calculates the test statistic's value using the following formula:

$$\text{Test statistic: } t^* = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Third, the resulting test statistic calculates the P-value. P-value determines the likelihood of getting a test statistic t* as extreme as if the null hypothesis were true. The statistician calculates the P-value by referring to a t-distribution with n-2 degrees of freedom.

The researcher determines sufficient evidence at the α level to conclude a linear relationship in the population between the response y and predictor x. If the P-value is lesser than the significance level α, the scholar rejects the null hypothesis and supports the alternative. Alternatively, if the *P*-value is larger than the significance level α, the investigator fails to reject the null hypothesis. Thus, there is not enough evidence at the α level to conclude a linear relationship in the population between the response *y* and predictor *x*.

The author and the collaborating statistician conducted data analysis using IBM SPSS Statistics Windows, version 27.0. Two instruments, T-TQA and T-TPQ, cover five dimensions: leadership, team structure, situation monitoring, mutual support, and communication. HSOPS comprises six dimensions: Unit/work area, supervisor, manager, or clinical leader, communication, reporting patient safety events, patient safety rating, and hospital. Each dimension has items with five response options: strongly disagree (1) to strongly agree (5) on a Likert scale.

The T-TAQ questionnaire entails 30 items, while the T-TPQ consists of 35 items. Four items in T-TAQ are negatively worded, including three in the Mutual Support dimension and one in the Communication dimension. HSOPS has 13 negatively worded items. The negatively worded items were reverse-coded.

The total scale scores for each dimension resulted from adding all items and dividing the result by the number of items in each dimension and the total scale. The statistician interpreted the mean scores in Appendix B Tables A1 through A16 as favorable, neutral, or non-favorable. Favorable mean scores range from 4.00-5.00, unfavorable scores range from 1.00-2.99, and neutral scores range from 3.00-3.99. Table 8 summarizes the mean performance scores for each instrument used for this study.

Table 8 exhibited that respondents have favorable attitudes toward teamwork across all constructs. The participants' teamwork attitudes for all five dimensions have favorable scores. These scores mean that more than 50% of the participants responded positively to all questions in each dimension (See Appendix B).

Moreover, the table below revealed that the participant's teamwork perceptions for all five dimensions have unfavorable scores. These scores mean that more than 50% of the

respondents replied negatively to all questions in each dimension. Lastly, Table 8 demonstrated that more than half of the respondents answered neutrally in all HSOPS constructs.

Table 8

Mean Performance Scores for T-TAQ, T-TPQ, and HSOPS

Instrument and Dimension	Overall Mean Performance Score	*SD*	Interpretation
T-TAQ Team Structure	4.69	0.60	Favorable
T-TAQ Leadership	4.80	0.46	Favorable
T-TAQ Situation Monitoring	4.65	0.67	Favorable
T-TAQ Mutual Support	4.23	1.06	Favorable
T-TAQ Communication	4.30	0.82	Favorable
T-TPQ Team Function	2.20	1.17	Unfavorable
T-TPQ Leadership	2.08	1.05	Unfavorable
T-TPQ Situation Monitoring	2.21	1.04	Unfavorable
T-TPQ Mutual Support	2.21	1.01	Unfavorable
T-TPQ Communication	2.00	0.94	Unfavorable
HSOPS Section A (Your Unit/Work Area)	3.60	0.99	Neutral
HSOPS Section B (Your Supervisor, Manager, or Clinical Leader)	3.78	1.03	Neutral
HSOPS Section C (Communication)	3.89	0.99	Neutral
HSOPS Section D (Your Supervisor, Manager, or Clinical Leader)	3.39	0.75	Neutral
HSOPS Section E (Patient Safety Rating)	3.47	1.07	Neutral

HSOPS Section F (Your Hospital)	3.74	1.03	Neutral

Probability of Type I and Type II Errors. Occasionally, an investigator may arrive at a wrong conclusion. Sometimes, by chance alone, a sample may not represent the population. Accordingly, the results in the sample do not mirror reality in the population, and the random error results in a flawed inference. A type I error (false-positive) ensues if a researcher rejects a null hypothesis that is essentially true in the population. Conversely, a type II error (false-negative) arises if the scholar fails to reject a population's false null hypothesis.

The chance that a study could identify an association between an outcome variable and a predictor variable relies on the degree of the association in the target population. Although researchers can never entirely avoid type I and type II errors, they can decrease their likelihood by increasing the sample size. The larger the sample, the lesser probability that it could fluctuate significantly from the population (Morgan et al., 2020).

Often, the researcher does not know the magnitude of the association in the population. Hence, he must indicate the desired association size in the sample. This quantity represents the effect size. The researcher can utilize information from other studies or pilot tests to attain a rational effect size. When no data exists with which to approximate it, he can choose the least clinically meaningful effect size.

The scholar determines the maximum chance of generating type I and type II errors ahead of the research. The chance of performing a type I error is called α (alpha), rejecting the null hypothesis when it is essentially true, also called the level of statistical significance. For instance, if a study sets α at 0.05, the researcher has established 5% as the maximum chance of erroneously rejecting the null hypothesis. This value is the reasonable doubt that the researcher is willing to take when he applies statistical tests to examine the data after the study's completion.

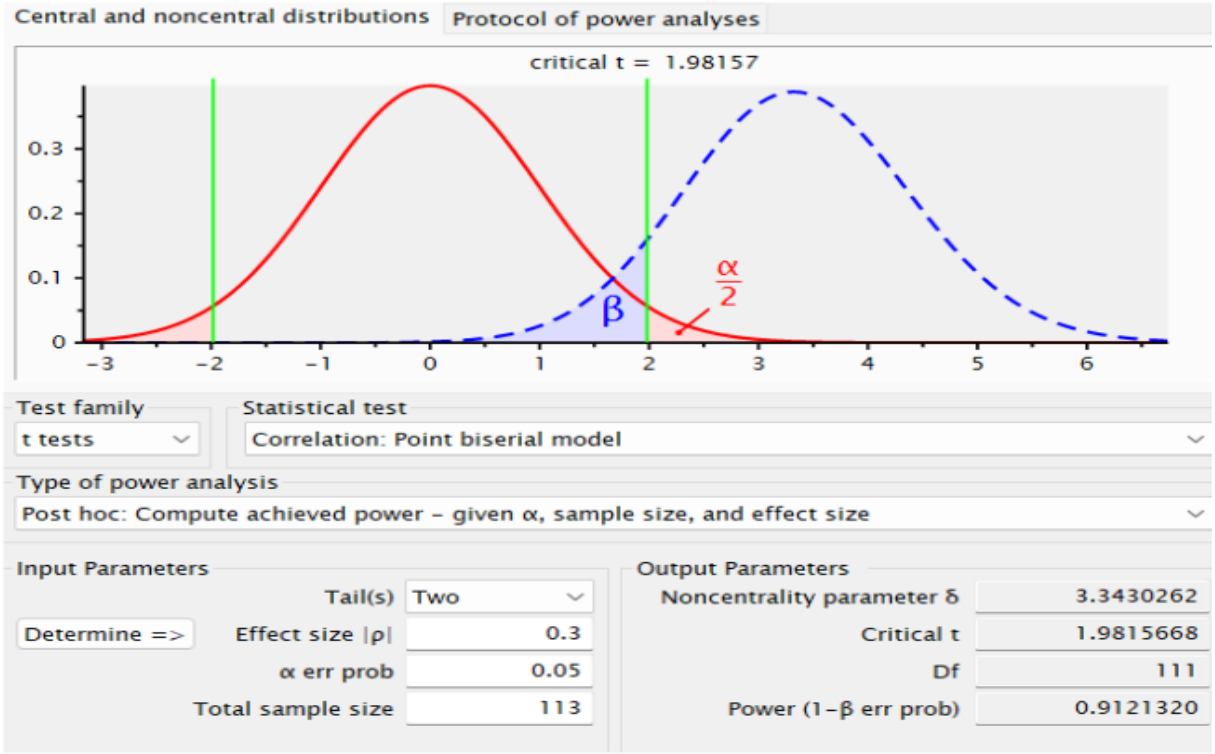
The odds of making a type II error refers to β (beta), failing to dismiss the null hypothesis when it is false. The quantity (1 - β) is named power or the likelihood of detecting a sample effect in a specified effect occurring in the population. This error represents a power of 0.90 or a 90% chance of finding an association. For example, if β is 0.10, the researcher accepts a 10% chance of an association error of a given effect size.

Preferably, investigators must establish alpha and beta errors at zero, eliminating the opportunity for false-negative and false-positive results. In practice, they are set as small as possible. However, reducing them typically entails increasing the sample size. Sample size planning involves selecting enough subjects to keep alpha and beta at reasonably low levels without making the research needlessly difficult or costly (Morgan et al., 2020).

Several studies set alpha at 0.05 and beta at 0.20, a power of 0.80 (Morgan et al., 2020). The conventional range for alpha is between 0.01 and 0.10, and for beta, between 0.05 and 0.20. Generally, the investigator chooses a low alpha value when the research question makes it imperative to deflect a type I or false-positive error. Contrariwise, he should select a low beta value when it is particularly vital to circumvent a type II error (Morgan et al., 2020). Figure 5 shows that this study's sample size (113) has a medium effect size of 0.30, an α error probability of 5%, and a power of 91%.

Figure 5

GPower Sample Size Effect Size, Error Probability, and Power



Summary of Hypotheses Testing. Sample size and statistical analysis procedures affect the rates of statistical errors. Reducing the sample size increases type II errors using correlational analysis. Correlation studies of small sample sizes are likely vulnerable to type I or type II statistical errors, and researchers must interpret them cautiously (Morgan et al., 2020).

Relationship of Findings

This study aims to answer four correlational research questions on the association between TeamSTEPPS team training and improved organizational culture. This research also considers the hospital's adherence to patient safety guidelines, organizational leadership support for culture change, and the facility's performance improvement efforts as they relate to a favorable organizational culture.

The Research Questions. RQ 1 seeks the relationship between TeamSTEPPS implementation and improved patient safety culture. Table 9 summarizes the significant correlations from T-TAQ and HSOPS constructs for RQ 1 (See Appendix C).

Table 9

Relationship Between TeamSTEPPS Implementation and Improved Organizational Culture

Constructs	*r*	*p*-value	Relationship	Decision	Remarks
Leadership Support of TeamSTEPPS Implementation and Improved Organizational Culture	0.248	$p = .009$	Weak	Reject H_0	Significant
Hospital's Provision of Adequate Resources and Improved Organizational Culture	-0.551	$p < .001$	Moderate	Reject H_0	Significant

Note. Reject H_0 if $p < 0.05$

Correlation analysis identified two T-TAQ constructs in TeamSTEPPS implementation, which showed significant relationships with improved organizational culture. Table 9 showed a weak relationship between *leadership* and *improved safety culture (increased reporting of patient safety events)*. Table 9 also illustrated a moderate relationship between the *hospital's provision of adequate resources to improve patient safe*ty and enhanced safety culture.

RQ2 finds the relationship between the hospital's leadership support for culture change and the facility's TeamSTEPPS program maintenance. Table 10 summarizes the significant correlations from the various constructs for RQ 2 (See Appendix C).

Table 10

Relationship Between Leadership and the Hospital's TeamSTEPPS Program Sustainment

Constructs	*r*	*p*-value	Relationship	Decision	Remarks
Leadership Support and Favorable TeamSTEPPS Perception	-0.701	$p < .001$	Moderate	Reject H_0	Significant
Leadership Support and the Hospital's Initiatives to Improve Patient Safety	-0.551	$p < .001$	Moderate	Reject H_0	Significant

Note. Reject H_0 if $p < 0.05$

Correlation analysis identified two HSOPS constructs, which showed significant relationships with the participants' leadership perception. Table 10 revealed a moderate relationship between leadership and favorable TeamSTEPPS perception. Table 4 also demonstrated a moderate relationship between leadership support and the hospital's commitment to improving patient safety.

RQ 3 aims to identify the relationship between the hospital's inclination to embark on a TeamSTEPPS initiative and the need to improve the facility's safety culture. Table 11 summarizes the significant correlations from the various constructs for RQ 3 (See Appendix C).

Table 11

Relationship Between the Hospital's TeamSTEPPS Initiative and Its Need to Improve Patient Safety

Constructs	*r*	*p*-value	Relationship	Decision	Remarks
Favorable HSOPS Performance Level and Increased Reporting of Patient Safety Events	0.346	$p < .001$	Weak	Reject H_0	Significant
Favorable HSOPS Perf. Level and High Patient Safety Rating	0.649	$p < .001$	Moderate	Reject H_0	Significant
Favorable HSOPS Performance Level and Hospital Leadership Support for Patient Safety	0.715	$p < .001$	Moderate	Reject H_0	Significant
Favorable TeamSTEPPS Perception and Increased Reporting of Patient Safety Events	-0.260	$p = .006$	Weak	Reject H_0	Significant
Favorable TeamSTEPPS Perception and High Patient Safety Rating	-0.461	$p < .001$	Moderate	Reject H_0	Significant
Favorable TeamSTEPPS Perception and Hos. Leadership Spt. for Patient Safety	-0.579	$p < .001$	Moderate	Reject H_0	Significant

Note. Reject H_0 if $p < 0.05$

Correlation analysis identified HSOPS and T-TPQ constructs that showed significant relationships with the hospital's willingness to improve its safety culture. Table 11 revealed a weak relationship between the HSOPS team performance level and increased reporting of safety events. Additionally, the analysis demonstrated a moderate relationship between a favorable HSOPS team performance level and a high patient safety rating. Moreover, the data showed a moderate relationship between a favorable HSOPS team performance rating and the hospital management's support of patient safety. Regarding the participant's team training perceptions, Table 11 displayed a weak relationship with increased patient safety events reporting, a moderate correlation with a high patient safety rating, and a moderate relationship with hospital management's support of patient safety.

RQ 4 seeks the relationship between an organization's performance improvement programs and its TeamSTEPPS sustenance. Table 12 summarizes the significant relationships from the constructs for RQ 4 (See Appendix C).

Table 12

Relationship Between an Organization's Performance Improvement Initiatives and Its TeamSTEPPS Sustenance

Constructs	*r*	*p*-value	Relationship	Decision	Remarks
Teamwork Attitude on Performance Improvement and Increased Reporting of Patient Safety Events	0.235	$p = .014$	Weak	Reject H_0	Significant

Constructs	*r*	*p*-value	Relationship	Decision	Remarks
Teamwork Attitude on Performance Improvement and High Patient Safety Rating	0.351	$p < .001$	Weak	Reject H_0	Significant
Teamwork Attitude on Performance Improvement and Hospital's Commitment to Patient Safety	0.567	$p < .001$	Moderate	Reject H_0	Significant
Teamwork Perception on Performance Improvement and Increased Reporting of Patient Safety Events	0.327	$p = .001$	Weak	Reject H_0	Significant
Teamwork Perception on Performance Improvement and High Patient Safety Rating	0.448	$p < .001$	Moderate	Reject H_0	Significant
Teamwork Perception on Performance Improvement and Hospital's Commitment to Patient Safety	0.578	$p < .001$	Moderate	Reject H_0	Significant

Note. Reject H_0 if $p < 0.05$

Correlation analysis identified T-TAQ and T-TPQ constructs that showed significant relationships with the hospital's willingness to conduct performance improvement initiatives. Table 6 displayed a weak relationship between T-TAQ constructs' performance improvement

and increased reporting of safety events. The analysis likewise demonstrated a weak relationship between T-TAQ performance improvement and a high patient safety rating.

Furthermore, the data showed a moderate relationship between T-TAQ performance improvement and the hospital management's patient safety commitment. Regarding the T-TPQ constructs' performance improvement, Table 12 displayed a weak relationship with increased patient safety events reporting, a moderate correlation with a high patient safety rating, and a moderate relationship with hospital management's support of patient safety.

The Theoretical Framework. The Kirkpatrick Model defined a multilevel prototype for assessing a training intervention's impact. This model remains extensively used and viewed as a practical method for training evaluation. When evaluating the success of any training program, Kirkpatrick promoted exploring four different training outcomes as follows (Alsalamah & Callinan, 2022):

Level I encompasses reactions. This model defines reactions as the participants' training perceptions. For instance, affective reactions relate to whether participants *enjoyed* the training. Additionally, instrumentality reactions relate to whether participants found the training *helpful*.

Level II comprises learning. Kirkpatrick defined learning in three stages: (1) attitudes, (2) knowledge, and (3) skills. In the first phase, *attitudes* determine whether respondents feel differently after training. Next, *knowledge* ascertains if participants learned something new due to training. Lastly, skills determine whether the contributors did something differently as a training result.

Level III considers behavior. Behavior defines whether the new attitudes, knowledge, and skills transfer to the job. It measures whether partakers practice their learning on the job and whether that leads to improved job performance.

Level IV encompasses results. This phase describes results as organizational benefits produced from training. In TeamSTEPPS, results include patient outcomes, such as infection rates and perceptions of patient care, and clinical process outcomes, such as the number of structured handoffs used and staff members' perceptions of safety.

The instruments used in this study align with the Kirkpatrick training evaluation model. First, the TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ) evaluates Level II (learning). Second, the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) assesses Level II (learning) and Level III (behavior). Lastly, the Hospital Survey on Patient Safety Culture (HSOPS) measures Level III (behavior) and Level IV (results).

The valuation of learning cultivated through training evaluates the team's attitudes, knowledge, and skills. One indication of practical training encompasses participants' attitudes about the importance of teamwork change due to participating in TeamSTEPPS training. Since the advent of the patient safety movement and the mounting reception of the significance of teamwork in health care delivery, medical professionals could report positive attitudes toward teamwork even without attending TeamSTEPPS training. Therefore, TeamSTEPPS recommends that researchers not depend exclusively on gauging participant attitudes as a learning indication (Alsalamah & Callinan, 2022).

Moreover, just as attitude measures pose challenges, so do knowledge measures. TeamSTEPPS has found that these items tend to be easy despite the careful construction of specific benchmarks. Thus, individuals can often provide correct item responses without participating in TeamSTEPPS training.

The Kirkpatrick hierarchy's final level of training evaluation deals with results. This evaluation level offers a valuation of the organizational benefits shaped by training. This

evaluation level is challenging to measure because organizational changes, initiatives, and interventions could lead to organizational results. However, selecting measures that align with the teamwork issues helps ensure that the training intervention links to favorable results.

Results metrics include three categories. The first metric covers patient outcomes, such as complication and infection rates, medication errors, and patient experience. The next category involves clinical process measures, such as turnaround time, preventive screening compliance, misdiagnoses, structured handoffs, and staff perceptions of safety. The third group of metrics includes routine clinical quality and safety indicators. Examples include the Joint Commission staff and patient satisfaction, patient safety event databases, and quality measures.

The Literature. In the literature, several constructs discuss organizational learning and team training (Al Dari et al., 2021; Potnuru et al., 2021; Shahriari & Allameh, 2020). The most relevant sources for this study involve learning culture and training climate. A learning culture signifies promoting, facilitating, sharing, and disseminating workers' learning, contributing to organizational development and performance (Kucharska & Bedford, 2020). This conceptualization refers mainly to informal workplace learning and does not embody a definite organizational culture subset. Instead, learning culture characterizes the orientation of the organizational culture itself (Arefin et al., 2021).

On the other hand, training climate involves the work-related aspects that may impact training success. The training climate prepares staff members for formal development activities and attaining desired learning objectives (Levine et al., 2020). Training climate may correspondingly influence informal and formal training activities. Nevertheless, the lack of conceptualizing durable and stable organizational training features, reflecting values, norms, and

assumptions, requires more research, primarily oriented toward building new constructs (Kumra et al., 2020).

Training culture instigates from merging two prominent notions in the study of organizations: individual and team training and organizational culture. In the literature, training denotes a strategic activity executed to encourage employees' learning of competencies in knowledge, skills, and attitudes useful for their work or tasks (Achmad et al., 2020; Espasandín-Bustelo et al., 2021). Furthermore, from the organizational viewpoint, training fits organizational needs and develops based on values, beliefs, and practices commonly adopted within the workplace. Accordingly, with the shift to a more collaborative means, training became a method to cultivate employees' core competencies and empower them to develop workplace relations (Kucharska & Bedford, 2020).

Training does not have conventional management and implementation standard (). It relates to the features and requirements of the specific organizational context and the population's characteristics. Furthermore, training occurs in a specific organization with specific characteristics. Hence, training is closely associated with organizational culture (Achmad et al., 2020; Espasandín-Bustelo et al., 2021).

Culture represents the personality of an organization. Scholars and practitioners have examined this concept over the past years, and experts agree that culture signifies a specific group or organization's attribute (Schlaile et al., 2021). Organizational culture refers to the notions, connotations, principles, guidelines, behaviors, and symbols individuals hold in common. Several factors derive the individuals' and groups' sense and values within the organization, and these features are visible whenever individuals or teams respond to specific situations. These factors form the meaning and values shared within the organization, such as

comportment and reaction to specific situations (Hald et al., 2021). Therefore, culture defines how things are done in a particular context, how leaders establish their strategic purposes, and the practices to realize them.

Along with the previous considerations, experts describe training culture as a set of connotations, denotations, and principles ascribed to training in a specific organization (Derse, 2020). Incidentally, training culture mainly denotes the formal learning prearranged and allotted in a specific context and focuses on durable and stable training features. These sectorial and specific features create an organizational culture subset formed by employees' and management's perceptions of workplace training at an individual, team, and organizational level.

Team training benefits are detectable at different stratified and interconnected levels. The team dimension embodies a keystone in contemporary organizations aggregated to the level of teams sharing meanings, mental models, and understanding. Following this reasoning, training culture also has a team metric that characterizes the meaning of team training, specifically in terms of impact on work processes, quality of the service, customization, and ineptitudes related to the training. These elements prove crucial for team coordination (Derse, 2020). When organizational culture orients toward employees' growth and development, teams perceive their training efforts as valuable. Contrarily, cultures where training represents an investment without return, can harm the teams' perception (Derse, 2020; Schmidt et al., 2021).

The Problem. The general problem involves the challenges health care leaders encounter in detecting strengths and weaknesses in executing and upholding a vigorous TeamSTEPPS initiative resulting in the lack of data measuring the relationship between TeamSTEPPS training, organizational culture, and patient safety culture. Consequently, health care teams lacking knowledge, skills, and attitudes can negatively impact organizational culture (Aaberg et al.,

2019; Baloh et al., 2021; Cantu et al., 2020) and compliance with patient safety guidelines (Alsabri et al., 2022; Han et al., 2020; Harolds, 2021; Parker et al., 2019; Shea, 2020). Moreover, studies revealed that TeamSTEPPS implementation barriers remain challenging due to the numerous resources required to provide teamwork training (Aaberg et al., 2019; Karlsen et al., 2022; Parker et al., 2020). Similarly, there is a palpable lack of staff commitment to team training programs (Aaberg et al., 2021; Parker et al., 2019).

In addition to determining how the Ambulatory Care team in this study's index hospital performs, the results show a mild to moderate relationship between effective team training interventions, compliance with patient safety guidelines, and improved organizational culture. The results concurred with numerous peer-reviewed articles detailing team training evaluations relating to a favorable workplace culture (De Brún, Anjara, et al., 2020; De Brún, Rogers, et al., 2020; Lorenzini et al., 2021; Malik et al., 2020; Tocco Tussardi et al., 2022). In line with other studies, this research showed that team training targeted essential competencies such as communication, leadership, role clarity, and situational awareness (Baloh et al., 2021; Fitzpatrick et al., 2021; Prochnow & Tschannen, 2022). In addition to improving team performance, this study likewise demonstrated that team training enhances the use of appropriate medical and technical skills, as reflected in other studies (Aldawood et al., 2020; Alsabri et al., 2022; Borckardt et al., 2020; Dodge et al., 2021).

The statistically significant results of this study support similar results outlined in the literature. The favorable results from all three questionnaires (T-TAQ, T-TPQ, and HSOPS) specifically support the findings of several studies indicating that teams with a shared mental model, clear roles and responsibilities, strong leadership, engage in regular feedback, a strong sense of collective trust and confidence function as highly effective teams (Aldawood et al.,

2020; Prochnow & Tschannen, 2022; Shen et al., 2020). This study reflected other authors' support of the national patient safety initiatives encouraging interprofessional education by utilizing the TeamSTEPPS framework (Alsabri et al., 2022; Dodge et al., 2021).

Understanding patient safety and organizational culture became one of the most significant healthcare quality domains. This study corresponded with other researchers in demonstrating that TeamSTEPPS increases desirable teamwork and safety attitudes. As per team training experts, this study likewise illustrated that team training results in increased communication, teamwork behaviors, clinical process compliance, efficiency, and overall performance in various medical settings (Adjei, 2022; Cooke & Valentine, 2021).

This study demonstrated a weak to moderate relationship between TeamSTEPPS implementation and improved organizational culture. This finding proved crucial because experts concur that an improved understanding of values, behavior, and competence creates a favorable patient safety culture (Han et al., 2020; Wu et al., 2022). Furthermore, studies exhibit that patient safety compliance improves the quality of care (Alrabae et al., 2021; Reis et al., 2020). Therefore, a modest understanding of patient safety relating to culture might affect the effectiveness of hospital delivery services.

Most notably, teamwork perceptions comprise the weakest dimensions in this study. Experts suggest increasing team awareness and clarifying team roles and responsibilities (Buljac-Samardžić et al., 2020), resolving conflicts (Zhang et al., 2021), improving information sharing (Prochnow & Tschannen, 2022), and eliminating barriers to quality and safety (Aaberg et al., 2021). In conjunction with the literature review, this study illustrated that TeamSTEPPS training provides health care teams with the knowledge and tools to adapt to changing situations systematically (Han et al., 2020; Harolds, 2021; Shea, 2020). With TeamSTEPPS training, teams

develop a shared understanding of their care plans or other complex process. This shared mental model builds mutual trust and appreciation, creating effective teamwork.

This study's results verified that even highly skilled, motivated professionals are susceptible to error due to human restrictions. For example, breakdowns in communication and lack of teamwork can negatively affect the quality of care provided to patients. Additionally, teams that develop a positive attitude toward teamwork benefits patient safety and culture. For the index hospital studied, TeamSTEPPS provided the knowledge, resources, and tools to improve the quality of care, increase patient safety, and increase employee engagement. This facility utilized TeamSTEPPS to improve its teamwork, communication, and safety culture.

TeamSTEPPS training drives measurable quality improvement in all hospital units. Finally, the index hospital embedded TeamSTEPPS strategies in its employees' processes, new staff orientation, annual competencies, mandatory skills, and organizational policies. Studies recommend that hospitals and care systems thoroughly assess organizational processes and carefully develop implementation and sustainment plans for TeamSTEPPS to improve health care delivery's quality, safety, and efficiency (Baloh et al., 2021).

Summary of the Findings. This study on TeamSTEPPS, patient safety culture, and organizational culture provided an opportunity for the index hospital's Ambulatory Care team to assess their collaboration processes and learn from and with each other. The TeamSTEPPS framework standardizes communication tools and tangible skills. Participants can take back the acquired knowledge, skills, and attitudes to their practice and use them to provide safe, effective, quality care to patients and their families.

The clinically significant results and summative evaluation of this study provide a framework for those interested in innovative solutions for providing evidenced-based,

interprofessional educational opportunities and breaking down the compartmentalization that health care systems hold. A commitment to the patient safety movement and extensive initiatives surrounding it requires more research into the importance of interprofessional educational opportunities. Further studies also warrant more exploration of the direct impact a lack of teamwork has on patient-specific outcomes.

Application to Professional Practice

Distinguishing that high-quality care demands cautious collaboration and coordination has powered several initiatives to expand clinical teamwork. Working in effective teams improves clinical outcomes, offers crucial peer support, and intensifies professional satisfaction (Prochnow & Tschannen, 2022). However, health care often misplaces teamwork as a principal value, restricting its benefits. For instance, a single health care encounter can encompass interactions with several health care professionals in various clinical settings, resulting in patients perceiving a lack of integration (Baloh et al., 2021).

Teamwork entails more than just communication skills, coordination, or even common goals. As a guiding principle, effective teamwork necessitates a collaborative outlook that distinguishes the intrinsic team model value and a commitment to structuring effective relations (Fitzpatrick et al., 2021). This notion assumes a collective mindset results in tremendous respect for the health care workforce and their unique contributions to patient care. Moreover, this mentality causes a team participant to become more cognizant of how his actions influence his teammates and eventually impact clinical outcomes. Hence, with a collaborative approach, teams become acknowledged prospects for innovation, integration, and quality improvement (Fitzpatrick et al., 2021).

Improving General Business Practice

This study found that teamwork training can bring about a more robust patient safety culture and enhanced organizational culture. Furthermore, this correlation study found an association between TeamSTEPPS and the provision of higher quality, safer patient care by (a) producing highly effective medical teams that heighten the use of information and human resources to reach the best clinical patient outcomes, (b) increasing team responsiveness and expounding team roles and responsibilities, (c) resolving conflicts and cultivating information sharing, and (d) reducing barriers to quality and safety.

The prerequisite for effective teams has risen due to the increasing complexity of care and co-morbidities. The fluctuations in health care and worldwide mandate for quality patient care enforce corresponding health care professional development, converging on patient-centered teamwork. Identifying the patient as the center of care and creating a wide-based culture of principles and values help establish and develop an effective team that can deliver exceptional patient care (Lavelle et al., 2020; Zajac et al., 2021). Practical skills and strategies must support team members' motivation to accomplish quality care and overcome collaborative challenges. By working cohesively, health care teams can realize the following goals:

Improve Patient Safety. Patient safety literature has broadly documented that team performance proved crucial to providing safe patient care (Aaberg et al., 2021). Insufficient provider coordination at various organizational levels affects patient care safety and quality. Health care teams with effective communication and collaboration lessen the prospect of error, resulting in enhanced patient safety. Studies investigating the circumstances contributing to critical and adverse events have demonstrated that teamwork is crucial in countering adverse events (Dinh et al., 2020).

Team communication failures autonomously cause preventable patient harm and contribute to other aspects underlying other patient safety obstacles. For instance, miscommunication during high-risk interactions in which critical data about the patient's care plan and status lead to therapy interruptions or inappropriate treatments. Furthermore, care team members' relationships bring about considerable clinical harm. Poor communication of medication names, doses, delivery routes, and administration timing among providers, nurses, pharmacists, and patients can result in medication errors. The chain of command between professional roles and over occupational tenure can impede the assertive communication essential for effective recovery from a blunder such as a breach of evidence-based treatment protocols (Lee, Khanuja, et al., 2021).

Enhance Clinical Performance. Organizational policies, reward structures, and culture must support the expected teamwork behaviors and values to achieve long-term results. For example, new staff must recognize norms surrounding team strategies and tools, and leaders must launch intermittent refresher training to strengthen teamwork-related skills (Lee, Khanuja, et al., 2021). Team training can expand performance and sustainability to warrant continuous knowledge, skills, and attitude (KSA) proficiency, connecting organizational policy to expectations. Bracketing regulatory requirements to teamwork approaches and practices has improved organizational sustainment (Curtin et al., 2020).

Ease Patient Concerns. Engaging patients and families proved vital in improving health care communication and teamwork. Defining how patients and families wish to be engaged in their care and involving them in forming their care plan improves their understanding of anticipated care outcomes, procedures, and tests. Progressively, research demonstrates a parallel between fewer adverse events and increased patient family engagement (Dinh et al., 2020).

Increase Efficiency. Studies specify that burnout symptoms such as fatigue, emotional exhaustion, inability to focus, and patient aversion reduce clinicians' competence (Olson et al., 2021). To diminish the prospect of adverse employee consequences, forming an atmosphere where team members can communicate openly and partake in decision-making remains indispensable. Likewise, studies on the costs of work systems changes in design and processes show that reforming toward a team-based procedure advances efficiency, staff well-being, and patient care quality (Olson et al., 2021).

Numerous studies have revealed the capability of team-based care to produce expenditure savings. For instance, one study proved that implementing team-based care heightened individual clinician productivity. Consequently, team-based care implementation increased daily patient visits, generated more significant revenue, and reduced cost per patient encounter (Nembhard et al., 2020).

Potential Application Strategies

The following interventions concentrate on health care teamwork, serving as possible application strategies that organizations can utilize to leverage this study's findings:

Comprehensive and Generic Team Training. Team training in health care principally rose after military and commercial aviation accomplishments. As agreement grew for introducing team training into the academe, extensive and generic team training may serve as the foundation. For example, Crew Research Management (CRM) emphasizes communication skills such as briefings, speaking up, monitoring, and repeating critical communications and information (Bacon et al., 2020). Similarly, TeamSTEPPS, established by the Agency for Healthcare Research and Quality (AHRQ), offers a universal and broad program pertinent to most clinical providers and health care institutions (Shen et al., 2020).

Simulation Training. The specific team training method seeks to shape a focused and concise prospectus for particular health care activities or tasks. Instances include team training for surgery, resuscitations, daily rounds, and handoffs among care team members (Lavelle et al., 2020). Studies on activity-specific team training confirmed team behavior improvement, benefitting patients. Notably, short-term training sessions can augment leadership skills in a simulated environment. Task analysis methods appraise the explicit communication types required to improve care, and simulation centers can analyze task-specific training effectiveness (Shen et al., 2020).

Building Trust. Literature has emphasized the importance of trust in structuring effective health care teams (Sifaki-Pistolla et al., 2020). Inopportunely, human nature remains one of the barricades to developing teamwork's rational framework. Whenever there is a divide between a team member's actions and the desired outcome, individuals tend to fill that gap with doubt and assume spiteful intent.

Assuming a contextual absence, some individuals often default to manufacturing harmful molds about other people's motivations (Sifaki-Pistolla et al., 2020). This feature, though, does not serve well in the contemporary milieu with health care professionals, as it commonly leads to a disruptive mentality. Individual attributes perceived others' workplace limitations as character flaws. Therefore, one does not provide others the same understanding for mitigating situations that he does for himself.

Suspending Judgement. Proper teamwork analysis is a potent tool that can limit negative biases, inhibit misconceptions, and preserve relations (Cooke & Valentine, 2021). When functioning with a collaborative attitude, one must approach conflict situations by

assuming everyone does their best and giving others the benefit of the doubt. Before reaching a negative conclusion, one must hold back judgment and ask clarifying questions.

Applying this method empowers intervention if a collaborator makes an undesirable assumption about another team member. Undesirable assumptions about others not only fracture the team's harmony but also erodes trust across the health care team. Individuals establish authentic leadership when they gently educate people who unfairly criticize others (Cooke & Valentine, 2021).

Valuing Team Integration. According to research, team-based care can improve health care safety, efficiency, and quality (Alegbeleye & Kaufman, 2022). Team training leverages the perspective and unique skill set each member brings to the group to meet patients' needs and advance population health. Therefore, interdisciplinary care must acknowledge team integration.

Effective teams have a shared, clear comprehension of each other's responsibilities and roles, which enables them to act suitably and work together effectively. It is insufficient for everyone to perform their part; members must also consider how their part fits into what other team participants are doing. Other areas, including aerospace, military, music performance, and software development, hold this concept.

Role clarity and mutual understanding help avoid a divisive mentality. Establishing occasions to observe others in their clinical settings is one technique for attaining this viewpoint. Multidisciplinary meetings and team huddles are other means of realizing this goal (Lamming et al., 2021).

Creating Psychological Safety. A collaborative mindset is vital for establishing inclusive, psychologically safe teams (Ridley et al., 2021). Psychological safety defines an environment where people feel empowered and comfortable to participate. This notion is an

indispensable differentiator in generating learning organizations where individuals can flourish and contribute to improving performance. Professional satisfaction and fulfillment are deemed abundant in a psychologically safe environment.

Summary of Application to Professional Practice

Implementing a collaborative attitude helps to establish effective team-based health care. Every clinical team member can promote a stronger emphasis on interdependence by adopting teamwork as a core value. This approach can potentially change how teams interact with each other in clinical settings and ultimately transform the health care environment.

Recommendations for Further Study

This research recognizes a course for a potentially stimulating topic and determines this study's issues not addressed by the literature. These gaps restrict the ability to conclude a particular research question and involve a zone with insufficient data. The following are some prospects for future research to expand team training's propagation as a vital health care concept:

First, several studies examine a single organization's health care units or teams carrying out specific procedures or tasks such as emergency, resuscitation, or surgery. Limited studies observe teamwork over lengthy periods in elaborate multi-team composites (De Andrade et al., 2021). Interprofessional health care encompasses the interdependent endeavors of numerous care teams, demanding a designated patient navigator or care coordinator as a lead, which is not the case for most patients. This setting entails many patients or relatives to organize and synthesize communication from various providers, navigating the multifaceted payment process, and bridging boundaries between clinicians and teams (De Andrade et al., 2021). Thus, linking complicated patient consequences such as hospital readmission, mortality, negative care

experience, and high expenditures to a specific team neglects the complex multi-team structures and other providers involved in the patient's care.

Second, health care teams' research offers a view to expanding the insight into team virtuality. Virtual care teams have been instigated expansively in some industries' policies and payment models in the United States. Telemedicine attempts to deal with the severe specialist and primary care clinician shortages and intensify multidisciplinary care access. However, not much research investigates virtuality's impact on teamwork practices and patient outcomes (Rogers et al., 2021).

Third, future studies should center on the providers' propensity to effectively collaborate with team members with comparable professional experiences (Kolbe et al., 2021). This effort would establish evidence-based interprofessional teaching approaches for licensed health care professionals and clinical researchers, including multilevel interference techniques to develop multidisciplinary care. Additionally, it should investigate effective leadership sharing among various groups to accomplish positive patient outcomes and efficient care coordination. This nature and type of care expand with more intricate functional structures (Kolbe et al., 2021).

Fourth, forthcoming studies should consider developing team metrics. Even with numerous accessible measurement tools, criterion validity evidence is uncommon (Ballangrud, Husebø, et al., 2020; Lakatamitou et al., 2020). Furthermore, the discipline involving health care team metrics must emphasize forecasting organizational and patient outcomes (Zhang et al., 2022). A chief hindrance in assimilating inferences across and within clinical domains is the deficiency of academic standards within the available organizational culture metrics. There are apparent incongruities in functional team competencies and measures. Accordingly, this

circumstance defines the need for future research analyzing the attributes that produce reliable and valid ratings with less logistical costs (Zhang et al., 2022).

Fifth, health information technology depicts a gradually dynamic role in health care delivery. Several conclusions document the limits of electronic health records. Nevertheless, inadequate evidence detects health information technology features that advance team functioning, connecting the disparities between patients and providers (Cross et al., 2022). Health information technology presents a view to studying how teams acclimatize to change. Consequently, health care systems must recognize how these practices can sustain the desired teamwork behaviors and competencies.

Lastly, team performance measurement systems must precede the fluctuating health care compositional and interdependency provisions. For instance, sensor-based measurement is a propitious ground for alleviating survey and observational methodology deficiencies (Nyein & Gregory, 2021). These metrics utilize electronic tools such as radiofrequency recognition chips and infrared devices to dynamically acquire team members' configuration, behavior data, and speech content. Activity feedback can complement sensor-based gauges to spot behavior patterns and optimize information system applications such as e-mail activities, paging systems, and electronic medical record documentation (Nyein & Gregory, 2021).

Reflections

Cultivating organizational teamwork is the target of most team-building endeavors. Like most other subjects, several guidelines offer wisdom about accomplishing it and why it is crucial. Effective collaboration epitomizes the discernable demonstration of a unified team with a similar purpose. Ultimately, an organization should seek to build a culture of many people working for the exact cause.

Personal and Professional Growth

In complex health care institutions, patient safety culture and teamwork are significant aspects of patient safety and organizational culture (Whittington et al., 2020). Patient safety culture is vital for the values and norms shared by organizational interprofessional teams, and such values guide team members' behavior. This study's results concur that teamwork knowledge, skills, and perceptions are significant for patient safety and improved organizational culture.

Patient safety culture is an indispensable organizational aspect that influences patient safety and correlates to teamwork, error communication, event reporting, and organizational learning. Most patient safety culture descriptions underscore the importance of the norms and values shared by the group members. Values serve as principles that guide the team members' behaviors (Reis et al., 2020). In this research, patient safety culture denotes a unified model of organizational and individual behavior based upon shared beliefs and values that seek to minimize patient harm resulting from the care delivery processes.

The clamor for interprofessional teamwork has risen due to the need for professionals with more specialized and complex skills and knowledge to provide quality health care. Research on teams and collaboration led to the theoretical framework development, which entails the primary elements of effective teamwork: leadership, performance monitoring, adaptability, and team orientation (Etherington et al., 2021). Structural concerns, such as task interdependence, team composition, and related issues, such as leadership and patient safety culture, are essential for teamwork performance (Etherington et al., 2021).

Effective teamwork is coupled with fewer medical errors and decreased mortality. Experts reported that effective collaboration shielded patients from harm and produced a positive

and engaging workplace (Whittington et al., 2020). This study found that lack of respect, fear of being questioned, and failure to understand common safety strategies were barriers to communication and teamwork among the subjects.

Patient safety culture and teamwork are critical challenges in delivering and coordinating safe care (Whittington et al., 2020). Measurements of health care professionals' insights into patient teamwork and safety culture can raise patient safety consciousness and identify opportunities for improvement. A facility has its own culture at a larger scale, and each unit may have its own culture on a smaller scale.

Biblical Perspective

The Bible defines teamwork in the simplest form: The body of Christ and His faithful are a team. One person does not support the body in a group, as everyone is accountable for the unified task. Teamwork is the secret to harmonious living, enabling believers to perform God's will.

While the term *teamwork* does not appear in the Bible, the Scriptures offer evidence about working together. Ecclesiastes 4:9 expresses the value of teamwork: "Two are better than one because they have a good return for their labor" (New International Version, 2011). Scriptural teamwork remains palpable in the social structures of family, marriage, business, and community.

Working as a team commences with one person's efforts as he partners with another team member. When individuals work collectively, they can complete more tasks as a team and intensify their efficiency. They equally gain the value of working in unison, generating congruence rather than dissonance. From a Scriptural perspective, *teamwork* means allocating

Biblical responsibilities based on Scriptural goals, ethics, primacies, training, giftedness, and God's guidance.

An adage says *shared joy is two-fold; shared sorrow is half the sorrow*. The key is not merely relishing life's delights and enduring its troubles but involving others, such as team members or co-employees working together, rejoicing those who triumph and lamenting with those who weep (New International Version, 2011, Romans 12:15).

In a work ethic society, people measure performance in quantity over quality. However, the focus needs to consider the process. The product possesses an appropriate quality and quantity if the process is correct. Similarly, God has called His believers to ministry and service (New International Version, 2011, 1 Peter 4:10,11) and serve in the strength of His might (New International Version, 2011, Mark. 3:13, 14, 15; Colossians. 1:27-2:2). Thus, teamwork's emphasis lies on the quality of life and its process, taking root downward and bearing fruit upward (New International Version, 2011, Isaiah 37:31).

Teamwork incorporates the need for a balanced life. Occasionally, one may do less work but performs better in quality rather than quantity. Perhaps one of the metrics for wisdom is one's readiness to either assign responsibility or accept accountability as part of God's team.

Teams must recognize the unique abilities and limitations of others by individuals and leaders so people can perform tasks where they can achieve their best in collaboration with the rest of the team. Team members must work to their strengths rather than their weaknesses. Thus, part of the leadership responsibility involves the skill to appreciate the gifts and abilities of various members to help them find tasks according to their giftedness, personalities, and God's specific leading.

Understanding and acting on teamwork means accepting that God has endowed each person and called him to become part of a team, the body of Christ. Second, it means becoming responsible for one's primary responsibilities, such as tasks assigned by God according to a person's God-given gifts, abilities, training, burden, and God's leading. Third, understanding the teamwork concept also means that one must grasp the need to limit one's exertions to ensure quality work and avoid the inefficiency and harassment of possible burnout. Fourth, it means a commitment to split the workload and a desire to train and enlist others as necessary under the assumption of careful discernment according to Scriptural standards (New International Version, 2011, Exodus 18:21, 25; Acts 6:1-7; 1 Timothy 3:1; Titus 1:5).

In a proper team atmosphere, independence could build one's abilities and gifts, enabling innovation, giving out ideas, making errors, and learning from one another. In addition, there is a sphere where each team member feels appreciated, supported, and acknowledged. Rather than skepticism and criticism, trust builds a team spirit or camaraderie. In addition to stress reduction, there is anticipation and eagerness about what God accomplishes through the team.

Summary of Reflections

This study's results reveal that the team's perceptions of patient safety culture and teamwork remain vital in providing quality care. Teamwork perceptions and attitudes were significant for patient safety and organizational culture enhancement. Future studies are needed to enhance the understanding from this research to a broader population of frontline health care professionals employing a standardized tool and possibly utilizing technology to measure the relationship between team training, patient safety compliance, and organizational culture.

Summary of Section 3

Section 3 has five principal components: Overview of the study, presentation of findings, application to professional practice, recommendations for further study, and reflections. Teamwork influences care effectiveness, patient safety compliance, and clinical outcomes. TeamSTEPPS became an approach for improving collaboration, decreasing medical errors, and developing a safety culture in healthcare. Medical errors still arise, notwithstanding numerous interventions. While various safety programs result in improvement, they are often short-lived and unsustainable. Training is not a one-time event, as targeted behaviors sustenance requires consideration of the conditions before and after training. Evidence suggests that sustainment fosters a culture of teamwork through organizational policies and procedures, such as the inclusion of teamwork training in mandatory annual training and new employee orientation. However, future research should aim to develop a theoretical framework that includes not only knowledge transfer but the multifaceted elements crucial to the long-term sustainment of trained team behaviors.

Summary and Study Conclusions

This study has found a relationship between TeamSTEPPS tools and the formation of the cultural environment for medical staff and patients. The tools and skills taught in TeamSTEPPS embrace the collaborative team concept, which enhances care delivery. As the index facility moves toward a high reliability organization, these indispensable tools necessitate staff members and leadership to incorporate them into the daily work processes. Often the current staff process is presumed to be without issues or adequate. However, in reality, the process comes across as poor facilitation and does not entirely convey the planned message to the receiver, reflecting staff and patient dissatisfaction.

This study likewise found an association between TeamSTEPPS implementation as a means to enhance teamwork and patient safety compliance. The interface between the skills and outcomes is the basis of a team motivated to deliver safe, quality care and uphold the quality improvement process. Areas that focus on the enrichment of team performance involve team structure, leadership, communication tools, situation monitoring, mutual support, and a guide to evaluating the tools, barriers, and TeamSTEPPS approaches to achieve positive outcomes.

Ongoing sustainment is crucial for the success of the TeamSTEPPS program at any facility. The initial training and utilization of TeamSTEPPS in the index facility require all staff members to convey leadership's commitment and support of effective communication and patient safety. It is the responsibility of each section or department to embrace the oversight of the sustainment process for their area. Each section or department should highlight topics that may require re-evaluation for their specific needs.

Communication is a two-way process; therefore, it requires participation from all staff to maintain an open and unbiased culture. The process begins with leadership through empowerment and conveying a transparent vision and mission on the importance of each team member. All staff members contribute to the success of the medical system's delivery of high-quality medical care to the beneficiaries and the workforce. Inter-personal communication from staff members facilitates effective and safe patient care. Empowerment equates to success, reflecting a high-performing team that promotes cohesiveness and synergy, increasing staff and patient satisfaction.

References

Aaberg, O. R., Ballangrud, R., Husebø, S. I. E., & Hall-Lord, M. L. (2019). An interprofessional team training intervention with an implementation phase in a surgical ward: A controlled quasi-experimental study. *Journal of Interprofessional Care*, 1–10. https://doi.org/10.1080/13561820.2019.1697216

Aaberg, O. R., Hall-Lord, M. L., Husebø, S. I. E., & Ballangrud, R. (2021). A human factors intervention in a hospital: Evaluating the outcome of a TeamSTEPPS program in a surgical ward. *BMC Health Services Research*, *21*(1), 114–114. https://doi.org/10.1186/s12913-021-06071-6

Abu Dalal, H. J., Ramoo, V., Chong, M. C., Danaee, M., & Aljeesh, Y. I. (2022). The impact of organizational communication satisfaction on health care professionals' work engagement. *Journal of Nursing Management*, *30*(1), 214–225. https://doi.org/10.1111/jonm.13476

Achmad, K. D., Sedarmayanti, S., Mulyaningsih, M., Rubianty, M., Komariah, A., Sururi, S., Sutarsih, C., Dekawati, I., Idris, F., Riadini, B., Salsabil, S. H., & Kurniasari, P. M. (2020). Analysis of the role of organizational culture at the center for employee education and training. *Propósitos y Representaciones*, *8*(SPE3), 1–11. https://doi.org/10.20511/pyr2020.v8nSPE3.773

Adelman, J. (2019). High-reliability healthcare: Building safer systems through just culture and technology. *Journal of Healthcare Management*, *64*(3), 137–141. https://doi.org/10.1097/JHM-D-19-00069

Adjei, N. B. (2022). Implementing TeamSTEPPS[R] training: Using evidence to impact teamwork on a medical-surgical unit. *Medsurg Nursing*, *31*(1), 9–12.

https://search.proquest.com/openview/99bfa2e53f8dfe9f0b62e78b0a500c64/1?pq-origsite=gscholar&cbl=30764

Aguinis, H., Hill, N. S., & Bailey, J. R. (2021). Best practices in data collection and preparation: Recommendations for reviewers, editors, and authors. *Organizational Research Methods*, *24*(4), 678–693. https://doi.org/10.1177/1094428119836485

Akdere, M., & Egan, T. (2020). Transformational leadership and human resource development: Linking employee learning, job satisfaction, and organizational performance. *Human Resource Development Quarterly*, *31*(4), 393–421. https://doi.org/10.1002/hrdq.21404

Akkaya, B. (2020). Linking organizational commitment and organizational trust in health care organizations. *Organizacija*, *53*(4), 306–318. https://doi.org/10.2478/orga-2020-0020

Al Dari, T., Jabeen, F., Hussain, M., & Al Khawaja, D. (2021). How types of organizational culture and technological capabilities contribute to organizational learning. *Management Research News*, *44*(3), 437–459. https://doi.org/10.1108/MRR-02-2020-0090

Aldawood, F., Kazzaz, Y., AlShehri, A., Alali, H., & Al-Surimi, K. (2020). Enhancing teamwork communication and patient safety responsiveness in a pediatric intensive care unit using the daily safety huddle tool. *BMJ Open Quality*, *9*(1), e000753. https://doi.org/10.1136/bmjoq-2019-000753

Alegbeleye, I. D., & Kaufman, E. K. (2022). How team members' transformational leadership and effective followership work during team interactions. *Journal of Leadership Studies*, *16*(2), 4–22. https://doi.org/10.1002/jls.21813

Alrabae, Y. M. A., Aboshaiqah, A. E., & Tumala, R. B. (2021). The association between self-reported workload and perceptions of patient safety culture: A study of intensive care unit

nurses. *Journal of Clinical Nursing*, *30*(7-8), 1003–1017. https://doi.org/10.1111/jocn.15646

Alsabri, M., Boudi, Z., Lauque, D., Dias, R. D., Whelan, J. S., Östlundh, L., Alinier, G., Onyeji, C., Michel, P., Liu, S. W., Jr Camargo, C. A., Lindner, T., Slagman, A., Bates, D. W., Tazarourte, K., Singer, S. J., Toussi, A., Grossman, S., & Bellou, A. (2022). Impact of teamwork and communication training interventions on safety culture and patient safety in emergency departments: A systematic review. *Journal of Patient Safety*, *18*(1), e351–e361. https://doi.org/10.1097/PTS.0000000000000782

Alsalamah, A., & Callinan, C. (2022). The Kirkpatrick model for training evaluation: Bibliometric analysis after 60 years (1959–2020). *Industrial and Commercial Training*, *54*(1), 36–63. https://doi.org/10.1108/ICT-12-2020-0115

Alsaqqa, H. H., & Akyürek, Ç. E. (2021). Assessment of organizational culture types, leadership styles, and their relationships within governmental and non-governmental hospitals in Gaza strip of Palestine. *BMC Health Services Research*, *21*(1), 356–356. https://doi.org/10.1186/s12913-021-06351-1

Alshyyab, M. A., Albsoul, R. A., Kinnear, F. B., Saadeh, R. A., Alkhaldi, S. M., Borkoles, E., & Fitzgerald, G. (2022). Assessment of patient safety culture in two emergency departments in Australia: A cross-sectional study. *TQM Journal*, *12*(2), 26–32. https://doi.org/10.1108/TQM-01-2022-0013

Andres, E. B., Song, W., Schooling, C. M., & Johnston, J. M. (2019). The influence of hospital accreditation: A longitudinal assessment of organizational culture. *BMC Health Services Research*, *19*(1), 467–467. https://doi.org/10.1186/s12913-019-4279-7

Aodton, P., Wareewanich, T., & Chankoson, T. (2021). The mediation of work engagement between job satisfaction and organizational citizenship behavior: A study of healthcare sector. *International Journal of Entrepreneurship*, *25*, 1–11. https://search.proquest.com/openview/c4557d8a6674f85c0b3de52ca8178afc/1?pq-origsite=gscholar&cbl=29727

Appelbaum, R., Martin, S., Tinkoff, G., Pascual, J. L., & Gandhi, R. R. (2021). Eastern association for the surgery of trauma – quality, patient safety, and outcomes committee - transitions of care: Healthcare handoffs in trauma. *The American Journal of Surgery*, *222*(3), 521–528. https://doi.org/10.1016/j.amjsurg.2021.01.034

Arefin, M. S., Hoque, M. R., & Rasul, T. (2021). Organizational learning culture and business intelligence systems of health care organizations in an emerging economy. *Journal of Knowledge Management*, *25*(3), 573–594. https://doi.org/10.1108/JKM-09-2019-0517

Arghode, V., Lathan, A., Alagaraja, M., Rajaram, K., & McLean, G. N. (2022). Empathic organizational culture and leadership: Conceptualizing the framework. *European Journal of Training and Development*, *46*(1-2), 239–256. https://doi.org/10.1108/EJTD-09-2020-0139

Arshad, M., Qasim, N., Farooq, O., & Rice, J. (2022). Empowering leadership and employees' work engagement: A social identity theory perspective. *Management Decision*, *60*(5), 1218–1236. https://doi.org/10.1108/MD-11-2020-1485

Aspers, P., & Corte, U. (2019). What is qualitative in qualitative research? *Qualitative Sociology*, *42*(2), 139–160. https://doi.org/10.1007/s11133-019-9413-7

Azyabi, A., Karwowski, W., & Davahli, M. R. (2021). Assessing patient safety culture in hospital settings. *International Journal of Environmental Research and Public Health*, *18*(5), 2466. https://doi.org/10.3390/ijerph18052466

Augustsson, H., Ingvarsson, S., Nilsen, P., von Thiele Schwarz, U., Muli, I., Dervish, J., & Hasson, H. (2021). Determinants for the use and de-implementation of low-value care in health care: a scoping review. *Implementation Science Communications*, *2*, 1–17. https://doi.org/10.1186/s43058-021-00110-3

Bababekov, Y. J., Stapleton, S. M., Hashimoto, D. A., Witkowski, E. R., Haynes, A. B., Goldstein, A. M., Mullen, J. T., Isselbacher, E. M., Lillemoe, K. D., & Chang, D. C. (2021). Open innovation facilitates department-wide engagement in quality improvement: Experience from the Massachusetts general hospital. *Surgical Endoscopy*, *35*(10), 5441–5449. https://doi.org/10.1007/s00464-020-08028-y

Bacon, C. T., McCoy, T. P., & Henshaw, D. S. (2020). Failure to rescue and 30-day in-hospital mortality in hospitals with and without crew-resource-management safety training. *Research in Nursing & Health*, *43*(2), 155–167. https://doi.org/10.1002/nur.22007

Bajracharya, D. C., Karki, K., Lama, C. Y., Joshi, R. D., Rai, S. M., Jayaram, S., Tomer, A., Zervos, J., Khan, M. I., Sapkota, A., Upadhyaya, M. K., & Kilgore, P. E. (2019). Summary of the international patient safety conference, June 28-29, 2019, Kathmandu, Nepal. *Patient Safety in Surgery*, *13*(1), 36–36. https://doi.org/10.1186/s13037-019-0214-4

Baker, E. L., Dunne-Moses, A., Calarco, A. J., & Gilkey, R. (2019). Listening to understand: A core leadership skill. *Journal of Public Health Management and Practice*, *25*(5), 508–510. https://doi.org/10.1097/PHH.0000000000001051

Baker, E. L., & Gilkey, R. (2020). Asking better questions-A core leadership skill. *Journal of Public Health Management and Practice*, *26*(6), 632–633. https://doi.org/10.1097/PHH.0000000000001177

Ballangrud, R., Aase, K., & Vifladt, A. (2020). Longitudinal team training program in a Norwegian surgical ward: A qualitative study of nurses' and physicians' experiences with teamwork skills. *BMJ Open*, *10*(7), e035432–e035432. https://doi.org/10.1136/bmjopen-2019-035432

Ballangrud, R., Husebø, S. E., & Hall-Lord, M. L. (2020). Cross-cultural validation and psychometric testing of the Norwegian version of the TeamSTEPPS teamwork attitude questionnaire. *Journal of Interprofessional Care*, *34*(1), 116–123. https://doi.org/10.1080/13561820.2019.1638759

Baloh, J., Zhu, X., & Ward, M. M. (2021). What influences sustainment and non-sustainment of facilitation activities in implementation? Analysis of organizational factors in hospitals implementing TeamSTEPPS. *Medical Care Research and Review*, *78*(2), 146–156. https://doi.org/10.1177/1077558719848267

Barbazza, E., Klazinga, N. S., & Kringos, D. S. (2021). Exploring the actionability of health care performance indicators for quality of care: A qualitative analysis of the literature, expert opinion, and user experience. *BMJ Quality & Safety*, *30*(12), 1010–1020. https://doi.org/10.1136/bmjqs-2020-011247

Bari, S., Incorvia, J., Iverson, K. R., Bekele, A., Garringer, K., Ahearn, O., Drown, L., Emiru, A. A., Burssa, D., Workineh, S., Sheferaw, E. D., Meara, J. G., & Beyene, A. (2021). Surgical data strengthening in Ethiopia: Results of a Kirkpatrick framework evaluation of

a data quality intervention. *Global Health Action*, *14*(1), 1855808–1855808. https://doi.org/10.1080/16549716.2020.1855808

Barkell, N. P., & Snyder, S. S. (2021). Just culture in healthcare: An integrative review. *Nursing Forum (Hillsdale)*, *56*(1), 103–111. https://doi.org/10.1111/nuf.12525

Bartlett, T., Hewertson, E., & Vassallo, M. (2019). Culture change and mandating quality improvement. *The Clinical Teacher*, *16*(1), 30–35. https://doi.org/10.1111/tct.12758

Bas, M., & Çınar, O. (2021). The mediating role of work engagement in the relationship between perceived organizational support and turnover intention, with an application to healthcare employees in Erzincan province of Turkey. *Ekonomski Vjesnik*, *34*(2), 291–306. https://doi.org/10.51680/ev.34.2.4

Bath, J., & Collier, B. (2021). Commentary on "The effects of a novel mindfulness-based intervention on nurses' state mindfulness and patient satisfaction in the emergency department." *Journal of Emergency Nursing*, *47*(3), 371–372. https://doi.org/10.1016/j.jen.2021.03.004

Batt, R., & Kahn, L. (2021). Data transparency and methods in quantitative and qualitative research: Letter from the editors. *Industrial & Labor Relations Review*, *74*(5), 1079–1082. https://doi.org/10.1177/00197939211032932

Beneria, A., Arnedo, M., Contreras, S., Pérez-Carrasco, M., Garcia-Ruiz, I., Rodríguez-Carballeira, M., Raduà, J., & Rius, J. B. (2020). Impact of simulation-based teamwork training on COVID-19 distress in healthcare professionals. *BMC Medical Education*, *20*(1), 515–515. https://doi.org/10.1186/s12909-020-02427-4

Bergel, L. (2019). God's victory and salvation. A soteriological approach to the subject in apocalyptic literature. *Hervormde Teologiese Studies, 75*(3), 1–6. https://doi.org/10.4102/hts.v75i3.5443

Bergen, N., & Labonté, R. (2020). "Everything is perfect, and we have no problems": Detecting and limiting social desirability bias in qualitative research. *Qualitative Health Research, 30*(5), 783–792. https://doi.org/10.1177/1049732319889354

Bernacchio, C. (2019). Pope Francis on conscience, gradualness, and discernment: Adapting Amoris Laetitia for business ethics. *Business Ethics Quarterly, 29*(4), 437–460. https://doi.org/10.1017/beq.2019.15

Berry, J. C., Davis, J. T., Bartman, T., Hafer, C. C., Lieb, L. M., Khan, N., & Brilli, R. J. (2020). Improved safety culture and teamwork climate are associated with decreases in patient harm and hospital mortality across a hospital system. *Journal of Patient Safety, 16*(2), 130–136. https://doi.org/10.1097/PTS.0000000000000251

Bingemer, M. C. L. (2019). Love and forgiveness: A Christian theological point of view. *Spiritus, 19*(2), 232–249. https://doi.org/10.1353/scs.2019.0029

Birkeland, S., Bismark, M., Barry, M. J., & Möller, S. (2021). Does greater patient involvement in healthcare decision-making affect malpractice complaints? A large case vignette survey. *PloS One, 16*(7), e0254052–e0254052. https://doi.org/10.1371/journal.pone.0254052

Bisbey, T. M., Kilcullen, M. P., Thomas, E. J., Ottosen, M. J., Tsao, K., & Salas, E. (2021). Safety culture: An integration of existing models and a framework for understanding its development. *Human Factors, 63*(1), 88-110. https://doi.org/10.1177/0018720819868878

Bochatay, N., Bajwa, N. M., Blondon, K. S., Junod Perron, N., Cullati, S., & Nendaz, M. R. (2019). Exploring group boundaries and conflicts: A social identity theory perspective. *Medical Education, 53*(8), 799–807. https://doi.org/10.1111/medu.13881

Borckardt, J. J., Annan-Coultas, D., Catchpole, K., Wise, H., Mauldin, M., Ragucci, K., Scheurer, D., & Kascak, K. (2020). Preliminary evaluation of the impact of TeamSTEPPS® training on hospital quality indicators. *Journal of Interprofessional Education & Practice, 18,* 100306. https://doi.org/10.1016/j.xjep.2019.100306

Bouncken, R. B., Qiu, Y., Sinkovics, N., & Kürsten, W. (2021). Qualitative research: Extending the range with flexible pattern matching. *Review of Managerial Science, 15*(2), 251–273. https://doi.org/10.1007/s11846-021-00451-2

Boussat, B., Seigneurin, A., Giai, J., Kamalanavin, K., Labarère, J., & François, P. (2021). Involvement in root cause analysis and patient safety culture among hospital care providers. *Journal of Patient Safety, 17*(8), e1194–e1201. https://doi.org/10.1097/PTS.0000000000000456

Braekman, E., Demarest, S., Charafeddine, R., Drieskens, S., Berete, F., Gisle, L., Van der Heyden, J., & Van Hal, G. (2022). Unit response and costs in web versus face-to-face data collection: Comparison of two cross-sectional health surveys. *Journal of Medical Internet Research*, *24*(1), e26299–e26299. https://doi.org/10.2196/26299

Brborović, O., Brborović, H., Nola, I. A., & Milošević, M. (2019). Culture of blame-an ongoing burden for doctors and patient safety. *International Journal of Environmental Research and Public Health, 16*(23), 4826. https://doi.org/10.3390/ijerph16234826

Breuer, C., Hüffmeier, J., Hibben, F., & Hertel, G. (2020). Trust in teams: A taxonomy of perceived trustworthiness factors and risk-taking behaviors in face-to-face and virtual teams. *Human Relations*, *73*(1), 3–34. https://doi.org/10.1177/0018726718818721

Buljac-Samardžić, M., Dekker-van Doorn, C. M., & Maynard, M. T. (2021). What do we really know about crew resource management in healthcare?: An umbrella review on crew resource management and its effectiveness. *Journal of Patient Safety*, *17*(8), e929–e958. https://doi.org/10.1097/PTS.0000000000000816

Buljac-Samardzic, M., Doekhie, K., & Wijngaarden, J. (2020). Interventions to improve team effectiveness within health care: A systematic review of the past decade. *Human Resources for Health*, *18*(1), 1–42. https://doi.org/10.1186/s12960-019-0411-3

Cantu, J., Gharehyakheh, A., Fritts, S., & Tolk, J. (2021). Assessing the HRO: Tools and techniques to determine the high-reliability state of an organization. *Safety Science*, *134*, 105082. https://doi.org/10.1016/j.ssci.2020.105082

Cantu, J., Tolk, J., Fritts, S., & Gharehyakheh, A. (2020). High reliability organization (HRO) systematic literature review: Discovery of culture as a foundational hallmark. *Journal of Contingencies and Crisis Management*, *28*(4), 399–410. https://doi.org/10.1111/1468-5973.12293

Cao, L., & Shen, H. (2022). CSS: Handling imbalanced data by improved clustering with stratified sampling. *Concurrency and Computation*, *34*(2), e6071. https://doi.org/10.1002/cpe.6071

Castiglione, S. A., & Lavoie-Tremblay, M. (2021). An integrative review of organizational factors influencing successful large-scale changes in healthcare. *The Journal of Nursing Administration*, *51*(5), 264–270. https://doi.org/10.1097/NNA.0000000000001011

Chanie, E. S., Feleke, D. G., Fetene, S., Tigabu, A., Asnakew, S., Tiruneh, T., Mekie, M., Ayehu, G. W., & Bayih, W. A. (2021). Level of preparedness for COVID-19 and its associated factors among frontline healthcare providers in south Gondar public hospitals, northwest Ethiopia, 2020: A multicenter cross-sectional study. *BioMed Research International*, *2021*, 6627430. https://doi.org/10.1155/2021/6627430

Chen, A. S., Yau, B., Revere, L., & Swails, J. (2019). Implementation, evaluation, and outcome of TeamSTEPPS in interprofessional education: A scoping review. *Journal of Interprofessional Care, 33*(6), 795–804. https://doi.org/10.1080/13561820.2019.1594729

Cheong, P. L., Van, I. K., Wang, J., Tam, H. L., Zhang, Y., & Mao, A. (2020). Male nurses' dealing with tensions and conflicts with patients and physicians: A theoretically framed analysis. *Journal of Multidisciplinary Healthcare*, *13*, 1035–1045. https://doi.org/10.2147/JMDH.S270113

Churruca, K., Ellis, L. A., Pomare, C., Hogden, A., Bierbaum, M., Long, J. C., Olekalns, A., & Braithwaite, J. (2021). Dimensions of safety culture: A systematic review of quantitative, qualitative, and mixed methods for assessing safety culture in hospitals. *BMJ Open*, *11*(7), e043982–e043982. https://doi.org/10.1136/bmjopen-2020-043982

Clancy, C. M., & Tornberg, D. N. (2019). Republished: TeamSTEPPS: Assuring optimal teamwork in clinical settings. *American Journal of Medical Quality, 34*(5), 436–438. https://doi.org/10.1177/1062860619873181

Clapper, T. C., Ching, K., Lee, J. G., Mauer, E., Gerber, L. M., Sobin, B., Osorio, S. N., & DiPace, J. I. (2019). A TeamSTEPPS® implementation plan for recently assigned interns and nurses. *Journal of Interprofessional Care, 33*(6), 823–827. https://doi.org/10.1080/13561820.2019.1566217

Clay-Williams, R., Taylor, N., Ting, H. P., Winata, T., Arnolda, G., & Braithwaite, J. (2020). The clinician safety culture and leadership questionnaire: Refinement and validation in Australian public hospitals. *International Journal for Quality in Health Care*, *32*(Suppl_1), 52–59. https://doi.org/10.1093/intqhc/mzz106

Cleveland, W. S. (2021). Do everything for the glory of God. *Religions*, *12*(754), 754. https://doi.org/10.3390/rel12090754

Conti, P. L., Mecatti, F., & Nicolussi, F. (2022). Efficient unequal probability resampling from finite populations. *Computational Statistics & Data Analysis*, *167*, 107366. https://doi.org/10.1016/j.csda.2021.107366

Cooke, M., & Valentine, N. M. (2021). Improving teamwork and communication in schools of nursing: A quality improvement approach using TeamSTEPPS. *Journal of Nursing Care Quality*, *36*(3), 285–290. https://doi.org/10.1097/NCQ.0000000000000513

Cornell, T. (2020). Leadership skills essential in the value-based care era. *Leadership in Health Services (2007)*, *33*(3), 307–323. https://doi.org/10.1108/LHS-12-2019-0079

Cortina, J. M. (2020). On the whys and hows of quantitative research. *Journal of Business Ethics*, *167*(1), 19–29. https://doi.org/10.1007/s10551-019-04195-8

Costar, D. M., & Hall, K. K. (2020). Improving team performance and patient safety on the job through team training and performance support tools: A systematic review. *Journal of Patient Safety*, *16*(3S Suppl_1), S48–S56. https://doi.org/10.1097/PTS.0000000000000746

Cross, D. A., Stevens, M. A., Spivack, S. B., Murray, G. F., Rodriguez, H. P., & Lewis, V. A. (2022). Survey of information exchange and advanced use of other health information

technology in primary care settings: Capabilities in and outside of the safety net. *Medical Care*, *60*(2), 140–148. https://doi.org/10.1097/MLR.0000000000001673

Crosson, J. J. (2020). Physician and nurse practitioner teamwork sustains the primary care workforce. *Journal of General Internal Medicine: JGIM*, *35*(4), 990–991. https://doi.org/10.1007/s11606-020-05661-0

Cuevas, J. A., & Dawson, B. L. (2021). An integrated review of recent research on the relationships between religious belief, political ideology, authoritarianism, and prejudice. *Psychological Reports*, *124*(3), 977–1014. https://doi.org/10.1177/0033294120925392

Cullinane, M., McLachlan, H. L., Newton, M. S., Zugna, S. A., & Forster, D. A. (2020). Using the Kirkpatrick model to evaluate the maternity and neonatal emergencies (MANE) program: Background and study protocol. *BMJ Open*, *10*(1), e032873–e032873. https://doi.org/10.1136/bmjopen-2019-032873

Curtin, A. G., Anderson, V., Brockhus, F., & Cohen, D. R. (2020). A novel team-based approach to quality improvement effectively engages staff and reduces adverse events in healthcare settings. *BMJ Open Quality*, *9*(2), e000741. https://doi.org/10.1136/bmjoq-2019-000741

Darby, J. L., Fugate, B. S., & Murray, J. B. (2019). Interpretive research. *The International Journal of Logistics Management*, *30*(2), 395–413. https://doi.org/10.1108/IJLM-07-2018-0187

David, D. S. (2019). The association between organizational culture and the ability to benefit from “Just culture” training. *Journal of Patient Safety*, *15*(1), e3–e7. https://doi.org/10.1097/PTS.0000000000000561

Davis, A. C., Chen, A., Osuji, T. A., Chen, J., & Gould, M. K. (2022). Defining complex patient populations: Implications for population size, composition, utilization, and costs. *Journal*

of General Internal Medicine: JGIM, *37*(2), 351–358. https://doi.org/10.1007/s11606-021-06815-4

Davis, J. L., Love, T. P., & Fares, P. (2019). Collective social identity: Synthesizing identity theory and social identity theory using digital data. *Social Psychology Quarterly*, *82*(3), 254–273. https://doi.org/10.1177/0190272519851025

Deal, N. M., Novicevic, M. M., Mills, A. J., Lugar, C. W., & Roberts, F. (2021). Taking an eventful historic turn down the cultural memory lane. *Journal of Management History (2006)*, *27*(1), 61–79. https://doi.org/10.1108/JMH-05-2020-0034

De Andrade, A., Shimocomaqui, G., Santos, L., Eshriqui, I., & Paresque, M. (2021). Organization of specialized outpatient care in the context of integrated healthcare networks. *European Journal of Public Health*, *31*(Suppl_3), ckab165–352. https://doi.org/10.1093/eurpub/ckab165.352

De Brún, A., Anjara, S., Cunningham, U., Khurshid, Z., Macdonald, S., O'Donovan, R., Rogers, L., & McAuliffe, E. (2020). The collective leadership for safety culture (co-lead) team intervention to promote teamwork and patient safety. *International Journal of Environmental Research and Public Health*, *17*(22), 8673. https://doi.org/10.3390/ijerph17228673

De Brún, A., Rogers, L., O'Shea, M., & McAuliffe, E. (2020). Understanding the impact of a collective leadership intervention on team working and safety culture in healthcare teams: A realist evaluation protocol. *HRB Open Research*, *2*, 5–5. https://doi.org/10.12688/hrbopenres.12860.2

De Kam, D., Kok, J., Grit, K., Leistikow, I., Vlemminx, M., & Bal, R. (2020). How incident reporting systems can stimulate social and participative learning: A mixed-methods study. *Health Policy, 124*(8), 834–841. https://doi.org/10.1016/j.healthpol.2020.05.018

Delgado, J., de Groot, J., McCaffrey, G., Dimitropoulos, G., Sitter, K. C., & Austin, W. (2021). Communities of practice: Acknowledging vulnerability to improve resilience in healthcare teams. *Journal of Medical Ethics*, *47*(7), 488–493. https://doi.org/10.1136/medethics-2019-105865

Dellosso, M. (2020). Moving FORWARD with patient experience and employee engagement. *Home Healthcare Now, 38*(6), 302–306. https://doi.org/10.1097/NHH.0000000000000912

DelNero, T., & Vyas, D. (2021). Comparison of an in-person versus a virtual interprofessional education activity focused on professional communication. *Pharmacy, 9*(2), 111. https://doi.org/10.3390/pharmacy9020111

Derse, A. R. (2020). Medical training and errors: Competence, culture, caring, and character. *Academic Medicine, 95*(8), 1155–1158. https://doi.org/10.1097/ACM.0000000000003118

Desmet, P., & Fokkinga, S. (2020). Beyond Maslow's pyramid: Introducing a typology of thirteen fundamental needs for human-centered design. *Multimodal Technologies and Interaction, 4*(3), 38. https://doi.org/10.3390/mti4030038

Dinh, J. V., Traylor, A. M., Kilcullen, M. P., Perez, J. A., Schweissing, E. J., Venkatesh, A., & Salas, E. (2020). Cross-disciplinary care: A systematic review on teamwork processes in health care. *Small Group Research, 51*(1), 125–166. https://doi.org/10.1177/1046496419872002

Dodge, L. E., Nippita, S., Hacker, M. R., Intondi, E. M., Ozcelik, G., & Paul, M. E. (2021). Long-term effects of teamwork training on communication and teamwork climate in ambulatory reproductive health care. *Journal of Healthcare Risk Management*, *40*(4), 8–15. https://doi.org/10.1002/jhrm.21440

Drossman, D. A., Palsson, O., Stein, E., Ruddy, J., & Lennon, A. M. O. (2022). What elements in the physician-patient relationship (PPR) contribute to patient satisfaction: Development of a short form PPRS-Patient version (PPRS-Patient SF) questionnaire. *Neurogastroenterology and Motility*, *34*(2), e14191. https://doi.org/10.1111/nmo.14191

Duckett, L. J. (2021). Quantitative research excellence: Study design and reliable and valid measurement of variables. *Journal of Human Lactation*, *37*(3), 456–463. https://doi.org/10.1177/08903344211019285

Dyck, B., Walker, K., & Caza, A. (2019). Antecedents of sustainable organizing: A look at the relationship between organizational culture and the triple bottom line. *Journal of Cleaner Production*, *231*, 1235–1247. https://doi.org/10.1016/j.jclepro.2019.05.287

Ellaway, R. H., Kehoe, A., & Illing, J. (2020). Critical realism and realist inquiry in medical education. *Academic Medicine*, *95*(7), 984–988. https://doi.org/10.1097/ACM.0000000000003232

English, M., Ogola, M., Aluvaala, J., Gicheha, E., Irimu, G., McKnight, J., & Vincent, C. A. (2021). First do no harm: Practitioners' ability to 'diagnose' system weaknesses and improve safety is a critical initial step in improving care quality. *Archives of Disease in Childhood*, *106*(4), 326–332. https://doi.org/10.1136/archdischild-2020-320630

Erickson, C. E., Steen, D., French-Baker, K., & Ash, L. (2021). Establishing organizational support for nurse practitioner/physician assistant transition to practice programs. *Journal for Nurse Practitioners*, *17*(4), 485–488. https://doi.org/10.1016/j.nurpra.2020.11.018

Espasandín-Bustelo, F., Ganaza-Vargas, J., & Diaz-Carrion, R. (2021). Employee happiness and corporate social responsibility: The role of organizational culture. *Employee Relations*, *43*(3), 609–629. https://doi.org/10.1108/ER-07-2020-0343

Etherington, N., Burns, J. K., Kitto, S., Brehaut, J. C., Britton, M., Singh, S., & Boet, S. (2021). Barriers and enablers to effective interprofessional teamwork in the operating room: A qualitative study using the theoretical domains framework. *PloS One*, *16*(4), e0249576–e0249576. https://doi.org/10.1371/journal.pone.0249576

Faems, D. (2020). Moving forward quantitative research on innovation management: A call for an inductive turn on using and presenting quantitative research. *R & D Management*, *50*(3), 352–363. https://doi.org/10.1111/radm.12406

Fencl, J. L., Willoughby, C., & Jackson, K. (2021). Just culture: The foundation of staff safety in the perioperative environment. *AORN Journal*, *113*(4), 329–336. https://doi.org/10.1002/aorn.13352

Ferdosi, M., Rezayatmand, R., & Molavi Taleghani, Y. (2020). Risk management in executive levels of healthcare organizations: Insights from a scoping review (2018). *Risk Management and Healthcare Policy*, *13*, 215–243. https://doi.org/10.2147/RMHP.S231712

Fibuch, E., & Ahmed, A. (2019). Managing conflict: A key leadership skill. *Physician Leadership Journal*, *6*(4), 68–70.

https://search.proquest.com/openview/a597402bf5338d580ea37e81b272a02b/1?pq-origsite=gscholar&cbl=2037550

Fitzpatrick, S., Smith-Brooks, A., & Jones-Parker, H. (2021). Integration of TeamSTEPPS framework and escape room to improve teamwork and collaboration. *Journal of Doctoral Nursing Practice, 14*(3), 233–243. https://doi.org/10.1891/JDNP-D-20-00054

Fletcher, S. C., Humphrys, E., Bellwood, P., Hill, T. T., Cooper, I. R., McCracken, R. K., & Price, M. (2021). Team-based care evaluation and adoption model (TEAM) framework: Supporting the comprehensive evaluation of primary care transformation over time. *Canadian Family Physician*, *67*(12), 897–904. https://doi.org/10.46747/cfp.6712897

Foslien-Nash, C., & Reed, B. (2020). Just culture is not "Just" Culture: It's shifting mindset. *Military Medicine, 185*(Suppl_3), 52–57. https://doi.org/10.1093/milmed/usaa143

Fowler, F. J., Cosenza, C., Cripps, L. A., Edgman-Levitan, S., & Cleary, P. D. (2019). The effect of administration mode on CAHPS survey response rates and results: A comparison of mail and web-based approaches. *Health Services Research*, *54*(3), 714–721. https://doi.org/10.1111/1475-6773.13109

Frechette, J., Bitzas, V., Aubry, M., Kilpatrick, K., & Lavoie-Tremblay, M. (2020). Capturing lived experience: Methodological considerations for interpretive phenomenological inquiry. *International Journal of Qualitative Methods, 19*, 160940692090725. https://doi.org/10.1177/1609406920907254

Gadhave, K., Görtler, J., Cutler, Z., Nobre, C., Deussen, O., Meyer, M., Phillips, J. M., & Lex, A. (2021). Predicting intent behind selections in scatterplot visualizations. *Information Visualization*, *20*(4), 207–228. https://doi.org/10.1177/14738716211038604

Garavan, T., McCarthy, A., Lai, Y., Murphy, K., Sheehan, M., & Carbery, R. (2021). Training and organizational performance: A meta-analysis of temporal, institutional and organizational context moderators. *Human Resource Management Journal*, *31*(1), 93–119. https://doi.org/10.1111/1748-8583.12284

Garbi, M. (2021). National institute for health and care excellence clinical guidelines development principles and processes. *Heart (British Cardiac Society)*, *107*(12), 949–953. https://doi.org/10.1136/heartjnl-2020-318661

Gelinas, L. S., Reynolds, C. D., Lindsley, J., & Lieto, J. (2021). Generating a future vision of patient safety: A pilot program to test the integration of certified professional in patient safety™ curriculum into undergraduate medical education. *Journal of Medical Education and Curricular Development*, *8*, 238212052110258-23821205211025854. https://doi.org/10.1177/23821205211025854

Gendelman, R., Preis, H., Chandran, L., Blair, R. J., Chitkara, M., & Pati, S. (2021). Healthcare workforce transformation: Implementing patient-centered medical home standards in an academic medical center. *BMC Medical Education*, *21*(1), 1–10. https://doi.org/10.1186/s12909-021-02775-9

Gharaee, H., Jahanian, R., Karim, M. H., Kakemam, E., Elahi, K. B., Tapak, L., & Hamidi, Y. (2020). Relationship between patient safety culture and adverse events in hospital: A case study. *Journal of Health Administration*, *23*(1), 13–26. https://doi.org/10.29252/jha.23.1.13

Goncalves, B. A. R., de Melo, M. D. C. B., Liu, P. M. F., Valente, B. C. H. G., Ribeiro, V. P., & e. Silva, P. H. V. (2022). Teamwork in pediatric resuscitation: Training medical students

on high-fidelity simulation. *Advances in Medical Education and Practice*, *13*, 697–708. https://doi.org/10.2147/AMEP.S365976

Gosen, D., & Mielly, M. (2021). Excavating organizational assumptions about cultural change: The unintended consequences of safety committee initiatives. *Relations Industrielles (Québec, Québec)*, *76*(1), 115–142. https://doi.org/10.7202/1075576ar

Grabowski, M., & Roberts, K. H. (2019). Reliability seeking virtual organizations: Challenges for high reliability organizations and resilience engineering. *Safety Science*, *117*, 512–522. https://doi.org/10.1016/j.ssci.2016.02.016

Granel-Giménez, N., Palmieri, P. A., Watson-Badia, C. E., Gómez-Ibáñez, R., Leyva-Moral, J. M., & Bernabeu-Tamayo, M. D. (2022). Patient safety culture in European hospitals: A comparative mixed methods study. *International Journal of Environmental Research and Public Health*, *19*(2), 939. https://doi.org/10.3390/ijerph19020939

Gupta, B., & Ahluwalia, P. (2021). Need for a central survey-based registry-for effective conduct of survey-based medical research. *Indian Journal of Anaesthesia*, *65*(10), 768–770. https://doi.org/10.4103/ija.ija_275_21

Hald, E. J., Gillespie, A., & Reader, T. W. (2021). Causal and corrective organizational culture: A systematic review of case studies of institutional failure. *Journal of Business Ethics*, *174*(2), 457–483. https://doi.org/10.1007/s10551-020-04620-3

Hallgren, J., Bergman, K., Klingberg, M., & Gillsjö, C. (2021). Implementing a person-centered collaborative health care model: A qualitative study on patient experiences. *International Emergency Nursing*, *59*, 101068. https://doi.org/10.1016/j.ienj.2021.101068

Hall-Lord, M. L., Skoogh, A., Ballangrud, R., Nordin, A., & Bååth, C. (2020). The Swedish version of the TeamSTEPPS ® teamwork perceptions questionnaire (T-TPQ): A

validation study. *Journal of Multidisciplinary Healthcare, 13*, 829–837. https://doi.org/10.2147/JMDH.S261768

Hamm, B., Pozuelo, L., & Brendel, R. (2021). General hospital agitation management under the lens of leadership theory and health care team best practices using TeamSTEPPS. *Journal of the Academy of Consultation-Liaison Psychiatry*, *63*(3), 213–224. https://doi.org/10.1016/j.jaclp.2021.10.007

Han, Y., Kim, J., & Seo, Y. (2020). Cross-sectional study on patient safety culture, patient safety competency, and adverse events. *Western Journal of Nursing Research*, *42*(1), 32–40. https://doi.org/10.1177/0193945919838990

Harolds, J. (2021). Quality and Safety in Healthcare, Part LXXXVI: Teamwork and the Comprehensive Unit-Based Safety Program. *Clinical Nuclear Medicine.* http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=ovftx&NEWS=N&AN=00003072-900000000-96135. https://doi.org/10.1097/RLU.0000000000003587

Haruna, J., Unoki, T., Ishikawa, K., Okamura, H., Kamada, Y., & Hashimoto, N. (2022). Influence of mutual support on burnout among intensive care unit healthcare professionals. *SAGE Open Nursing*, *8*, 2377960822108497 7-23779608221084977. https://doi.org/10.1177/23779608221084977

He, W., Hao, P., Huang, X., Long, L., Hiller, N. J., & Li, S. (2020). Different roles of shared and vertical leadership in promoting team creativity: Cultivating and synthesizing team members' individual creativity. *Personnel Psychology*, *73*(1), 199–225. https://doi.org/10.1111/peps.12321

Hebles, M., Yaniz-Álvarez-de-Eulate, C., & Jara, M. (2019). Impact of cooperative learning on teamwork competence. *Academia (Consejo Latinoamericano De Escuelas De Administración), 32*(1), 93–106. https://doi.org/10.1108/ARLA-10-2018-0217

Heyes, C. C. (2020). Culture. *Current Biology*, *30*(20), R1246–R1250. https://doi.org/10.1016/j.cub.2020.08.086

Hoang, T. N., LaPorta, A. J., Malone, J. D., Champagne, R., Lavell, K., De La Rosa, G. M., Gaul, L., & Dukovich, M. (2020). Hyper-realistic and immersive surgical simulation training environment will improve team performance. *Trauma Surgery & Acute Care Open*, *5*(1), e000393–e000393. https://doi.org/10.1136/tsaco-2019-000393

Hoffman, E. (2020). The social world of self-actualizing people: Reflections by Maslow's biographer. *The Journal of Humanistic Psychology*, *60*(6), 908–933. https://doi.org/10.1177/0022167817739714

Holtom, B., Baruch, Y., Aguinis, H., & A Ballinger, G. (2022). Survey response rates: Trends and a validity assessment framework. *Human Relations*, *75*(8), 1560–1584. https://doi.org/10.1177/00187267211070769

Howard-Grenville, J., Nelson, A., Vough, H., & Zilber, T. B. (2021). From the Editors: Achieving fit and avoiding misfit in qualitative research. *Academy of Management Journal*, *64*(5), 1313–1323. https://doi.org/10.5465/amj.2021.4005

Hsiao, C., Wu, J., Lin, P., Yang, P., Liao, F., Guo, S., & Hou, W. (2022). Effectiveness of interprofessional shared decision-making training: A mixed-method study. *Patient Education and Counseling*, *105*(11), 3287–3297. https://doi.org/10.1016/j.pec.2022.07.010

Hsiung, K. S., Colditz, J. B., McGuier, E. A., Switzer, G. E., VonVille, H. M., Folb, B. L., & Kolko, D. J. (2021). Measures of organizational culture and climate in primary care: A systematic review. *Journal of General Internal Medicine: JGIM*, *36*(2), 487–499. https://doi.org/10.1007/s11606-020-06262-7

Huddlestone, L., Turner, J., Eborall, H., Hudson, N., Davies, M., & Martin, G. (2020). Application of normalization process theory in understanding implementation processes in primary care settings in the UK: A systematic review. *BMC Family Practice*, *21*(1), 1–16. https://doi.org/10.1186/s12875-020-01107-y

Humphrey, K. E., Sundberg, M., Milliren, C. E., Graham, D. A., & Landrigan, C. P. (2021). Frequency and nature of communication and handoff failures in medical malpractice claims. *Journal of Patient Safety*, *18*(2), 130–137. https://doi.org/10.1097/PTS.0000000000000937

Hunter, S. B., Felician, M., Dopp, A. R., Godley, S. H., Pham, C., Bouskill, K., Slaughter, M. E., & Garner, B. R. (2020). What influences evidence-based treatment sustainment after implementation support ends? A mixed method study of the adolescent-community reinforcement approach. *Journal of Substance Abuse Treatment*, *113*, 107999. https://doi.org/10.1016/j.jsat.2020.107999

Jafarpanah, M., & Rezaei, B. (2020). Association between organizational citizenship behavior and patient safety culture from nurses' perspectives: A descriptive correlational study. *BMC Nursing*, *19*(1), 1–8. https://doi.org/10.1186/s12912-020-00416-y

Jeong, H., Lee, W., Liao, H., Chu, F., Chen, T., & Wang, P. (2019). The hospital patient safety culture survey: Reform of analysis and visualization methods. *International Journal of*

Environmental Research and Public Health, *16*(19), 3624. https://doi.org/10.3390/ijerph16193624

Jones, P. J., Williams, D. R., & McNally, R. J. (2021). Sampling variability is not nonreplication: A Bayesian reanalysis of Forbes, Wright, Markon, and Krueger. *Multivariate Behavioral Research*, *56*(2), 249–255. https://doi.org/10.1080/00273171.2020.1797460

Jonsson, K., Brulin, C., Härgestam, M., Lindkvist, M., & Hultin, M. (2021). Do team and task performance improve after training situation awareness? A randomized controlled study of interprofessional intensive care teams. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, *29*(1), 73–73. https://doi.org/10.1186/s13049-021-00878-2

Kabito, G. G., Mekonnen, T. H., & Pakpour, A. H. (2020). Psychological distress symptoms among healthcare professionals are significantly influenced by psychosocial work context, Ethiopia: A cross-sectional analysis. *PloS One*, *15*(9), e0239346–e0239346. https://doi.org/10.1371/journal.pone.0239346

Kagan, I., Porat, N., & Barnoy, S. (2019). The quality and safety culture in general hospitals: Patients', physicians', and nurses' evaluation of its effect on patient satisfaction. *International Journal for Quality in Health Care*, *31*(4), 261–268. https://doi.org/10.1093/intqhc/mzy138

Karlsen, T., Hall-Lord, M. L., Wangensteen, S., & Ballangrud, R. (2021). Reliability and structural validity of the Norwegian version of the TeamSTEPPS teamwork attitudes questionnaire: A cross-sectional study among Bachelor of nursing students. *Nursing Open*, *8*(2), 664–674. https://doi.org/10.1002/nop2.671

Karlsen, T., Hall-Lord, M. L., Wangensteen, S., & Ballangrud, R. (2022). Bachelor of nursing students' attitudes toward teamwork in healthcare: The impact of implementing a

teamSTEPPS® team training program: A longitudinal, quasi-experimental study. *Nurse Education Today, 108*, 105180. https://doi.org/10.1016/j.nedt.2021.105180

Keller, T., & Alsdorf, K. L. (2012). *Every good endeavor: Connecting your work to God's work.* Dutton.

Kett, P. M., Bekemeier, B., Altman, M. R., & Herting, J. R. (2022). "Not everybody approaches it that way": Nurse-trained health department directors' leadership strategies and skills in public health. *Nursing Inquiry*, *29*(4), e12487. https://doi.org/10.1111/nin.12487

Khan, M. A., Ismail, F. B., Hussain, A., & Alghazali, B. (2020). The interplay of leadership styles, innovative work behavior, organizational culture, and organizational citizenship behavior. *SAGE Open*, *10*(1), 215824401989826. https://doi.org/10.1177/2158244019898264

Kilpatrick, K., Paquette, L., Jabbour, M., Tchouaket, E., Fernandez, N., Al Hakim, G., Landry, V., Gauthier, N., Beaulieu, M., Dubois, C., & Leal-Costa, C. (2020). Systematic review of the characteristics of brief team interventions to clarify roles and improve functioning in healthcare teams. *PloS One*, *15*(6), e0234416–e0234416. https://doi.org/10.1371/journal.pone.0234416

Kim, L. Y., Giannitrapani, K. F., Huynh, A. K., Ganz, D. A., Hamilton, A. B., Yano, E. M., Rubenstein, L. V., & Stockdale, S. E. (2019). What makes team communication effective: A qualitative analysis of interprofessional primary care team members' perspectives. *Journal of Interprofessional Care*, *33*(6), 836–838. https://doi.org/10.1080/13561820.2019.1577809

Kim, M. S., Park, H., & Park, W. (2020). Why employees help teammates when their leader looks powerful: A multilevel investigation. *Group & Organization Management*, *45*(6), 808–835. https://doi.org/10.1177/1059601120949369

King, A. E., Gerolamo, A. M., Hass, R. W., Libros, S., & Forstater, A. T. (2021). Evaluation of an interprofessional team training program to improve the use of patient safety strategies among healthcare professions students. *Journal of Allied Health*, *50*(3), 175–183. https://www.ingentaconnect.com/content/asahp/jah/2021/00000050/00000003/art00003

King, A. T., Gontarz, J., & Wei, H. (2020). Employee engagement and absenteeism: A step towards improving patient care. *Nursing Forum*, *55*(3), 356–361. https://doi.org/10.1111/nuf.12435

Klasmeier, K. N., & Rowold, J. (2022). A diary study on shared leadership, teamwork engagement, and goal attainment. *Journal of Occupational and Organizational Psychology*, *95*(1), 36–59. https://doi.org/10.1111/joop.12371

Kolbe, M., Schmutz, S., Seelandt, J. C., Eppich, W. J., & Schmutz, J. B. (2021). Team debriefings in healthcare: Aligning intention and impact. *BMJ*, *374*, n2042. https://doi.org/10.1136/bmj.n2042

Kucharska, W., & Bedford, D. A. D. (2020). Love your mistakes! They help you adapt to change. How do knowledge, collaboration, and learning cultures foster organizational intelligence? *Journal of Organizational Change Management*, *33*(7), 1329–1354. https://doi.org/10.1108/JOCM-02-2020-0052

Kumra, T., Hsu, Y., Cheng, T. L., Marsteller, J. A., McGuire, M., & Cooper, L. A. (2020). The association between organizational cultural competence and teamwork climate in a

network of primary care practices. *Health Care Management Review*, *45*(2), 106–116. https://doi.org/10.1097/HMR.0000000000000205

Lakatamitou, I., Lambrinou, E., Kyriakou, M., Paikousis, L., & Middleton, N. (2020). The Greek versions of the TeamSTEPPS teamwork perceptions questionnaire and Minnesota satisfaction questionnaire "short form." *BMC Health Services Research*, *20*(1), 1–10. https://doi.org/10.1186/s12913-020-05451-8

Lamming, L., Montague, J., Crosswaite, K., Faisal, M., McDonach, E., Mohammed, M. A., Cracknell, A., Lovatt, A., & Slater, B. (2021). Fidelity and the impact of patient safety huddles on teamwork and safety culture: An evaluation of the huddle up for safer healthcare (HUSH) project. *BMC Health Services Research*, *21*(1), 1–11. https://doi.org/10.1186/s12913-021-07080-1

Lavelle, M., Reedy, G. B., Cross, S., Jaye, P., Simpson, T., & Anderson, J. E. (2020). An evidence-based framework for the temporal observational analysis of teamwork in healthcare settings. *Applied Ergonomics*, *82*, 102915. https://doi.org/10.1016/j.apergo.2019.102915

Lee, J. Y., McFadden, K. L., Lee, M. K., & Gowen, C. R. (2021). U.S. hospital culture profiles for better performance in patient safety, patient satisfaction, six sigma, and lean implementation. *International Journal of Production Economics*, *234*, 108047. https://doi.org/10.1016/j.ijpe.2021.108047

Lee, S., Khanuja, H. S., Blanding, R. J., Sedgwick, J., Pressimone, K., Ficke, J. R., & Jones, L. C. (2021). Sustaining teamwork behaviors through reinforcement of TeamSTEPPS principles. *Journal of Patient Safety*, *17*(7), e582–e586. https://doi.org/10.1097/PTS.0000000000000414

Levine, K. J., Carmody, M., & Silk, K. J. (2020). The influence of organizational culture, climate, and commitment on speaking up about medical errors. *Journal of Nursing Management*, *28*(1), 130–138. https://doi.org/10.1111/jonm.12906

Liaw, S. Y., Wu, L. T., Wong, L. F., Soh, S. L. H., Chow, Y. L., Ringsted, C., Lau, T. C., & Lim, W. S. (2019). "Getting everyone on the same page": Interprofessional team training to develop shared mental models on interprofessional rounds. *Journal of General Internal Medicine: JGIM*, *34*(12), 2912–2917. https://doi.org/10.1007/s11606-019-05320-z

Linnander, E., McNatt, Z., Boehmer, K., Cherlin, E., Bradley, E., & Curry, L. (2021). Changing hospital organizational culture for improved patient outcomes: Developing and implementing the leadership saves lives intervention. *BMJ Quality & Safety*, *30*(6), 475–483. https://doi.org/10.1136/bmjqs-2019-010734

Liu, H. (2021). The relationship between swift trust and interaction behaviors on interdisciplinary and non-interdisciplinary teams in nursing education. *Nurse Education in Practice*, *51*, 102977–102977. https://doi.org/10.1016/j.nepr.2021.102977

Liu, Y. (2022). Paradigmatic compatibility matters: A critical review of qualitative-quantitative debate in mixed methods research. *Sage Open*, *12*(1), 21582440221079922. https://doi.org/10.1177/21582440221079922

Loeppky, R. (2019). The real meaning of "Managed care": Adaptive accumulation and US health care. *International Journal of Health Services*, *49*(4), 733–753. https://doi.org/10.1177/0020731419863651

Lorenzini, E., Oelke, N. D., & Marck, P. B. (2021). Safety culture in healthcare: Mixed method study. *Journal of Health Organization and Management*, *35*(8), 1080–1097. https://doi.org/10.1108/JHOM-04-2020-0110

Low, X. M., Horrigan, D., & Brewster, D. J. (2018). The effects of team-training in intensive care medicine: A narrative review. *Journal of Critical Care, 48,* 283–289. https://doi.org/10.1016/j.jcrc.2018.09.015

Lumamuly, P. C., Sience Joseph, L., Amtu, O., & Liza Souisa, S. (2021). Contribution of leadership, organizational commitment, and organizational culture to improve the quality of higher education. *International Journal of Innovation (São Paulo), 9*(1), 131–157. https://doi.org/10.5585/iji.v9i1.18582

Lund, T. (2021). Research problems and hypotheses in empirical research. *Scandinavian Journal of Educational Research, 66*(7), 1183–1193. https://doi.org/10.1080/00313831.2021.1982765

Lyndon, S., Pandey, A., & Navare, A. (2020). Shared leadership and team creativity: Investigating the role of cognitive trust and team learning through mixed method approach. *Personnel Review, 49*(9), 1805–1822. https://doi.org/10.1108/PR-05-2019-0262

Maesschalck, J., & Paesen, H. (2021). Profiling organizational culture: Using grid-group cultural theory as a lens to take a snapshot of an organization's culture. *SAGE Open*, *11*(4), 215824402110615. https://doi.org/10.1177/21582440211061564

Majid, U. (2020). Using shared mental models to conceptualize patients as professionals, decision-makers, collaborators, and members of interprofessional healthcare teams. *Patient Experience Journal, 7*(1), 20–30. https://doi.org/10.35680/2372-0247.1378

Malik, R. F., Buljac-Samardžić, M., Akdemir, N., Hilders, C., & Scheele, F. (2020). What do we really assess with organizational culture tools in healthcare? An interpretive systematic

umbrella review of tools in healthcare. *BMJ Open Quality*, *9*(1), e000826. https://doi.org/10.1136/bmjoq-2019-000826

Marsicano, G., da Silva, F. Q., Seaman, C. B., & Adaid-Castro, B. G. (2020). The teamwork process antecedents (TPA) questionnaire: Developing and validating a comprehensive measure for assessing antecedents of teamwork process quality. *Empirical Software Engineering: An International Journal*, *25*(5), 3928–3976. https://doi.org/10.1007/s10664-020-09860-5

Marx, D. (2019). Patient safety and the just culture. *Obstetrics and Gynecology Clinics of North America*, *46*(2), 239–245. https://doi.org/10.1016/j.ogc.2019.01.003

Matović, N., & Ovesni, K. (2021). Interaction of quantitative and qualitative methodology in mixed methods research: Integration and/or combination. *International Journal of Social Research Methodology*, 26(1), 51–65. https://doi.org/10.1080/13645579.2021.1964857

Matzke, C. M., DeGennaro, R., & Howie-Esquivel, J. (2021). Incorporating TeamSTEPPS training to improve staff collaboration in an academic level I emergency and trauma center. *International Emergency Nursing*, *55*, 100959. https://doi.org/10.1016/j.ienj.2020.100959

Meena, K., & Shetty, A. (2021). Perception of patient safety culture amongst healthcare personnel in a tertiary care hospital. *Journal of Patient Safety and Infection Control*, *9*(1), 22–27. https://doi.org/10.4103/jpsic.jpsic_8_21

Mesfin, D., Woldie, M., Adamu, A., & Bekele, F. (2020). Perceived organizational culture and its relationship with job satisfaction in primary hospitals of Jimma zone and Jimma town administration, correlational study. *BMC Health Services Research*, *20*(1), 1–9. https://doi.org/10.1186/s12913-020-05319-x

Metwally, D., Ruiz-Palomino, P., Metwally, M., & Gartzia, L. (2019). How ethical leadership shapes employees' readiness to change: The mediating role of an organizational culture of effectiveness. *Frontiers in Psychology*, *10*, 2493. https://doi.org/10.3389/fpsyg.2019.02493

Min, N., Shen, R., Berlan, D., & Lee, K. (2020). How organizational identity affects hospital performance: Comparing predictive power of mission statements and sector affiliation. Public *Performance & Management Review*, *43*(4), 845–870. https://doi.org/10.1080/15309576.2019.1684958

Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment, and People, 9*(4), 50. https://doi.org/10.26458/jedep.v9i4.679

Mohsen, M. M., Gab Allah, A. R., Amer, N. A., Rashed, A. B., & Shokr, E. A. (2021). Team strategies and tools to enhance performance and patient safety at primary healthcare units: Effect on patients' outcomes. *Nursing Forum*, *56*(4), 849–859. https://doi.org/10.1111/nuf.12627

Monazam Tabrizi, N., & Masri, F. (2021). Towards safer healthcare: Qualitative insights from a process view of organizational learning from failure. *BMJ Open, 11*(8), e048036. https://doi.org/10.1136/bmjopen-2020-048036

Morag, I., & Zimerman, A. L. (2021). Evaluating teamwork among medical staff: How to measure and compare aspects of the team mental models of doctors and nurses. *Applied Ergonomics, 94*, 103418. https://doi.org/10.1016/j.apergo.2021.103418

Morgan, G. A., Leech, N., Gloeckner, G., & Barrett, K. C. (2020). *IBM SPSS for introductory statistics* (5th ed.). Routledge.

Mossburg, S. E., Weaver, S. J., Pillari, M., & Daugherty Biddison, E. (2019). Manifestations of high-reliability principles on hospital units with varying safety profiles: A qualitative analysis. *Journal of Nursing Care Quality*, *34*(3), 230–235. https://doi.org/10.1097/NCQ.0000000000000368

Moy, E., Hausmann, L. R. M., & Clancy, C. M. (2022). From HRO to HERO: Making health equity a core system capability. *American Journal of Medical Quality*, *37*(1), 81–83. https://doi.org/10.1097/JMQ.0000000000000020

Mrkonjić, R., Ristić, J., Jambrović, I., Rukavina, M., & Rašić, I. (2019). Analysis of the organizational culture in two Croatian hospitals. B*ritish Journal of Nursing (Mark Allen Publishing)*, *28*(10), 647–651. https://doi.org/10.12968/bjon.2019.28.10.647

Mulisa, F. (2021). When does a researcher choose a quantitative, qualitative, or mixed research approach? *Interchange*, *53*(1), 113–131. https://doi.org/10.1007/s10780-021-09447-z

Mutmainah, S., Rofeq, A., Rifa'i, A., & Febrianto, M. V. (2021). An analysis of students' learning pattern: A study on the new learning paradigm by using virtual technology in Covid-19 pandemic. *IOP Conference Series. Earth and Environmental Science*, *747*(1), 12082. https://doi.org/10.1088/1755-1315/747/1/012082

Nembhard, I. M., Buta, E., Lee, Y. S. H., Anderson, D., Zlateva, I., & Cleary, P. D. (2020). A quasi-experiment assessing the six-month effects of a nurse care coordination program on patient care experiences and clinician teamwork in community health centers. *BMC Health Services Research*, *20*(1), 1–14. https://doi.org/10.1186/s12913-020-4986-0

Neville, B., Miltner, R. S., & Shirey, M. R. (2021). Clinical team training and a structured handoff tool to improve teamwork, communication, and patient safety. *Journal for Health care Quality*, *43*(6), 365–373. https://doi.org/10.1097/JHQ.0000000000000291

Noltemeyer, A., James, A. G., Bush, K., Bergen, D., Barrios, V., & Patton, J. (2021). The relationship between deficiency needs and growth needs: The continuing investigation of Maslow's theory. *Child & Youth Services*, *42*(1), 24–42. https://doi.org/10.1080/0145935X.2020.1818558

Nyein, K. P., Caylor, J. R., Duong, N. S., Fry, T. N., & Wildman, J. L. (2020). Beyond positivism: Toward a pluralistic approach to studying "real" teams. *Organizational Psychology Review*, *10*(2), 87–112. https://doi.org/10.1177/2041386620915593

Nyein, K. P., & Gregory, M. E. (2021). The potential for sensor-based measurement to examine shared decision-making in face-to-face health care encounters. *Families Systems & Health*, *39*(1), 29–37. https://doi.org/10.1037/fish0000562

Odom-Forren, J. (2019). A culture of safety: Whose responsibility? *Journal of Perianesthesia Nursing*, *34*(2), 223–225. https://doi.org/10.1016/j.jopan.2019.02.003

O'Donovan, R., Rogers, L., Khurshid, Z., De Brún, A., Nicholson, E., O'Shea, M., Ward, M., & McAuliffe, E. (2021). A systematic review exploring the impact of focal leader behaviors on health care team performance. *Journal of Nursing Management*, *29*(6), 1420–1443. https://doi.org/10.1111/jonm.13403

O'Donovan, R., Ward, M., De Brún, A., & McAuliffe, E. (2019). Safety culture in health care teams: A narrative review of the literature. *Journal of Nursing Management*, *27*(5), 871–883. https://doi.org/10.1111/jonm.12740

Ohlsson, A., Alvinius, A., & Larsson, G. (2020). Smooth power: Identifying high-level leadership skills promoting organizational adaptability. *International Journal of Organization Theory and Behavior*, *23*(4), 297–313. https://doi.org/10.1108/IJOTB-02-2019-0009

Olson, A. P. J., Linzer, M., & Schiff, G. D. (2021). Measuring and improving diagnostic safety in primary care: Addressing the “Twin” pandemics of diagnostic error and clinician burnout. *Journal of General Internal Medicine: JGIM*, *36*(5), 1404–1406. https://doi.org/10.1007/s11606-021-06611-0

Paguio, J. T., & Yu, D. S. F. (2020). A mixed methods study to evaluate the effects of a teamwork enhancement and quality improvement initiative on nurses’ work environment. *Journal of Advanced Nursing*, *76*(2), 664–675. https://doi.org/10.1111/jan.14270

Palumbo, R. (2021). Engaging to innovate: An investigation into the implications of engagement at work on innovative behaviors in healthcare organizations. *Journal of Health Organization and Management*, *35*(8), 1025–1045. https://doi.org/10.1108/JHOM-02-2021-0072

Paradiso, L., & Sweeney, N. (2019). Just culture: It’s more than policy. *Nursing Management*, *50*(6), 38–45. https://doi.org/10.1097/01.NUMA.0000558482.07815.ae

Pariès, J., Macchi, L., Valot, C., & Deharvengt, S. (2019). Comparing HROs and RE in the light of safety management systems. *Safety Science*, *117*, 501–511. https://doi.org/10.1016/j.ssci.2018.02.026

Park, M., & Giap, T. (2020). Patient and family engagement as a potential approach for improving patient safety: A systematic review. *Journal of Advanced Nursing*, *76*(1), 62–80. https://doi.org/10.1111/jan.14227

Park, Y. S., Konge, L., & Artino, A. R. (2020). The positivism paradigm of research. *Academic Medicine*, *95*(5), 690–694. https://doi.org/10.1097/ACM.0000000000003093

Parker, A. L., Forsythe, L. L., & Kohlmorgen, I. K. (2019). TeamSTEPPS®: An evidence-based approach to reduce clinical errors threatening safety in outpatient settings: An integrative

review. *Journal of Healthcare Risk Management*, *38*(4), 19–31. https://doi.org/10.1002/jhrm.21352

Parker, M., Fang, X., & Bradlyn, A. (2020). Costs and effectiveness of a culturally tailored communication training program to increase cultural competence among multi-disciplinary care management teams. *BMC Health Services Research*, *20*(1), 1–7. https://doi.org/10.1186/s12913-020-05662-z

Parsaeian, M., Mahdavi, M., Saadati, M., Mehdipour, P., Sheidaei, A., Khatibzadeh, S., Farzadfar, F., & Shahraz, S. (2021). Introducing an efficient sampling method for national surveys with limited sample sizes: Application to a national study to determine quality and cost of healthcare. *BMC Public Health*, *21*(1), 1–10. https://doi.org/10.1186/s12889-021-11441-0

Patel, T. (2018). Innovative trends in culture in international business literature: Toward multiparadigmatic and nonlinear studies of culture. *International Studies of Management & Organization*, *48*(4), 435–456. https://doi.org/10.1080/00208825.2018.1504477

Pavithra, A. (2022). Towards developing a comprehensive conceptual understanding of positive hospital culture and approaches to healthcare organizational culture change in Australia. *Journal of Health Organization and Management*, *36*(1), 105–120. https://doi.org/10.1108/JHOM-10-2020-0385

Perez, J. (2021). Leadership in healthcare: Transitioning from clinical professional to healthcare leader. *Journal of Healthcare Management*, *66*(4), 280–302. https://doi.org/10.1097/JHM-D-20-00057

Peterson, S. J., & Foley, S. (2021). Clinician's guide to understanding effect size, alpha level, power, and sample size. *Nutrition in Clinical Practice*, *36*(3), 598–605. https://doi.org/10.1002/ncp.10674

Poirier, T. I., & Devraj, R. (2019). Pharmacy in an improved health care delivery model using Maslow's hierarchy of needs. *American Journal of Pharmaceutical Education*, *83*(8), 1627–1667. https://doi.org/10.5688/ajpe7627

Potnuru, R. K. G., Sahoo, C. K., & Parle, K. C. (2021). HRD practices, employee competencies and organizational effectiveness: Role of organizational learning culture. *Journal of Asia Business Studies*, *15*(3), 401–419. https://doi.org/10.1108/JABS-06-2020-0237

Potnuru, R. K. G., Sahoo, C. K., & Sharma, R. (2019). Team building, employee empowerment, and employee competencies: Moderating role of organizational learning culture. *European Journal of Training and Development*, *43*(1–2), 39–60. https://doi.org/10.1108/EJTD-08-2018-0086

Prakash, G., & Srivastava, S. (2021). Exploring antecedents and consequences of care coordinated pathways using organization routines. *International Journal of Healthcare Management*, *14*(1), 77–84. https://doi.org/10.1080/20479700.2019.1615272

Prayag, G., Mills, H., Lee, C., & Soscia, I. (2020). Team identification, discrete emotions, satisfaction, and event attachment: A social identity perspective. *Journal of Business Research*, *112*, 373–384. https://doi.org/10.1016/j.jbusres.2019.11.062

Prochnow, L., & Tschannen, D. (2022). Impact of TeamSTEPPS training with rural hospital staff: A quality improvement project. *Journal of Nursing Care Quality*, *37*(1), 75–80. https://doi.org/10.1097/NCQ.0000000000000568

Profit, J., Sharek, P. J., Cui, X., Nisbet, C. C., Thomas, E. J., Tawfik, D. S., Lee, H. C., Draper, D., & Sexton, J. B. (2020). The correlation between neonatal intensive care unit safety culture and quality of care. *Journal of Patient Safety, 16*(4), e310–e316. https://doi.org/10.1097/PTS.0000000000000546

Rabkin, S. W., & Frein, M. (2021). Overcoming obstacles to develop high-performance teams involving physician in health care organizations. *Healthcare (Basel), 9*(9), 1136. https://doi.org/10.3390/healthcare9091136

Rahimi, E., Alizadeh, S. S., Safaeian, A., & Abbasgholizadeh, N. (2020). Dimensions analysis of the hospital survey on patient safety culture questionnaire in Iran: Psychometric properties. *The International Journal of Health Planning and Management*, *35*(6), 1532–1545. https://doi.org/10.1002/hpm.3044

Rahman, A., Björk, P., & Ravald, A. (2020). Exploring the effects of service provider's organizational support and empowerment on employee engagement and well-being. *Cogent Business & Management, 7*(1), 1767329. https://doi.org/10.1080/23311975.2020.1767329

Ranscombe, P. (2020). Valuing qualitative alongside quantitative research. *Lancet Neurology, 19*(4), 295–296. https://doi.org/10.1016/S1474-4422(19)30085-7

Rehder, K., Adair, K. C., & Sexton, J. B. (2021). The science of health care worker burnout: Assessing and improving health care worker well-being. *Archives of Pathology & Laboratory Medicine (1976), 145*(9), 1095–1109. https://doi.org/10.5858/arpa.2020-0557-RA

Reis, C. T., Paiva, S. G., & Sousa, P. (2020). The patient safety culture: A systematic review by characteristics of hospital survey on patient safety culture dimensions. *International*

Journal for Quality in Health Care, *30*(9), 660–677. https://doi.org/10.1093/intqhc/mzy080

Ridley, C. H., Al-Hammadi, N., Maniar, H. S., Ben Abdallah, A., Steinberg, A., Bollini, M. L., Patterson, G. A., Henn, M. C., Moon, M. R., Dahl, A. B., & Avidan, M. S. (2021). Building a collaborative culture: Focus on psychological safety and error reporting. *The Annals of Thoracic Surgery*, *111*(2), 683–689. https://doi.org/10.1016/j.athoracsur.2020.05.152

Rogers, H., Madathil, K. C., Joseph, A., Holmstedt, C., Qanungo, S., McNeese, N., Morris, T., Holden, R. J., & McElligott, J. T. (2021). An exploratory study investigating the barriers, facilitators, and demands affecting caregivers in a telemedicine integrated ambulance-based setting for stroke care. *Applied Ergonomics*, *97*, 103537. https://doi.org/10.1016/j.apergo.2021.103537

Rouleau, G., Hong, Q. N., Kaur, N., Gagnon, M., Côté, J., Bouix-Picasso, J., & Pluye, P. (2021). Systematic reviews of systematic quantitative, qualitative, and mixed studies reviews in healthcare research: How to assess the methodological quality of included reviews? *Journal of Mixed Methods Research*, *17*(1), 155868982110542. https://doi.org/10.1177/15586898211054243

Samaranayaka, A., Cameron, C., & Turner, R. M. (2021). Sample size in health research. *New Zealand Medical Student Journal*, (32), 52–54. https://nzmsj.scholasticahq.com/article/22291.pdf

Sanaullah, A., Niaz, I., Shabbir, J., & Ehsan, I. (2020). A class of hybrid type estimators for variance of a finite population in simple random sampling. *Communications in Statistics.*

Simulation and Computation, *51*(10), 5609–5619. https://doi.org/10.1080/03610918.2020.1776873

Sawyerr, E., & Harrison, C. (2020). Developing resilient supply chains: Lessons from high-reliability organizations. *Supply Chain Management, 25*(1), 77–100. https://doi.org/10.1108/SCM-09-2018-0329

Schlaile, M. P., Bogner, K., & Muelder, L. (2021). It's more than complicated! Using organizational memetics to capture the complexity of organizational culture. *Journal of Business Research, 129,* 801–812. https://doi.org/10.1016/j.jbusres.2019.09.035

Schmidt, J., Gambashidze, N., Manser, T., Güß, T., Klatthaar, M., Neugebauer, F., & Hammer, A. (2021). Does interprofessional team training affect nurses' and physicians' perceptions of safety culture and communication practices? Results of a pre-post survey study. *BMC Health Services Research*, *21*(1), 1–10. https://doi.org/10.1186/s12913-021-06137-5

Schmiedel, T., Müller, O., & Vom Brocke, J. (2019). Topic modeling as a strategy of inquiry in organizational research: A tutorial with an application example on organizational culture. *Organizational Research Methods*, *22*(4), 941–968. https://doi.org/10.1177/1094428118773858

Sclafani, M. (2021). Using the performance improvement process to enhance perioperative hand-over communication. *AORN Journal, 113*(4), 412–418. https://doi.org/10.1002/aom.13361

Scott, M., & Unsworth, J. (2020). Lessons from other disciplines about communication, human performance, and situational awareness while wearing personal protective equipment. *SAGE Open Nursing, 6,* 2377960820963766-2377960820963766. https://doi.org/10.1177/2377960820963766

Sculli, G. L., Pendley-Louis, R., Neily, J., Anderson, T. M., Isaacks, D. B., Knowles, R., Young-Xu, Y., & Gunnar, W. (2022). A high-reliability organization framework for health care: A multiyear implementation strategy and associated outcomes. *Journal of Patient Safety, 18*(1), 64–70. https://doi.org/10.1097/PTS.0000000000000788

Serou, N., Sahota, L. M., Husband, A. K., Forrest, S. P., Slight, R. D., & Slight, S. P. (2021). Learning from safety incidents in high-reliability organizations: A systematic review of learning tools that could be adapted and used in healthcare. *International Journal for Quality in Health Care, 33*(1), mzab046. https://doi.org/10.1093/intqhc/mzab046

Shah, F., Sells, J. R., Werthman, J., Abraham, C., Ali, A. M., & Callaway-Lane, C. (2021). A multi-site evaluation of a national employee wellness initiative at the Department of Veterans Affairs. *Global Advances in Health and Medicine, 10*, 21649561211053805. https://doi.org/10.1177/21649561211053805

Shahriari, M., & Allameh, S. M. (2020). Organizational culture and organizational learning: Does high performance work systems mediate? *The Journal of Workplace Learning*, *32*(8), 583–597. https://doi.org/10.1108/JWL-03-2020-0047

Shahzad, U., Hanif, M., & Koyuncu, N. (2019). Some new classes of estimators under linear systematic sampling in absence and presence of non-response. *Journal of Statistics & Management Systems*, *22*(6), 1067–1091. https://doi.org/10.1080/09720510.2018.1564582

Shea, K. G. (2020). Strategies and tools to enhance patient safety: HROs, HEROs, and safety culture. *Journal of Pediatric Orthopedics, 40*(Suppl_1), S30–S32. https://doi.org/10.1097/BPO.0000000000001500

Shen, W., Skelly, K., Hemesath, K., & Veit, L. (2020). Implementation of TeamSTEPPS concept at an academic primary care clinic. *Journal of Interprofessional Education & Practice*, *20*, 100352. https://doi.org/10.1016/j.xjep.2020.100352

Shin, S. Y., & Kim, C. Y. (2021). Does a competent member always obtain good results? The social identity perspective. *SAGE Open*, *11*(1), 21582440211006144. https://doi.org/10.1177/21582440211006144

Shortridge, A., Steinheider, B., Bender, D. G., Hoffmeister, V. E., Ciro, C. A., Ross, H. M., Randall, K., & Loving, G. (2019). Teaching and evaluating interprofessional teamwork using sequenced instruction and TeamSTEPPS™ team performance observation tool (TPOT). *Journal of Interprofessional Education & Practice*, *16*, 100233. https://doi.org/10.1016/j.xjep.2019.01.009

Siegmund, L. A., & Siedlecki, S. L. (2021). Ensuring data fidelity in quantitative research. *Clinical Nurse Specialist*, *35*(6), 284–287. https://doi.org/10.1097/NUR.0000000000000627

Sifaki-Pistolla, D., Melidoniotis, E., Dey, N., & Chatzea, V. (2020). How trust affects performance of interprofessional health-care teams. *Journal of Interprofessional Care*, *34*(2), 218–224. https://doi.org/10.1080/13561820.2019.1631763

Sijbom, R. B. L., Lang, J. W. B., & Anseel, F. (2019). Leaders' achievement goals predict employee burnout above and beyond employees' own achievement goals. *Journal of Personality*, *87*(3), 702–714. https://doi.org/10.1111/jopy.12427

Silva, L. C. d., Caldas, C. P., Fassarella, C. S., & Souza, P. S. d. (2021). Effect of the organizational culture for patient safety in the hospital setting: A systematic review. *Aquichan*, *21*(2), 1–16. https://doi.org/10.5294/aqui.2021.21.2.3

Singh, G. N., Bhattacharyya, D., & Bandyopadhyay, A. (2022). Formulation of logarithmic type estimators to estimate population mean in successive sampling in presence of random non-response and measurement errors. *Communications in Statistics. Simulation and Computation*, *51*(3), 901–923. https://doi.org/10.1080/03610918.2019.1659364

Skoogh, A., Bååth, C., & Hall-Lord, M. L. (2022). Healthcare professionals' perceptions of patient safety culture and teamwork in intrapartum care: A cross-sectional study. *BMC Health Services Research*, *22*(1), 820. https://doi.org/10.1186/s12913-022-08145-5

Smith, D. F. (2019). Leadership skills to address the four categories of demotivation. *The Journal of Medical Practice Management*, *35*(3), 168–170. https://lmxpro.com/images/easyblog_articles/34/Nov_Dec_2019_168-17_20210516-165143_1.pdf

Smollan, R. K., & Morrison, R. L. (2019). Office design and organizational change: The influence of communication and organizational culture. *Journal of Organizational Change Management*, *32*(4), 426–440. https://doi.org/10.1108/JOCM-03-2018-0076

Song, Z., Gu, Q., & Cooke, F. L. (2020). The effects of high-involvement work systems and shared leadership on team creativity: A multilevel investigation. *Human Resource Management*, *59*(2), 201–213. https://doi.org/10.1002/hrm.21988

Staines, A., Lécureux, E., Rubin, P., Baralon, C., & Farin, A. (2020). Impact of TeamSTEPPS on patient safety culture in a Swiss maternity ward. *International Journal for Quality in Health Care*, *32*(9), 618–624. https://doi.org/10.1093/intqhc/mzz062

Stevens, E. L., Hulme, A., & Salmon, P. M. (2021). The impact of power on health care team performance and patient safety: A review of the literature. *Ergonomics*, *64*(8), 1072–1090. https://doi.org/10.1080/00140139.2021.1906454

Stewart, D., MacLure, K., Pallivalapila, A., Dijkstra, A., Wilbur, K., Wilby, K., Awaisu, A., McLay, J. S., Thomas, B., Ryan, C., El Kassem, W., Singh, R., & Al Hail, M. S. H. (2020). Views and experiences of decision-makers on organizational safety culture and medication errors. *International Journal of Clinical Practice (Esher)*, *74*(9), e13560. https://doi.org/10.1111/ijcp.13560

Strawser, M. (2021). Training and development: Communication and the multigenerational workplace. *Journal of Communication Pedagogy, 4*, 96–102. https://doi.org/10.31446/JCP.2021.1.08

Stucky, C. H., & De Jong, M. J. (2021). Surgical team familiarity: An integrative review. *AORN Journal*, *113*(1), 64–75. https://doi.org/10.1002/aom.13281

Studer, Q. (2020). Developing your key leadership skills and behaviors. *The Journal for Quality and Participation*, *42*(4), 15–18. https://search.proquest.com/openview/0612bfa4eb6190817581d70065772ab0/1?pq-origsite=gscholar&cbl=37083

Suomi, K., Saraniemi, S., Vähätalo, M., Kallio, T. J., & Tevameri, T. (2021). Employee engagement and internal branding: Two sides of the same coin? *Corporate Reputation Review*, *24*(1), 48–63. https://doi.org/10.1057/s41299-019-00090-0

Svensson, A. (2019). Challenges in using IT systems for collaboration in healthcare services. *International Journal of Environmental Research and Public Health*, *16*(10), 1773. https://doi.org/10.3390/ijerph16101773

Taha, A. A., Zhang, Z., Driessnack, M., Huntzicker, J. J., Eisen, A. M., Bernstein, J., Chen, A., Chandra, R. A., Drake, K., Fung, A., Ladkany, R., LaVigne, B., Nardos, R., Sayama, C., Tereshchenko, L. G., Wilson, B., & Steckler, N. A. (2022). Emerging frontline leaders'

voices in response to COVID-19 crisis. *Nursing Research*, *71*(2), 104–110. https://doi.org/10.1097/NNR.0000000000000571

Tan, K. H., Pang, N. L., Siau, C., Foo, Z., & Fong, K. Y. (2019). Building an organizational culture of patient safety. *Journal of Patient Safety and Risk Management*, *24*(6), 253–261. https://doi.org/10.1177/2516043519878979

Tanlaka, E. F., Ewashen, C., & King-Shier, K. (2019). Postpositivist critical multiplism: Its value for nursing research. *Nursing Open*, *6*(3), 740–744. https://doi.org/10.1002/nop2.306

Taylor, E. V., Lyford, M., Holloway, M., Parsons, L., Mason, T., Sabesan, S., & Thompson, S. C. (2021). "The support has been brilliant": experiences of Aboriginal and Torres Strait Islander patients attending two high performing cancer services. *BMC Health Services Research*, *21*(1), 1–15. https://doi.org/10.1186/s12913-021-06535-9

Tear, M. J., Reader, T. W., Shorrock, S., & Kirwan, B. (2020). Safety culture and power: Interactions between perceptions of safety culture, organizational hierarchy, and national culture. *Safety Science*, *121*, 550–561. https://doi.org/10.1016/j.ssci.2018.10.014

Tocco Tussardi, I., Moretti, F., Capasso, M., Niero, V., Visentin, D., Dalla Barba, L., & Tardivo, S. (2022). Improving the culture of safety among healthcare workers: Integration of different instruments to gain major insights and drive effective changes. *The International Journal of Health Planning and Management*, *37*(1), 429–451. https://doi.org/10.1002/hpm.3348

Toews, A. J., Martin, D. E., & Chernomas, W. M. (2021). Clinical debriefing: A concept analysis. *Journal of Clinical Nursing*, *30*(11-12), 1491–1501. https://doi.org/10.1111/jocn.15636

Toren, O., Dokhi, M., & Dekeyser Ganz, F. (2021). Hospital nurses' intention to report near misses, patient safety culture and professional seniority. *International Journal for Quality in Health Care*, *33*(1), mzab031. https://doi.org/10.1093/intqhc/mzab031

Tsay, R. S. (2020). Testing serial correlations in high-dimensional time series via extreme value theory. *Journal of Econometrics*, *216*(1), 106–117. https://doi.org/10.1016/j.jeconom.2020.01.008

Tu, Y., Zhang, Y., Lu, X., & Wang, S. (2020). Differentiating two facets of trust in colleagues: How ethical leadership influences cross-team knowledge sharing. *Leadership & Organization Development Journal*, *41*(1), 88–100. https://doi.org/10.1108/LODJ-06-2019-0260

Turyahikayo, E. (2021). Philosophical paradigms as the bases for knowledge management research and practice. *Knowledge Management & e-Learning*, *13*(2), 209–224. https://doi.org/10.34105/j.kmel.2021.13.012

Upadhyay, S., Weech-Maldonado, R., Lemak, C. H., Stephenson, A., Mehta, T., & Smith, D. G. (2020). Resource-based view on safety culture's influence on hospital performance: The moderating role of electronic health record implementation. *Health Care Management Review*, *45*(3), 207–216. https://doi.org/10.1097/HMR.0000000000000217

Van Huy, N., Thu, N. T. H., Anh, N. L. T., Au, N. T. H., Phuong, N. T., Cham, N. T., & Minh, P. D. (2020). The validation of organizational culture assessment instrument in healthcare setting: Results from a cross-sectional study in Vietnam. *BMC Public Health*, *20*(1), 1–8. https://doi.org/10.1186/s12889-020-8372-y

Veazie, S., Peterson, K., Bourne, D., Anderson, J., Damschroder, L., & Gunnar, W. (2022). Implementing high-reliability organization principles into practice: A rapid evidence

review. *Journal of Patient Safety*, *18*(1), e320–e328. https://doi.org/10.1097/PTS.0000000000000768

Waheed, J., Jun, W., Yousaf, Z., Radulescu, M., & Hussain, H. (2021). Towards employee creativity in the healthcare sector: Investigating the role of polychronicity, job engagement, and functional flexibility. *Healthcare (Basel), 9*(7), 837. https://doi.org/10.3390/healthcare9070837

Walton, M., Harrison, R., Smith-Merry, J., Kelly, P., Manias, E., Jorm, C., & Iedema, R. (2019). Disclosure of adverse events: A data linkage study reporting patient experiences among Australian adults aged ≥45 years. *Australian Health Review*, *43*(3), 268–275. https://doi.org/10.1071/AH17179

Wang, H. H. X. (2020). Taking a multidisciplinary team approach to better healthcare outcomes for society. *Hong Kong Medical Journal*, *26*(6), 551–552. https://doi.org/10.12809/hkmj209133

Wang, X., Wen, X., Paşamehmetoğlu, A., & Guchait, P. (2021). Hospitality employee's mindfulness and its impact on creativity and customer satisfaction: The moderating role of organizational error tolerance. *International Journal of Hospitality Management, 94*, 102846. https://doi.org/10.1016/j.ijhm.2020.102846

Wasserman, J. A., Redinger, M., & Gibb, T. (2020). Responding to unprofessional behavior by trainees: A "Just Culture" framework. *The New England Journal of Medicine*, *382*(8), 773–777. https://doi.org/10.1056/NEJMms1912591

Watson, V., Porteous, T., Bolt, T., & Ryan, M. (2019). Mode and frame matter: Assessing the impact of survey mode and sample frame in choice experiments. *Medical Decision Making*, *39*(7), 827–841. https://doi.org/10.1177/0272989X19871035

White, R. M., & Delacroix, R. (2020). Second victim phenomenon: Is ‘just culture’ a reality? An integrative review. *Applied Nursing Research, 56,* 151319. https://doi.org/10.1016/j.apnr.2020.151319

Whittington, K. D., Walker, J., & Hirsch, B. (2020). Promoting interdisciplinary communication as a vital function of effective teamwork to positively impact patient outcomes, satisfaction, and employee engagement. *Journal of Medical Imaging and Radiation Sciences, 51*(4), S107–S111. https://doi.org/10.1016/j.jmir.2020.07.002

Willetts, G., & Garvey, L. (2020). Constructing nurses’ professional identity through group performance. *International Journal of Nursing Practice, 26*(6), e12849. https://doi.org/10.1111/ijn.12849

Wolf, P., Verma, S., Kocher, P., Bernhart, M. J., & Meissner, J. O. (2022). In search for the missing link: Studying the interrelationship between organizational learning and organizational culture change. *Journal of Organizational Change Management*, *35*(1), 135–164. https://doi.org/10.1108/JOCM-08-2020-0234

Wong, B. M., Baum, K. D., Headrick, L. A., Holmboe, E. S., Moss, F., Ogrinc, G., Shojania, K. G., Vaux, E., Warm, E. J., & Frank, J. R. (2020). Building the bridge to quality: An urgent call to integrate quality improvement and patient safety education with clinical care. *Academic Medicine, 95*(1), 59–68. https://doi.org/10.1097/ACM.0000000000002937

Wood, A. J., Grudzinskas, K., Ross, J., Bailey, S., Gordon, G. E., Burton, C., & Wishart, L. R. (2020). Strengthening teamwork capability in allied health: Implementation of a team development program in a metropolitan health service. *Australian Health Review*, *44*(3), 443–450. https://doi.org/10.1071/AH19055

Woodhead, C., Stoll, N., Harwood, H., Alexis, O., Hatch, S. L., Bora-White, M., Chui, Z., Clifford, N., Connor, L., Ehsan, A., Ensum, L., Gunasinghe, C., Hatch, S., Harwood, H., MacCrimmon, S., Meriez, P., Morgan, A., Jones Nielsen, J., & Onwumere, J. (2021). "They created a team of almost entirely the people who work and are like them": A qualitative study of organizational culture and racialized inequalities among healthcare staff. *Sociology of Health & Illness*, *44*(2), 267289. https://doi.org/10.1111/1467-9566.13414

Wooding, E. L., Gale, T. C., & Maynard, V. (2020). Evaluation of teamwork assessment tools for interprofessional simulation: A systematic literature review. *Journal of Interprofessional Care, 34*(2), 162–172. https://doi.org/10.1080/13561820.2019.1650730

Wu, H., Lee, Y., Huang, C., & Li, L. (2022). Healthcare professional's perception of patient safety assessed by the hospital survey on patient safety culture in Taiwan: A systematic review. *TQM Journal*. https://doi.org/10.1108/TQM-11-2021-0317

Yang, Y., & Liu, H. (2021). The effect of patient safety culture on nurses' near-miss reporting intention: The moderating role of perceived severity of near misses. *Journal of Research in Nursing*, *26*(1–2), 6–16. https://doi.org/10.1177/1744987120979344

Yesilyaprak, T., & Demir Korkmaz, F. (2021). The relationship between surgical intensive care unit nurses' patient safety culture and adverse events. *Nursing in Critical Care, 14*(3–4). https://doi.org/10.1111/nicc.12611

Yiu, V., Belanger, F., & Todd, K. (2019). Alberta's strategic clinical networks: Enabling health system innovation and improvement. *Canadian Medical Association Journal (CMAJ), 191*(Suppl), S1–S3. https://doi.org/10.1503/cmaj.191232

Younas, A., Inayat, S., & Sundus, A. (2021). Joint displays for qualitative-quantitative synthesis in mixed methods reviews. *Research Methods in Medicine & Health Sciences*, *2*(3), 91–101. https://doi.org/10.1177/2632084320984374

Young, L. J., & Jacobsen, M. (2022). Sample design and estimation when using a web-scraped list frame and capture-recapture methods. *Journal of Agricultural, Biological, and Environmental Statistics*, *27*(2), 261–279. https://doi.org/10.1007/s13253-021-00476-w

Young, M., & Ryan, A. (2020). Post-positivism in health professions education scholarship. *Academic Medicine, 95*(5), 695–699. https://doi.org/10.1097/ACM.0000000000003089

Yuan, J., Xiang, S., Xia, J., Yu, L., & Liu, S. (2021). Evaluation of sampling methods for scatterplots. *IEEE Transactions on Visualization and Computer Graphics*, *27*(2), 1720–1730. https://doi.org/10.1109/TVCG.2020.3030432

Zadeh, S. E., Haussmann, R., & Barton, C. D. (2019). Health care risk managers' consensus on the management of inappropriate behaviors among hospital staff. *Journal of Healthcare Risk Management*, *38*(4), 32–42. https://doi.org/10.1002/jhrm.21349

Zagonari, F. (2019). Theology can function as science: A methodological framework for interdisciplinary research. *Quality & Quantity*, *53*(6), 3131. https://doi.org/10.1007/s11135-019-00930-5

Zajac, S., Woods, A., Tannenbaum, S., Salas, E., & Holladay, C. L. (2021). Overcoming challenges to teamwork in healthcare: A team effectiveness framework and evidence-based guidance. *Frontiers in Communication*, *6.* https://doi.org/10.3389/fcomm.2021.606445

Zhang, J., Raza, M., Khalid, R., Parveen, R., & Ramírez-Asís, E. H. (2021). Impact of team knowledge management, problem-solving competence, interpersonal conflicts,

organizational trust on project performance, a mediating role of psychological capital. *Annals of Operations Research*, 1–21. https://doi.org/10.1007/s10479-021-04334-3

Zhang, X., Zhu, X., Tu, J., & Yi, M. (2022). Measurements of intercultural teamwork competence and its impact on design students' competitive advantages. *Sustainability*, *14*(1), 175. https://doi.org/10.3390/su14010175

Zhu, J., Stadeli, K. M., Pandit, K., Zech, J., Ludwig, A., Harris, K., Naughton, H., Yi, J., Davidson, G. H., & Kritek, P. A. (2020). Standardizing nightly huddles with surgical residents and nurses to improve interdisciplinary communication and teamwork. *The American Journal of Surgery*, *219*(5), 769–775. https://doi.org/10.1016/j.amjsurg.2020.03.002

Zyphur, M. J., & Pierides, D. C. (2019). Statistics and probability have always been value-laden: A historical ontology of quantitative research methods. *Journal of Business Ethics*, *167*(1), 1–18. https://doi.org/10.1007/s10551-019-04187-8

Zyphur, M. J., & Pierides, D. C. (2020). Making quantitative research work: From positivist dogma to actual social scientific inquiry. *Journal of Business Ethics*, *167*(1), 49–62. https://doi.org/10.1007/s10551-019-04189-6

Appendix A: Instruments Utilized in this Study

The first instrument utilized in this study is the TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ). The T-TAQ measures the individual approaches to team-related issues. This questionnaire does not necessarily measure an individual's perception of the current state of teamwork within an organization. The T-TAQ's groundwork centers upon the following fundamental teamwork components comprising TeamSTEPPS: team structure, leadership, communication, mutual support, and situation monitoring.

Instructions: Please respond to the questions below by placing a check mark (√) in the box that corresponds to your level of agreement from *Strongly Disagree* to *Strongly Agree*. Please select only one response for each question.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Team Structure						
1.	It is important to ask patients and their families for feedback regarding patient care.					
2.	Patients are a critical component of the care team.					
3.	This facility's administration influences the success of direct care teams.					
4.	A team's mission is of greater value than the goals of individual team members.					
5.	Effective team members can anticipate the needs of other team members.					
6.	High performing teams in health care share common characteristics with high performing teams in other industries.					
Leadership						
7.	It is important for leaders to share information with team members.					
8.	Leaders should create informal opportunities for team members to share information.					
9.	Effective leaders view honest mistakes as meaningful learning opportunities.					
10.	It is a leader's responsibility to model appropriate team behavior.					
11.	It is important for leaders to take time to discuss with their team members plans for each patient.					
12.	Team leaders should ensure that team members help each other out when necessary.					

PLEASE CONTINUE TO THE NEXT PAGE

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Situation Monitoring						
13.	Individuals can be taught how to scan the environment for important situational cues.					
14.	Monitoring patients provides an important contribution to effective team performance.					
15.	Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.					
16.	It is important to monitor the emotional and physical status of other team members.					
17.	It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.					
18.	Team members who monitor their emotional and physical status on the job are more effective.					
Mutual Support						
19.	To be effective, team members should understand the work of their fellow team members.					
20.	Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.					
21.	Providing assistance to team members is a sign that an individual does not have enough work to do.					
22.	Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.					
23.	It is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.					
24.	Personal conflicts between team members do not affect patient safety.					

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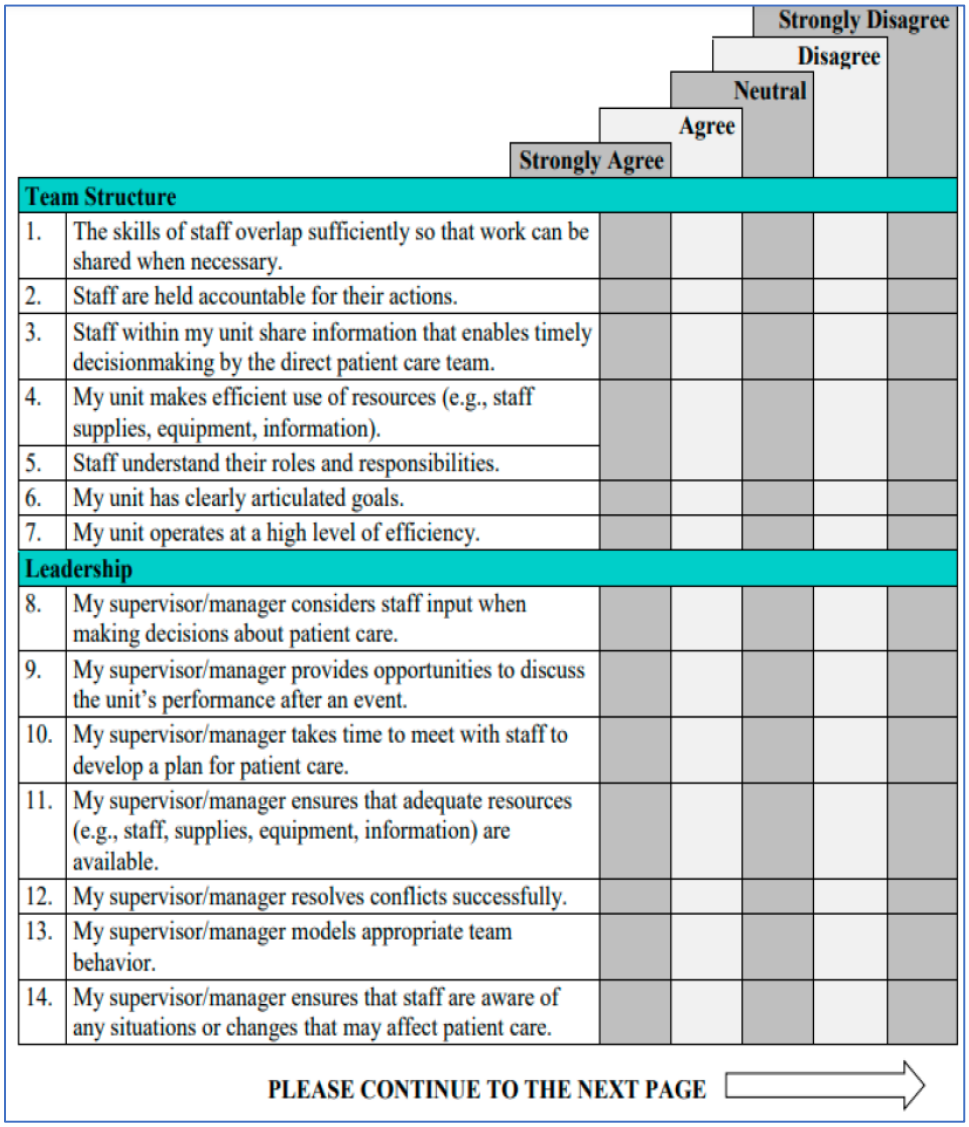
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Communication						
25.	Teams that do not communicate effectively significantly increase their risk of committing errors.					
26.	Poor communication is the most common cause of reported errors.					
27.	Adverse events may be reduced by maintaining an information exchange with patients and their families.					
28.	I prefer to work with team members who ask questions about information I provide.					
29.	It is important to have a standardized method for sharing information when handing off patients.					
30.	It is nearly impossible to train individuals how to be better communicators.					

Please provide any additional comments in the space below.

Thank you for your participation!

Measuring teamwork perceptions offers a broader depiction of an organization's team climate. The second instrument utilized in this study is the TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ). Like the T-TAQ, T-TPQ's groundwork centers upon the principal teamwork components encompassing TeamSTEPPS: team structure, leadership, communication, mutual support, and situation monitoring. Thus, quantifying an individual's perception of collective teamwork can measure this unique dimension.



		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Team Structure						
1.	The skills of staff overlap sufficiently so that work can be shared when necessary.					
2.	Staff are held accountable for their actions.					
3.	Staff within my unit share information that enables timely decisionmaking by the direct patient care team.					
4.	My unit makes efficient use of resources (e.g., staff supplies, equipment, information).					
5.	Staff understand their roles and responsibilities.					
6.	My unit has clearly articulated goals.					
7.	My unit operates at a high level of efficiency.					
Leadership						
8.	My supervisor/manager considers staff input when making decisions about patient care.					
9.	My supervisor/manager provides opportunities to discuss the unit's performance after an event.					
10.	My supervisor/manager takes time to meet with staff to develop a plan for patient care.					
11.	My supervisor/manager ensures that adequate resources (e.g., staff, supplies, equipment, information) are available.					
12.	My supervisor/manager resolves conflicts successfully.					
13.	My supervisor/manager models appropriate team behavior.					
14.	My supervisor/manager ensures that staff are aware of any situations or changes that may affect patient care.					

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		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Situation Monitoring						
15.	Staff effectively anticipate each other's needs.					
16.	Staff monitor each other's performance.					
17.	Staff exchange relevant information as it becomes available.					
18.	Staff continuously scan the environment for important information.					
19.	Staff share information regarding potential complications (e.g., patient changes, bed availability).					
20.	Staff meets to reevaluate patient care goals when aspects of the situation have changed.					
21.	Staff correct each other's mistakes to ensure that procedures are followed properly.					
Mutual Support						
22.	Staff assist fellow staff during high workload.					
23.	Staff request assistance from fellow staff when they feel overwhelmed.					
24.	Staff caution each other about potentially dangerous situations.					
25.	Feedback between staff is delivered in a way that promotes positive interactions and future change.					
26	Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.					
27.	When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard.					
28.	Staff resolve their conflicts, even when the conflicts have become personal.					

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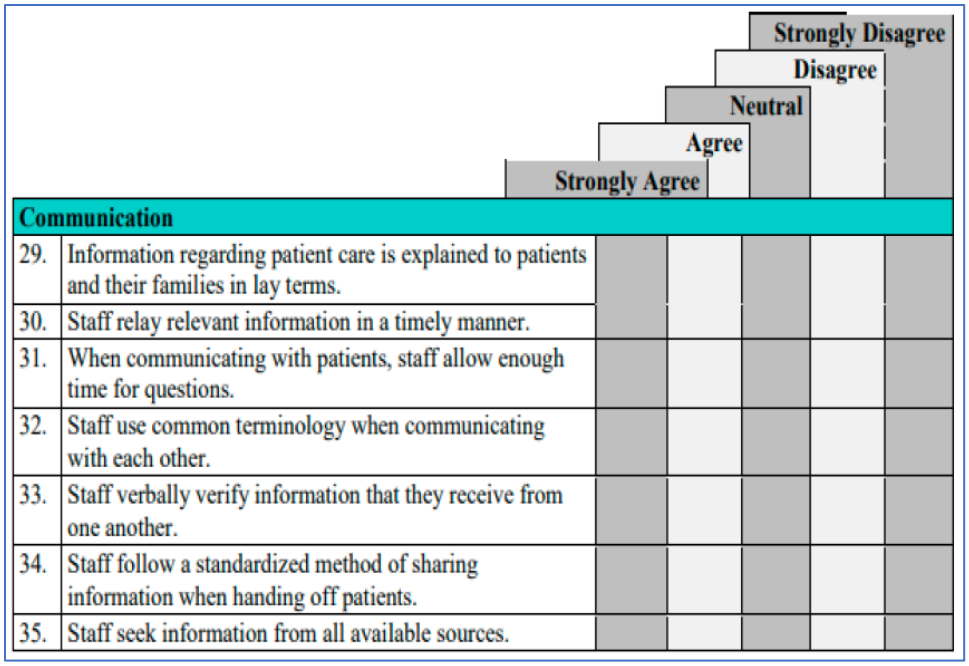

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Communication						
29.	Information regarding patient care is explained to patients and their families in lay terms.					
30.	Staff relay relevant information in a timely manner.					
31.	When communicating with patients, staff allow enough time for questions.					
32.	Staff use common terminology when communicating with each other.					
33.	Staff verbally verify information that they receive from one another.					
34.	Staff follow a standardized method of sharing information when handing off patients.					
35.	Staff seek information from all available sources.					

The third instrument used in this study is the Hospital Survey on Patient Safety Culture (HSOPS). It is a survey intended to evaluate staff perceptions of the safety culture within their organizational unit. The instrument covers four outcome variables, four hospital-level dimensions, and seven unit-level safety culture dimensions.

SECTION A: Your Unit/Work Area

How much do you agree or disagree with the following statements about your unit/work area?

Think about your unit/work area:	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does Not Apply or Don't Know
1. In this unit, we work together as an effective team	☐1	☐2	☐3	☐4	☐5	☐9
2. In this unit, we have enough staff to handle the workload	☐1	☐2	☐3	☐4	☐5	☐9
3. Staff in this unit work longer hours than is best for patient care	☐1	☐2	☐3	☐4	☐5	☐9
4. This unit regularly reviews work processes to determine if changes are needed to improve patient safety	☐1	☐2	☐3	☐4	☐5	☐9
5. This unit relies too much on temporary, float, or PRN staff	☐1	☐2	☐3	☐4	☐5	☐9
6. In this unit, staff feel like their mistakes are held against them	☐1	☐2	☐3	☐4	☐5	☐9
7. When an event is reported in this unit, it feels like the person is being written up, not the problem	☐1	☐2	☐3	☐4	☐5	☐9
8. During busy times, staff in this unit help each other	☐1	☐2	☐3	☐4	☐5	☐9
9. There is a problem with disrespectful behavior by those working in this unit	☐1	☐2	☐3	☐4	☐5	☐9
10. When staff make errors, this unit focuses on learning rather than blaming individuals	☐1	☐2	☐3	☐4	☐5	☐9
11. The work pace in this unit is so rushed that it negatively affects patient safety	☐1	☐2	☐3	☐4	☐5	☐9
12. In this unit, changes to improve patient safety are evaluated to see how well they worked	☐1	☐2	☐3	☐4	☐5	☐9
13. In this unit, there is a lack of support for staff involved in patient safety errors	☐1	☐2	☐3	☐4	☐5	☐9
14. This unit lets the same patient safety problems keep happening	☐1	☐2	☐3	☐4	☐5	☐9

SECTION B: Your Supervisor, Manager, or Clinical Leader

How much do you agree or disagree with the following statements about your immediate supervisor, manager, or clinical leader?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does Not Apply or Don't Know
1. My supervisor, manager, or clinical leader seriously considers staff suggestions for improving patient safety	☐1	☐2	☐3	☐4	☐5	☐9
2. My supervisor, manager, or clinical leader wants us to work faster during busy times, even if it means taking shortcuts	☐1	☐2	☐3	☐4	☐5	☐9
3. My supervisor, manager, or clinical leader takes action to address patient safety concerns that are brought to their attention	☐1	☐2	☐3	☐4	☐5	☐9

SECTION C: Communication

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

Think about your unit/work area:	Never	Rarely	Some-times	Most of the time	Always	Does Not Apply or Don't Know
1. We are informed about errors that happen in this unit	☐1	☐2	☐3	☐4	☐5	☐9
2. When errors happen in this unit, we discuss ways to prevent them from happening again	☐1	☐2	☐3	☐4	☐5	☐9
3. In this unit, we are informed about changes that are made based on event reports	☐1	☐2	☐3	☐4	☐5	☐9
4. In this unit, staff speak up if they see something that may negatively affect patient care	☐1	☐2	☐3	☐4	☐5	☐9
5. When staff in this unit see someone with more authority doing something unsafe for patients, they speak up	☐1	☐2	☐3	☐4	☐5	☐9
6. When staff in this unit speak up, those with more authority are open to their patient safety concerns	☐1	☐2	☐3	☐4	☐5	☐9
7. In this unit, staff are afraid to ask questions when something does not seem right	☐1	☐2	☐3	☐4	☐5	☐9

SECTION D: Reporting Patient Safety Events

Think about your unit/work area:	Never ▼	Rarely ▼	Some-times ▼	Most of the time ▼	Always ▼	Does Not Apply or Don't Know ▼
1. When a mistake is caught and corrected before reaching the patient, how often is this reported?	☐1	☐2	☐3	☐4	☐5	☐9
2. When a mistake reaches the patient and could have harmed the patient, but did not, how often is this reported?	☐1	☐2	☐3	☐4	☐5	☐9

3. In the past 12 months, how many patient safety events have you reported?

- ☐a. None
- ☐b. 1 to 2
- ☐c. 3 to 5
- ☐d. 6 to 10
- ☐e. 11 or more

SECTION E: Patient Safety Rating

1. How would you rate your unit/work area on patient safety?

Poor ▼	Fair ▼	Good ▼	Very Good ▼	Excellent ▼
☐1	☐2	☐3	☐4	☐5

SECTION F: Your Hospital

How much do you agree or disagree with the following statements about your hospital?

Think about your hospital:	Strongly Disagree ▼	Disagree ▼	Neither Agree nor Disagree ▼	Agree ▼	Strongly Agree ▼	Does Not Apply or Don't Know ▼
1. The actions of hospital management show that patient safety is a top priority	☐1	☐2	☐3	☐4	☐5	☐9
2. Hospital management provides adequate resources to improve patient safety	☐1	☐2	☐3	☐4	☐5	☐9
3. Hospital management seems interested in patient safety only after an adverse event happens	☐1	☐2	☐3	☐4	☐5	☐9
4. When transferring patients from one unit to another, important information is often left out	☐1	☐2	☐3	☐4	☐5	☐9
5. During shift changes, important patient care information is often left out	☐1	☐2	☐3	☐4	☐5	☐9
6. During shift changes, there is adequate time to exchange all key patient care information	☐1	☐2	☐3	☐4	☐5	☐9

Background Questions

1. **How long have you worked in this hospital?**

   ☐a. Less than 1 year
   ☐b. 1 to 5 years
   ☐c. 6 to 10 years
   ☐d. 11 or more years

2. **In this hospital, how long have you worked in your current unit/work area?**

   ☐a. Less than 1 year
   ☐b. 1 to 5 years
   ☐c. 6 to 10 years
   ☐d. 11 or more years

3. **Typically, how many hours per week do you work in this hospital?**

   ☐a. Less than 30 hours per week
   ☐b. 30 to 40 hours per week
   ☐c. More than 40 hours per week

4. **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

Your Comments

Please feel free to provide any comments about how things are done or could be done in your hospital that might affect patient safety.

Thank you for completing this survey.

Appendix B: Mean Performance Scores, Standard Deviations, and Interpretations

The following tables represent the general statistical computation for each questionnaire. The computations comprise the Mean Performance Score, the S), and its interpretation (favorable, neutral, or unfavorable).

Table B1: T-TAQ Team Structure

T-TAQ Team Structure Dimension: Mean, Standard Deviation, and Interpretation

Team Structure	Mean Performance Score	*SD*	Interpretation
1) It is important to ask patients and their families for feedback regarding patient care.	4.83	0.38	Favorable
2) Patients are a critical component of the care team.	4.88	0.33	Favorable
3) This facility's administration Influences the success of direct care teams.	4.65	0.64	Favorable
4) A team's mission is of greater value than the goals of individual team members.	4.58	0.78	Favorable
5) Effective team members can anticipate the needs of other team members.	4.59	0.79	Favorable
6) High performing teams in health care share common characteristics with high performing teams in other industries.	4.62	0.67	Favorable
Overall Mean	4.69	0.60	Favorable

Table B1 exhibited that Item 2, *Patients are a critical component of the care team,* has the highest mean score (4.88) with 0.33 *SD*, interpreted as favorable. Item 4, *A team's mission is of greater value than the goals of individual team members,* has the lowest mean score (4.58) with 0.78 *SD*, interpreted as favorable. Thus, the respondents' *T-TAQ Team Structure* attitude level has an overall mean score of 4.69 with 0.60 *SD*, interpreted as favorable.

Table B2: T-TAQ Leadership

T-TAQ Leadership Dimension: Mean, Standard Deviation, and Interpretation

Leadership	Mean Performance Score	*SD*	Interpretation
7) It is important for leaders to share information with team members.	4.88	0.33	Favorable
8) Leaders should create informal opportunities for team members to share information.	4.70	0.65	Favorable
9) Effective leaders view honest mistakes as meaningful learning opportunities.	4.77	0.52	Favorable
10) It is a leader's responsibility to model appropriate team behavior.	4.83	0.42	Favorable
11) It is important for leaders to take time to discuss with their team members plans for each patient.	4.83	0.42	Favorable
12) Team leaders should ensure that team members help each other out when necessary.	4.81	0.43	Favorable
Overall Mean	4.80	0.46	Favorable

Table B2 demonstrated that Item 7, *It is important for leaders to share information with team members,* has the highest mean score (4.88) with 0.33 *SD*, interpreted as favorable. In contrast, Item 8, *Leaders should create informal opportunities for team members to share information,* has the lowest mean score (4.70) with 0.65 *SD*, interpreted as favorable. Therefore, the respondents' *T-TAQ Leadership* attitude level has an overall mean score of 4.80 with 0.46 *SD*, interpreted as favorable.

Table B3: T-TAQ Situation Monitoring

T-TAQ Situation Monitoring Dimension: Mean, Standard Deviation, and Interpretation

Situation Monitoring	Mean Performance Score	*SD*	Interpretation
13) Individuals can be taught how to scan the environment for important situational cues.	4.59	0.70	Favorable
14) Monitoring patients provides an important contribution to effective team performance.	4.77	0.48	Favorable
15) Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status.	4.55	0.92	Favorable
16) It is important to monitor the emotional and physical status of other team members.	4.73	0.55	Favorable
17) It is appropriate for one team member to offer assistance to another who may be too tired or stressed to perform a task.	4.64	0.70	Favorable
18) Team members who monitor their emotional and physical status on the job are more effective.	4.62	0.70	Favorable
Overall Mean	4.65	0.67	Favorable

Table B3 showed that Item 14, *Monitoring patients provides an important contribution to effective team performance,* has the highest mean score (4.77) with 0.48 *SD*, interpreted as favorable. Item 15, *Even individuals who are not part of the direct care team should be encouraged to scan for and report changes in patient status,* has the lowest mean score (4.55) with 0.92 *SD*, interpreted as favorable. Hence, the respondents' *T-TAQ Situation Monitoring* attitude level has an overall mean score of 4.65 with 0.67 *SD*, interpreted as favorable.

Table B4: T-TAQ Mutual Support

T-TAQ Mutual Support Dimension: Mean, Standard Deviation, and Interpretation

Mutual Support	Mean Performance Score	*SD*	Interpretation
19) To be effective, team members should understand the work of their fellow team members.	4.66	0.54	Favorable
20) Asking for assistance from a team member is a sign that an individual does not know how to do his/her job effectively.	4.04	1.27	Favorable
21) Providing assistance to team members is a sign that an individual does not have enough work to do.	4.02	1.27	Favorable
22) Offering to help a fellow team member with his/her individual work tasks is an effective tool for improving team performance.	4.43	0.89	Favorable
23) It Is appropriate to continue to assert a patient safety concern until you are certain that it has been heard.	4.61	0.67	Favorable
24) Personal conflicts before team members do not affect patient safety.	3.59	1.69	Neutral
Overall Mean	4.23	1.06	Favorable

Table B4 illustrated that Item 19, *To be effective, team members should understand the work of their fellow team members,* has the highest mean score (4.66) with 0.54 *SD*, interpreted as favorable. Item 24, *Personal conflicts before team members do not affect patient safety,* has the lowest mean score (3.59) with 1.69 *SD*, interpreted as neutral. Consequently, respondents' *T-TAQ Mutual Support* attitude level has an overall mean score of 4.23 with 1.06 *SD*, interpreted as favorable.

Table B5: T-TAQ Communication

T-TAQ Communication Dimension: Mean, Standard Deviation, and Interpretation

Communication	Mean Performance Score	*SD*	Interpretation
25) Teams that do not communicate effectively significantly increase their risk of committing errors.	4.74	0.50	Favorable
26) Poor communication Is the most common cause of reported errors.	4.65	0.59	Favorable
27) Adverse events may be reduced by maintaining an information exchange with patients and their families.	4.53	0.79	Favorable
28) I prefer to work with team members who ask questions about information I provide.	4.45	0.80	Favorable
29) It is important to have a standardized method for sharing information when handing off patients.	4.69	0.55	Favorable
30) It is nearly impossible to train individuals how to be better communicators.	2.75	1.68	Unfavorable
Overall Mean	4.30	0.82	Favorable

Table B5 displayed that Item 25, *Teams that do not communicate effectively significantly increase their risk of committing errors,* has the highest mean score (4.74) with 0.50 *SD*, interpreted as favorable. Item 30, *It is nearly impossible to train individuals how to be better communicators,* has the lowest mean score (2.75) with 1.68 *SD*, interpreted as neutral. Accordingly, the respondents' *T-TAQ Communication* attitude level has an overall mean score of 4.30 with 0.82 *SD*, interpreted as favorable.

Table B6: T-TPQ Team Function

T-TPQ Team Function Dimension: Mean, Standard Deviation, and Interpretation

Team Function	Mean Performance Score	*SD*	Interpretation
1) The skills of staff overlap sufficiently so that work can be shared when necessary.	2.44	1.25	Unfavorable
2) Staff are held accountable for their actions.	2.12	1.14	Unfavorable
3) Staff within my unit share information that enables timely decision making by the direct patient care team.	2.16	1.15	Unfavorable
4) My unit makes efficient use of resources (e.g., staff supplies, equipment, information).	2.21	1.21	Unfavorable
5) Staff understand their roles and responsibilities.	2.08	1.10	Unfavorable
6) My unit has clearly articulated goals.	2.13	1.14	Unfavorable
7) My unit operates at a high level of efficiency.	2.25	1.19	Unfavorable
Overall Mean	2.20	1.17	Unfavorable

Table B6 confirmed that Item 1, *The skills of staff overlap sufficiently so that work can be shared when necessary,* has the highest mean score (2.44) with 1.25 *SD*, interpreted as unfavorable. Item 5, *Staff understand their roles and responsibilities,* has the lowest mean score (2.08) with 1.10 *SD*, interpreted as unfavorable. Thus, the respondents' *T-TPQ Team Function* perception level has an overall mean score of 2.20 with 1.17 *SD*, interpreted as unfavorable.

Table B7: T-TPQ Leadership

T-TPQ Leadership Dimension: Mean, Standard Deviation, and Interpretation

Leadership	Mean Performance Score	*SD*	Interpretation
8) My supervisor/manager considers staff input when making decisions about patient care.	2.15	1.10	Unfavorable
9) My supervisor/manager provides opportunities to discuss the unit's performance after an event.	2.01	1.01	Unfavorable
10) My supervisor/manager takes time to meet with staff to develop a plan for patient care.	2.08	1.07	Unfavorable
11) My supervisor/manager ensures that adequate resources (e.g., staff, supplies, equipment. information) are available.	2.13	1.05	Unfavorable
12) My supervisor/manager resolves conflict successfully.	2.07	1.00	Unfavorable
13) My superior/manager models appropriate team behavior.	2.11	1.11	Unfavorable
14) My superior/manager ensures that staff are aware of any situations or changes that may affect patient care	1.98	0.98	Unfavorable
Overall Mean	2.08	1.05	Unfavorable

Table B7 revealed that Item 8, *My supervisor/manager considers staff input when making decisions about patient care,* has the highest mean score (2.15) with 1.10 *SD*, interpreted as unfavorable. Item 11, *My superior/manager ensures that staff are aware of any situations or changes that may affect patient care,* has the lowest mean score (1.98) with 0.98 *SD*, interpreted as unfavorable. Hence, the respondents' *T-TPQ Leadership* perception level has an overall mean score of 2.08 with 1.05 *SD*, interpreted as unfavorable.

Table B8: T-TPQ Situation Monitoring

T-TPQ Situation Monitoring Dimension: Mean, Standard Deviation, and Interpretation

Situation Monitoring	Mean Performance Score	*SD*	Interpretation
15) Staff effectively anticipate each other's needs.	2.30	1.09	Unfavorable
16) Staff monitor each other's performance.	2.32	1.03	Unfavorable
17) Staff exchange relevant information as it becomes available.	2.15	1.03	Unfavorable
18) Staff continuously scan the environment for important information.	2.20	1.08	Unfavorable
19) Staff share information regarding potential complications (e.g., patient changes, bed availability).	2.15	1.03	Unfavorable
20) Staff meets to reevaluate patient care goals when aspects of the situation have changed. Staff correct each other's mistakes to ensure that procedures are followed properly.	2.16	1.03	Unfavorable
21) Staff effectively anticipate each other's needs.	2.20	0.97	Unfavorable
Overall Mean	2.21	1.04	Unfavorable

Table B8 exhibited that Item 16, *Staff monitor each other's performance,* has the highest mean score (2.32) with 1.03 *SD*, interpreted as unfavorable. Item 17, *Staff exchange relevant information as it becomes available,* and Item 19, *Staff share information regarding potential complications (e.g., patient changes, bed availability),* has the lowest mean score (2.15) with 1.03 *SD*, interpreted as unfavorable. Consequently, the respondents' *T-TPQ Situation Monitoring* perception level has an overall mean score of 2.21 with 1.04 *SD*, interpreted as unfavorable.

Table B9: T-TPQ Mutual Support

T-TPQ Mutual Support Dimension: Mean, Standard Deviation, and Interpretation

Mutual Support	Mean Performance Score	*SD*	Interpretation
22) Staff assist fellow staff during high workload.	2.36	1.06	Unfavorable
23) Staff request assistance from fellow staff when they feel overwhelmed.	2.33	1.00	Unfavorable
24) Staff caution each other about potentially dangerous situations.	2.16	1.01	Unfavorable
25) Feedback between staff is delivered in a way that promotes positive interactions and future change.	2.08	0.96	Unfavorable
26) Staff advocate for patients even when their opinion conflicts with that of a senior member of the unit.	2.22	1.03	Unfavorable
27) When staff have a concern about patient safety, they challenge others until they are sure the concern has been heard.	2.20	1.00	Unfavorable
28) Staff resolve their conflicts, even when the conflicts have become personal.	2.10	0.99	Unfavorable
Overall Mean	2.21	1.01	Unfavorable

Table B9 demonstrated that Item 22, *Staff assist fellow staff during high workload,* has the highest mean score (2.36) with 1.06 (*SD*), interpreted as unfavorable. Item 25, *Feedback between staff is delivered in a way that promotes positive interactions and future change,* has the lowest mean score (2.08) with 0.96 *SD*, interpreted as unfavorable. Accordingly, the respondents' *T-TPQ Mutual Support* perception level has an overall mean score of 2.21 with 1.01 *SD*, interpreted as unfavorable.

Table B10: T-TPQ Communication

T-TPQ Communication Dimension: Mean, Standard Deviation, and Interpretation

Communication	Mean Performance Score	*SD*	Interpretation
29) Information regarding patient care is explained to patients and their families in lay terms.	1.96	0.94	Unfavorable
30) Staff relay relevant information in a timely manner.	2.00	0.93	Unfavorable
31) When communicating with patients, staff allow enough time for questions.	2.04	0.94	Unfavorable
32) Staff use common terminology when communicating with each other.	2.04	0.97	Unfavorable
33) Staff verbally verify information that they receive from one another.	1.97	0.90	Unfavorable
34) Staff follow a standardized method of sharing information when handing off patients.	1.95	0.91	Unfavorable
35) Staff seek information from all available sources.	2.05	1.02	Unfavorable
Overall Mean	2.00	0.94	Unfavorable

Table B10 showed that Item 35, *Staff seek information from all available sources,* has the highest mean score (2.05) with 1.02 *SD*, interpreted as unfavorable. Item 34, S*taff follow a standardized method of sharing information when handing off patients,* has the lowest mean score (1.95) with 0.91 *SD*, interpreted as unfavorable. Thus, the respondents' *T-TPQ Communication* perception level has an overall mean score of 2.00 with 0.94 *SD*, interpreted as unfavorable.

Table B11: HSOPS Section A (Your Unit/Work Area)

HSOPS Section A (Your Unit/Work Area): Mean, Standard Deviation, and Interpretation

Section A (Your Unit/Work Area)	Mean Performance Score	*SD*	Interpretation
1) In this unit, we work together as an effective team.	3.85	1.08	Neutral
2) In this unit, we have enough staff to handle the workload.	3.01	1.05	Neutral
3) Staff in this unit work longer hours than is best for patient care.	3.39	0.98	Neutral
4) This unit regularly reviews work processes to determine if changes are needed to improve patient safety.	3.69	1.08	Neutral
5) This unit relies too much on temporary, float, or PRN staff.	3.74	0.83	Neutral
6) In this unit, staff feel like their mistakes are held against them.	3.50	0.99	Neutral
7) When an event is reported in this unit, it feels like the person is being written up, not the problem.	3.42	1.02	Neutral
8) During busy times, staff in this unit help each other.	3.70	0.96	Neutral
9) There is a problem with disrespectful behavior by those working in this unit.	3.62	1.03	Neutral
10) When staff make errors, this unit focuses on learning rather than blaming individuals.	3.71	1.00	Neutral
11) The work pace in this unit is so rushed that it negatively affects patient safety.	3.57	0.94	Neutral
12) In this unit, changes to improve patient safety are evaluated to see how well they worked.	3.73	0.93	Neutral
13) In this unit, there is a lack of support for staff involved in patient safety errors.	3.54	0.99	Neutral
14) This unit lets the same patient safety problems keep happening.	3.86	0.99	Neutral
Overall Mean	3.60	0.99	Neutral

Table B11 illustrated that Item 14, *This unit lets the same patient safety problems keep happening,* has the highest mean score (3.86) with 0.99 *SD*, interpreted as neutral. Item 2, *In this unit, we have enough staff to handle the workload,* has the lowest mean score (3.01) with 1.05 *SD*, interpreted as neutral. Therefore, the respondents' *HSOPS Section A (Your Unit/Work Area)* performance level has an overall mean score of 3.60 with 0.99 *SD*, interpreted as neutral.

Table B12: HSOPS Section B (Your Supervisor, Manager, or Clinical Leader)

HSOPS Section B (Your Supervisor, Manager, or Clinical Leader): Mean, Standard Deviation, and Interpretation

Section B: Your Supervisor, Manager, or Clinical Leader	Mean Performance Score	*SD*	Interpretation
1) My supervisor, manager, or clinical leader seriously considers staff suggestions for improving patient safety.	3.76	1.05	Neutral
2) My supervisor, manager, or clinical leader wants us to work faster during busy times, even if it means taking shortcuts.	3.57	1.15	Neutral
3) My supervisor, manager, or clinical leader takes action to address patient safety concerns that are brought to their attention	4.01	0.88	Favorable
Overall Mean	3.78	1.03	Neutral

Table B12 displayed that Item 3, *My supervisor, manager, or clinical leader takes action to address patient safety concerns that are brought to their attention,* has the highest mean score (4.01) with 0.88 *SD*, interpreted as favorable. Item 2, *My supervisor, manager, or clinical leader wants us to work faster during busy times, even if it means taking shortcuts,* has the lowest mean score of 3.57 with 1.15 *SD*, interpreted as neutral. Hence, the respondents' *HSOPS Section B (Your Supervisor, Manager, or Clinical Leader)* performance level has an overall mean score of 3.78 with 1.03 *SD*, interpreted as neutral.

Table B13: HSOPS Section C (Communication)

HSOPS Section C (Communication): Mean, Standard Deviation, and Interpretation

Section C: Communication	Mean Performance Score	*SD*	Interpretation
1) We are informed about errors that happen in this unit.	3.96	1.04	Neutral
2) When errors happen in this unit, we discuss ways to prevent them from happening again.	4.06	0.96	Favorable
3) In this unit, we are informed about changes that are made based on event reports.	4.04	0.95	Favorable
4) In this unit, staff speak up if they see something that may negatively affect patient care.	4.08	1.01	Favorable
5) When staff in this unit see someone with more authority doing something unsafe for patients, they speak up.	3.81	1.01	Neutral
6) When staff in this unit speak up, those with more authority are open to their patient safety concerns.	3.84	0.99	Neutral
7) In this unit, staff are afraid to ask questions when something does not seem right.	3.46	0.99	Neutral
Overall Mean	3.89	0.99	Neutral

Table B13 confirmed that Item 4, *In this unit, staff speak up if they see something that may negatively affect patient care,* has the highest mean score (4.08) with 1.01 *SD*, interpreted as favorable. Item 7, *In this unit, staff are afraid to ask questions when something does not seem right,* has the lowest mean score of 3.46 with 0.99 *SD*, interpreted as neutral. Consequently, the respondents' *HSOPS Section C (Communication)* performance level has an overall mean score of 3.89 with 0.99 *SD*, interpreted as neutral.

Table B14: HSOPS Section D (Your Supervisor, Manager, or Clinical Leader)

HSOPS Section D (Reporting Patient Safety Events): Mean, Standard Deviation, and Interpretation

Section D: Reporting Patient Safety Events	Mean Performance Score	*SD*	Interpretation
1) When a mistake is caught and corrected before reaching the patient, how often is this reported?	4.18	0.77	Favorable
2) When a mistake reaches the patient and could have harmed the patient, but did not, how often is this reported?	4.31	0.73	Favorable
3) In the past 12 months, how many patient safety events have you reported?	1.68	0.75	Unfavorable
Overall Mean	3.39	0.75	Neutral

Table B14 revealed that Item 2, *When a mistake reaches the patient and could have harmed the patient, but did not, how often is this reported?,* has the highest mean score (4.31) with 0.73 *SD*, interpreted as favorable. Item 3, *In the past 12 months, how many patient safety events have you reported?,* has the lowest mean score (1.68) with 0.75 SD, interpreted as unfavorable. Accordingly, the respondents' *HSOPS Section D (Reporting Patient Safety Events)* performance level has an overall mean score of 3.39 with 0.75 *SD*, interpreted as neutral.

Table B15: HSOPS Section E (Patient Safety Rating)

HSOPS Section E (Patient Safety Rating): Mean, Standard Deviation, and Interpretation

Section E: Patient Safety Rating	Mean Performance Score	*SD*	Interpretation
1) How would you rate your unit/work area on patient safety?	3.47	1.07	Neutral
Overall Mean	3.47	1.07	Neutral

Table B15 exhibited that the respondents' *HSOPS Section E (Patient Safety Rating)* performance level has an overall mean score of 3.47 with 1.07 *SD*, interpreted as neutral.

Table B16: HSOPS Section F (Your Hospital)

HSOPS Section F (Your Hospital): Mean, Standard Deviation, and Interpretation

Section F: Your Hospital	Mean Performance Score	*SD*	Interpretation
1) The actions of hospital management show that patient safety is a top priority.	3.93	1.05	Neutral
2) Hospital management provides adequate resources to improve patient safety.	3.92	1.01	Neutral
3) Hospital management seems interested in patient safety only after an adverse event happens.	3.09	1.26	Neutral
4) When transferring patients from one unit to another, important information is often left out.	3.77	0.95	Neutral
5) During shift changes, important patient care information is often left out.	3.84	0.91	Neutral
6) During shift changes, there is adequate time to exchange all key patient care information.	3.86	1.01	Neutral
Overall Mean	3.74	1.03	Neutral

Table B16 demonstrated that Item 1, *The actions of hospital management show that patient safety is a top priority,* has the highest mean score (3.93) with 1.05 *SD*, interpreted as neutral. Item 3, *Hospital management seems interested in patient safety only after an adverse event happens,* has the lowest mean score (3.09) with 1.26 *SD*, interpreted as neutral. Thus, the respondents' *HSOPS Section F (Your Hospital)* performance level has an overall mean score of 3.74 with 1.03 *SD*, interpreted as neutral.

Appendix C: Relationship between Variables

This appendix encompasses the response to this study's research questions (RQs). The following tables represent the statistical computation and the corresponding scatterplot graph for each RQ. The tables comprise the r, p-value, interpretation, decision, and remarks.

Table C1

RQ 1: The Relationship Between T-TAQ Team Structure and Improved Patient Safety Culture

Team Structure	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section A: Your Unit/Work Area	0.039	$p = .689$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section B: Your Supervisor, Manager, or Clinical Leader	0.090	$p = .348$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section C: Communication	0.124	$p = .197$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section D: Reporting Patient Safety Events	0.156	$p = .105$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section E: Patient Safety Rating	0.003	$p = .972$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section F: Your Hospital	0.066	$p = .491$	No Relationship	Do Not Reject Ho	Not Significant

Note. Reject Ho if $p < 0.05$

Figure C1

RQ 1: Scatterplot Graph for Table C1

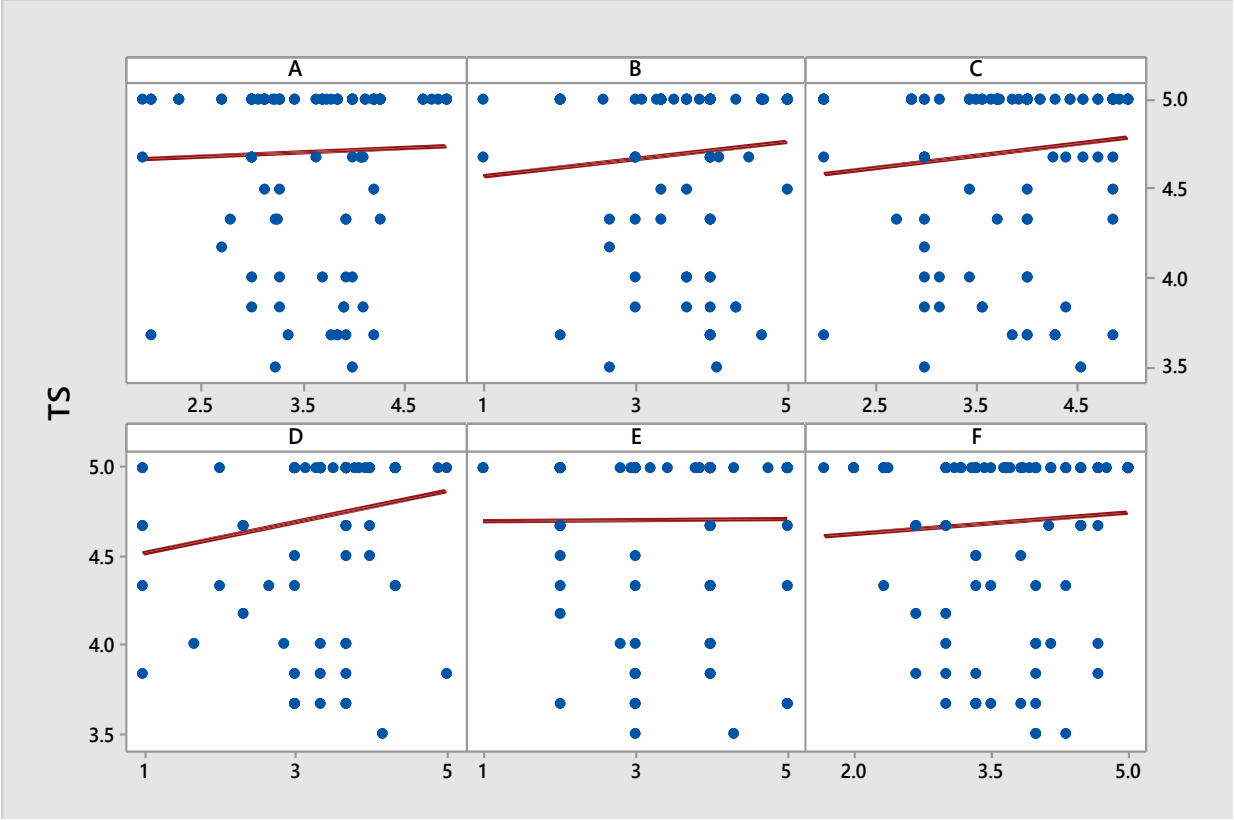

Table C1 shows that HSOPS Section A: Your unit/work area ($r = 0.039$, $p = .689$), HSOPS Section B: Your supervisor, manager, or clinical leader ($r = 0.090$, $p = .348$), HSOPS Section C: Communication ($r = 0.124$, $p = .197$), HSOPS Section D: Reporting patient safety events ($r = 0.156$, $p = .105$), HSOPS Section E: Patient safety rating ($r = 0.003$, $p = .972$), and HSOPS Section F: Your hospital ($r = 0.066$, $p = .491$) has no significant relationship to TeamSTEPPS attitude in terms of Team Structure at 0.05 level of significance. Refer to Figure C1 scatterplot above.

Table C2

RQ 1: The Relationship Between T-TAQ Leadership and Improved Patient Safety Culture

Leadership	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section A: Your Unit/Work Area	-0.028	$p = .772$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section B: Your Supervisor, Manager, or Clinical Leader	0.016	$p = .869$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section C: Communication	0.060	$p = .534$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section D: Reporting Patient Safety Events	0.248	$p = .009$	Weak	Reject Ho	Significant
HSOPS Section E: Patient Safety Rating	-0.007	$p = .940$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section F: Your Hospital	0.039	$p = .687$	No Relationship	Do Not Reject Ho	Not Significant

Note. Reject Ho if $p < 0.05$

Figure C2

RQ 1: Scatterplot Graph for Table C2

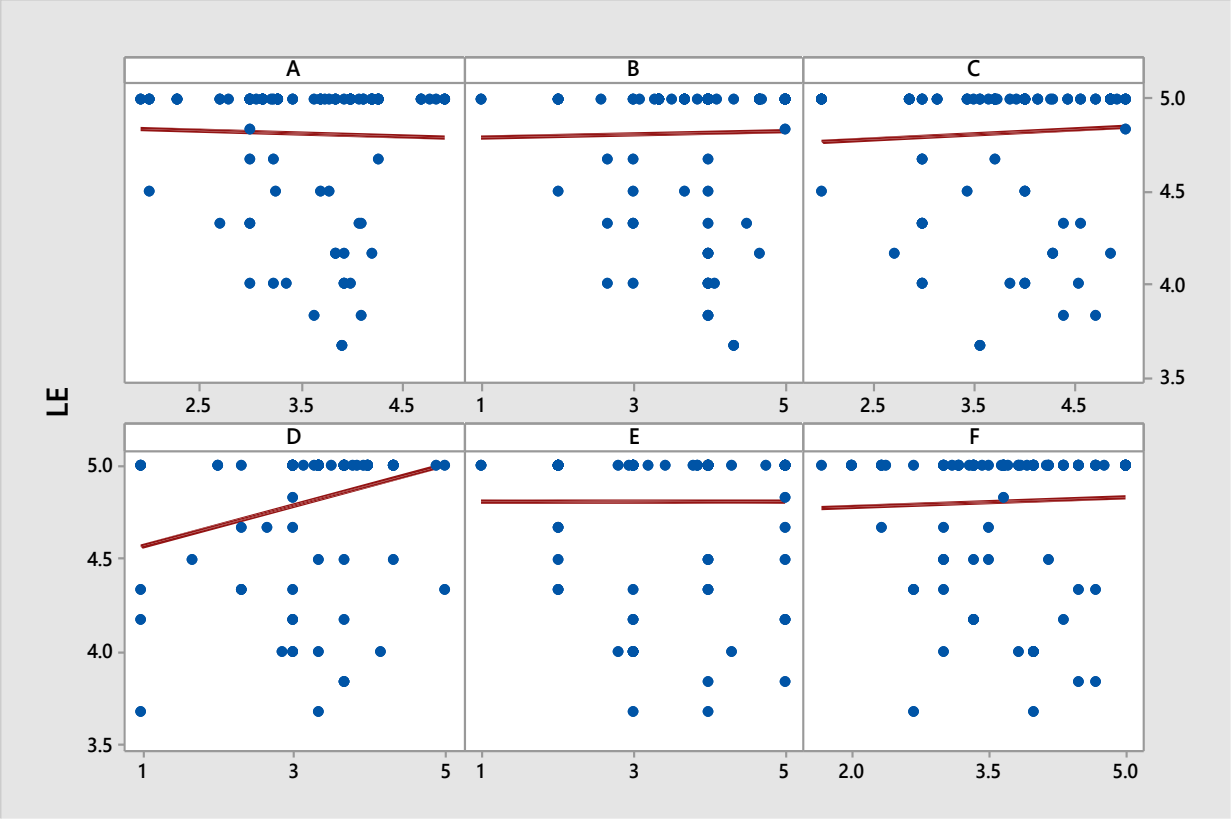

Table C2 shows that HSOPS Section D: Reporting patient safety events ($r = 0.248$, $p = .009$) has a significant relationship to TeamSTEPPS attitude in terms of leadership at 0.05 level of significance. Thus, as HSOPS Section D: Reporting patient safety events increases, the TeamSTEPPS attitude in terms of leadership also increases.

HSOPS Section A: Your unit/work area ($r = -0.028$, $p = .772$), HSOPS Section B: Your supervisor, manager, or clinical leader ($r = 0.016$, $p = .869$), HSOPS Section C: Communication ($r = 0.060$, $p = 0.534$), HSOPS Section E: Patient safety rating ($r = -0.007$, $p = .940$), and HSOPS Section F: Your hospital ($r = 0.039$, $p = .687$) has no significant relationship to TeamSTEPPS attitude in terms of Leadership at 0.05 level of significance. Refer to Figure C2 scatterplot above.

Table C3

RQ 1: The Relationship Between T-TAQ Situation Monitoring and Improved Patient Safety Culture

Situation Monitoring	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section A: Your Unit/Work Area	0.058	$p = .546$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section B: Your Supervisor, Manager, or Clinical Leader	0.070	$p = .467$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section C: Communication	0.156	$p = .104$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section D: Reporting Patient Safety Events	0.172	$p = .073$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section E: Patient Safety Rating	0.021	$p = .830$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section F: Your Hospital	0.068	$p = .476$	No Relationship	Do Not Reject Ho	Not Significant

Note. Reject Ho if $p < 0.05$

Figure C3

RQ 1: Scatterplot Graph for Table C3

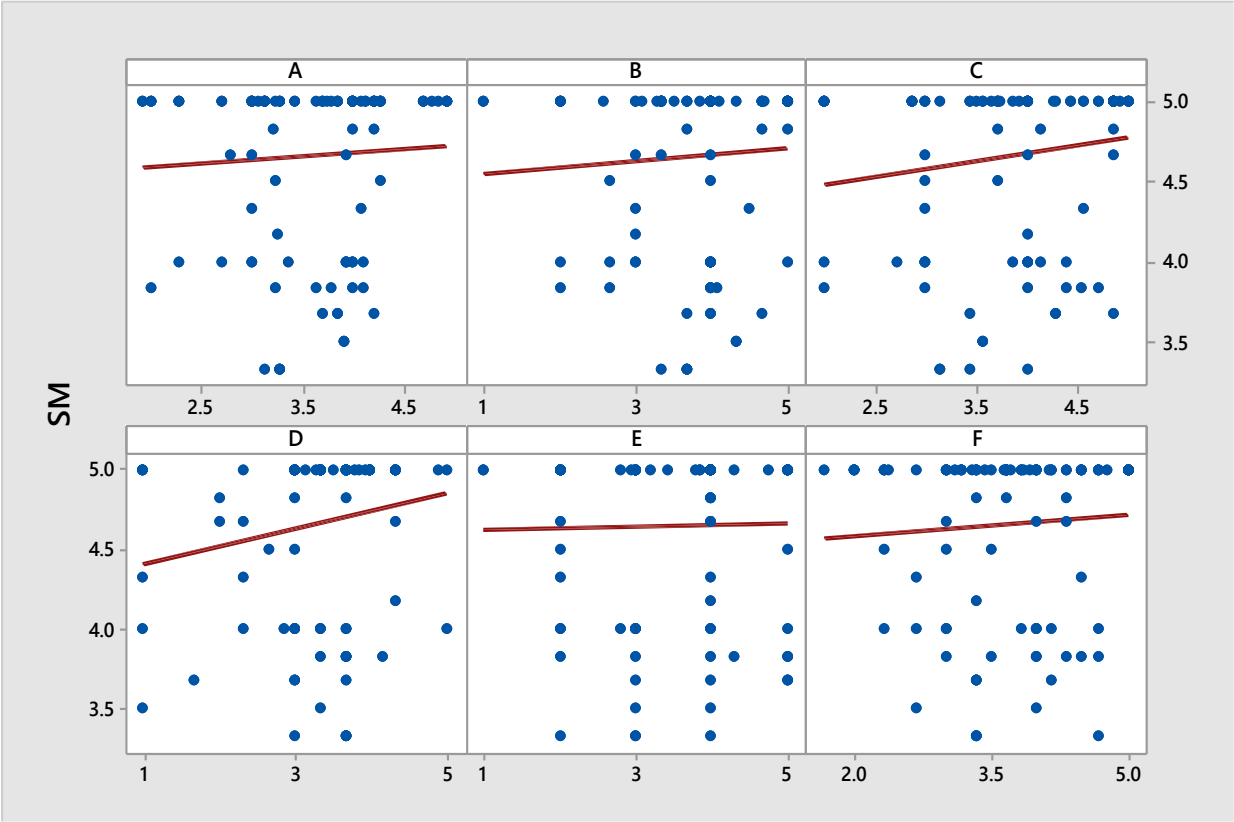

Table C3 shows that HSOPS Section A: Your unit/work area (= 0.058, p = .546), HSOPS Section B: Your supervisor, manager, or clinical leader (r = 0.070, p = .467), HSOPS Section C: Communication (r = 0.156, p = 0.104), HSOPS Section D: Reporting patient safety events (r = 0.172, p = 0.073), HSOPS Section E: Patient safety rating (r = 0.021, p = .830), and HSOPS Section F: Your hospital (r = 0.068, p = .476) has no significant relationship to TeamSTEPPS attitude in terms of Situation Monitoring at 0.05 level of significance. Refer to Figure C3 scatterplot above.

Table C4

RQ 1: The Relationship Between T-TAQ Mutual Support and Improved Patient Safety Culture

Mutual Support	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section A: Your Unit/Work Area	0.040	$p = .678$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section B: Your Supervisor, Manager, or Clinical Leader	0.022	$p = .818$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section C: Communication	0.043	$p = .654$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section D: Reporting Patient Safety Events	0.156	$p = .105$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section E: Patient Safety Rating	-0.038	$p = .694$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section F: Your Hospital	0.033	$p = .733$	No Relationship	Do Not Reject Ho	Not Significant

Note. Reject Ho if $p < 0.05$

Figure C4

RQ 1: Scatterplot Graph for Table C4

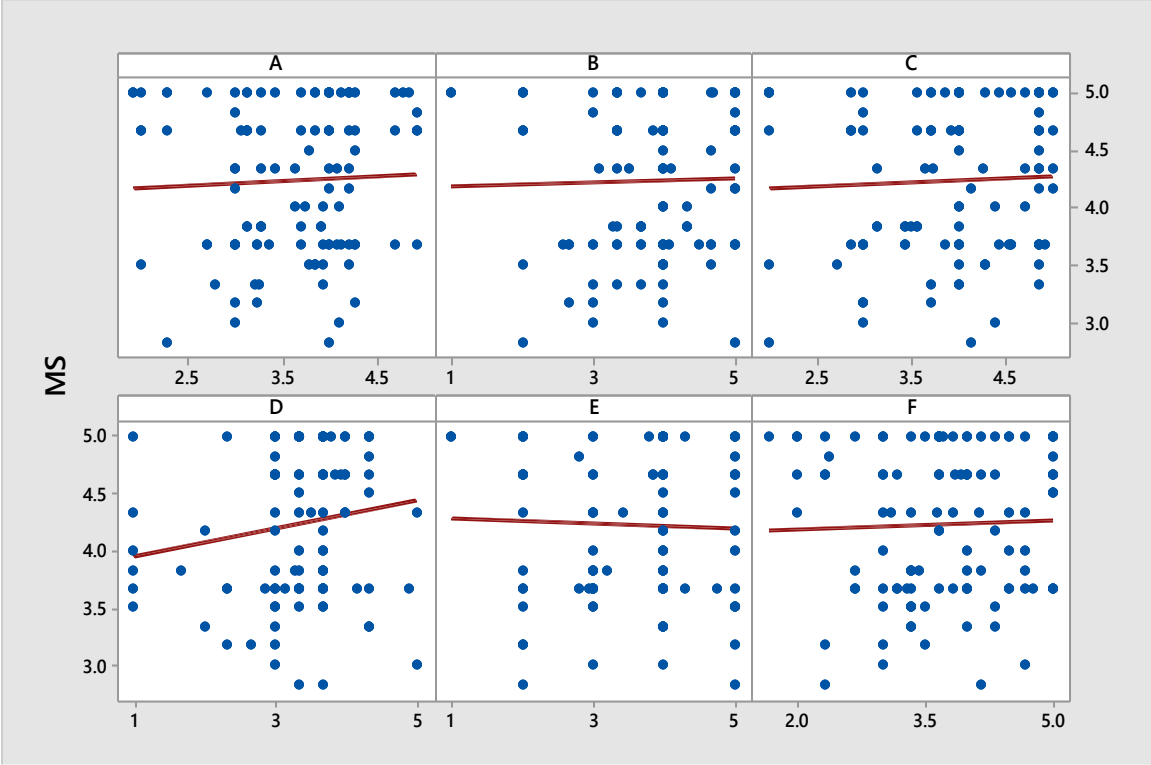

Table C4 shows that HSOPS Section A: Your unit / work area ($r = 0.040$, $p = 0.678$), HSOPS Section B: Your supervisor, manager, or clinical leader ($r = 0.022$, $p = .818$), HSOPS Section C: Communication ($r = 0.043$, $p = .654$), HSOPS Section D: Reporting patient safety events ($r = 0.156$, $p = .105$), HSOPS Section E: Patient safety rating ($r = -0.038$, $p = .694$), and HSOPS Section F: Your hospital ($r = 0.033$, $p = .733$) has no significant relationship to TeamSTEPPS attitude in terms of Mutual Support at 0.05 level of significance. Refer to Figure C4 scatterplot above.

Table C5

RQ 1: The Relationship Between T-TAQ Communication and Improved Patient Safety Culture

Communication	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section A: Your Unit/Work Area	0.153	$p = .111$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section B: Your Supervisor, Manager, or Clinical Leader	0.180	$p = .059$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section C: Communication	0.229	$p = .056$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section D: Reporting Patient Safety Events	-0.025	$p = .793$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section E: Patient Safety Rating	0.128	$p = .186$	No Relationship	Do Not Reject Ho	Not Significant
HSOPS Section F: Your Hospital	0.074	$p = .437$	No Relationship	Do Not Reject Ho	Not Significant

Note. Reject Ho if $p < 0.05$

Figure C5

RQ 1: Scatterplot Graph for Table C5

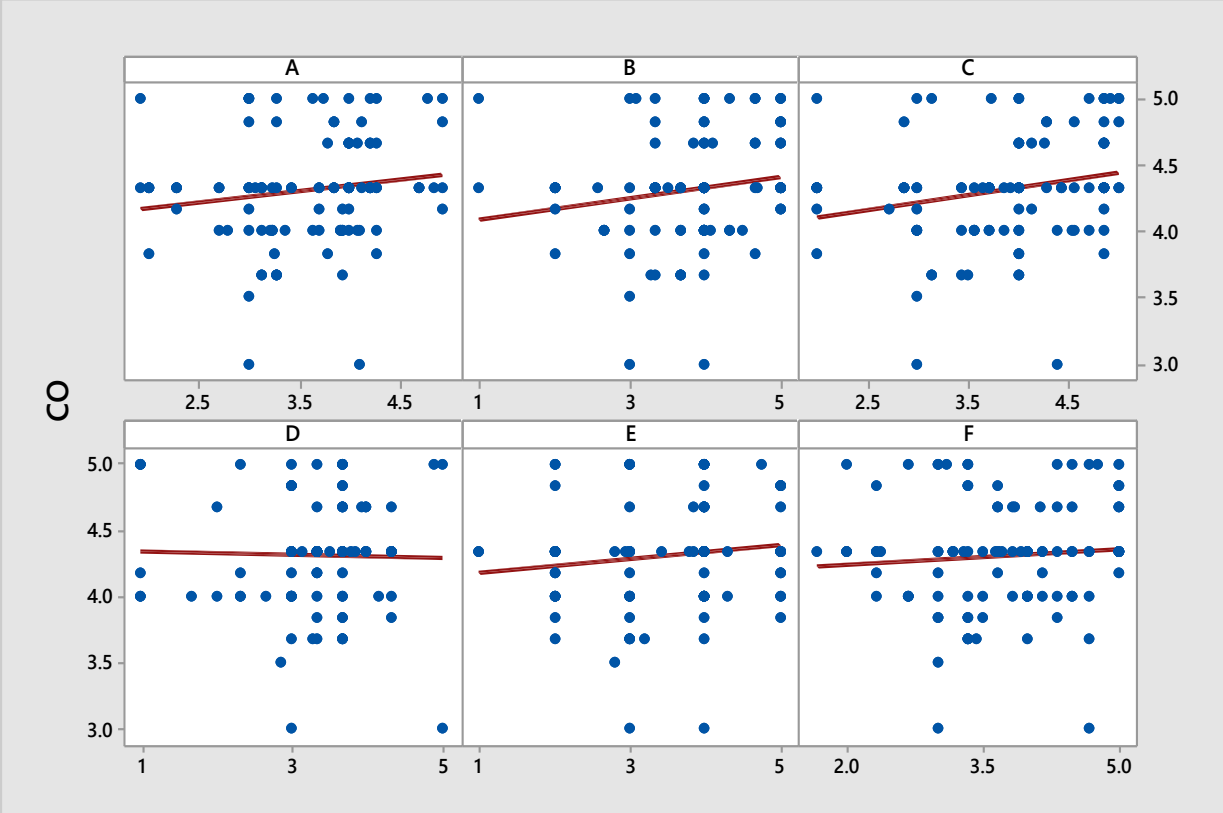

Table C5 shows that HSOPS Section A: Your unit/work area ($r = 0.153$, $p = .111$), HSOPS Section B: Your supervisor, manager, or clinical leader ($r = 0.180$, $p = .059$), HSOPS Section C: Communication ($r = 0.229$, $p = .016$), HSOPS Section D: Reporting patient safety events ($r = -0.025$, $p = 0.793$), HSOPS Section E: Patient safety rating ($r = 0.128$, $p = .186$), and HSOPS Section F: Your hospital ($r = 0.074$, $p = .437$) has no significant relationship to TeamSTEPPS attitude in terms of Communication at 0.05 level of significance. Refer to Figure C5 scatterplot above.

Table C6

RQ 2: The Relationship Between TeamSTEPPS Leadership Perception and the Hospital's TeamSTEPPS Program Sustenance

Leadership Perception	*r*	*p*-value	Interpretation	Decision	Remarks
HSOPS Section F: Your Hospital	-0.551	$p < .001$	Moderate	Reject Ho	Significant

Note. Reject Ho if $p < 0.05$

Table C6 shows that HSOPS Section F: Your hospital ($r = -0.551$, $p < .001$) has a significant relationship to improved team training sustenance at 0.05 level of significance. Thus, as TeamSTEPPS' perception of leadership decreases, TeamSTEPPS' need for sustenance increases. Refer to Figure C6 scatterplot below.

Figure C6

RQ 2: Scatterplot Graph for Table C6

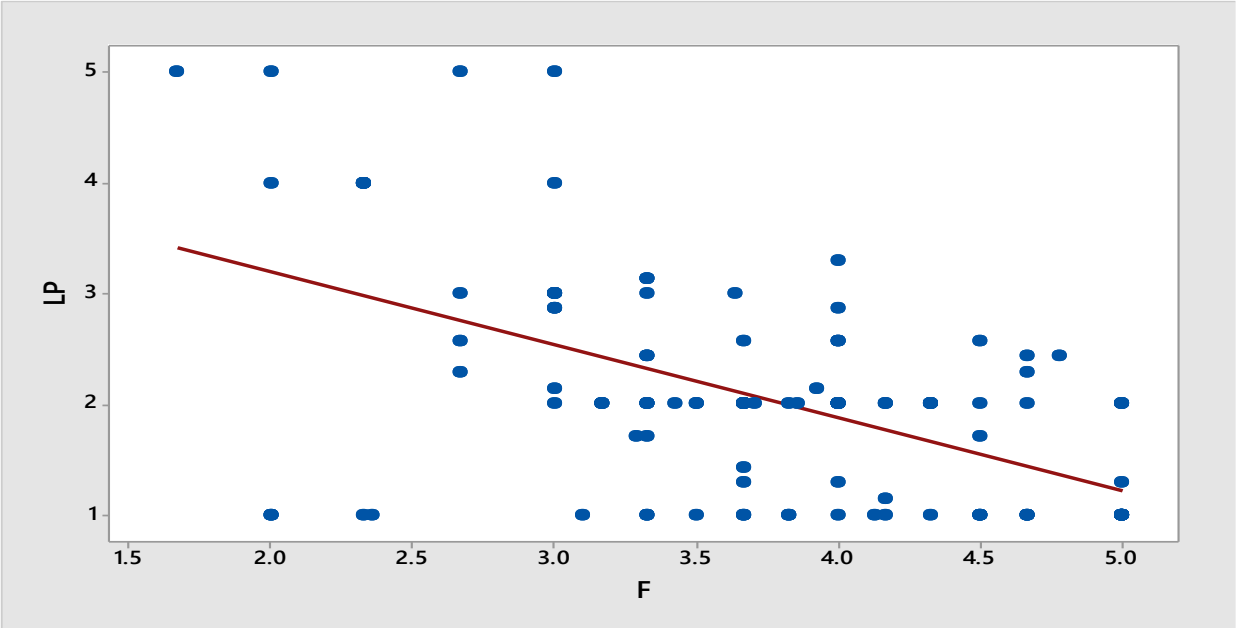

Table C7

RQ 2: The Relationship Between TeamSTEPPS Leadership Perception and the Hospital's TeamSTEPPS Program Sustenance

		HSOPS Section B: Your Supervisor, Manager, Clinical Leader	HSOPS Section F: Your Hospital
T-TAQ Leadership	Pearson *r*	0.016	0.039
	p-value	$p = .869$	$p = .687$
	Interpretation	No Relationship	No Relationship
	Remarks	Not Significant	Not Significant
T-TPQ Leadership	Pearson *r*	-0.701	-0.551
	p-value	$p < .001$	$p < .001$
	Interpretation	Moderate	Moderate
	Remarks	Significant	Significant

Note. Reject Ho if $p < 0.05$

Table C7 shows that T-TAQ Leadership has no significant relationship to HSOPS Section B: Your Supervisor, Manager, Clinical Leader ($r = 0.016$, $p = .869$) and HSOPS Section F: Your Hospital ($r = 0.039$, $p = .687$) at 0.05 level of significance. Moreover, T-TPQ Leadership has no significant relationship to HSOPS Section B: Supervisor, Manager, Clinical Leader ($r = -0.701$, $p < .001$) and HSOPS Section F: Your Hospital ($r = -0.551$, $p < .001$) at 0.05 level of significance. Thus, as leadership perception decreases, the need for team training sustenance increases. Refer to Figure C7 scatterplot below.

Figure C7

RQ 2: Scatterplot Graph for Table C7

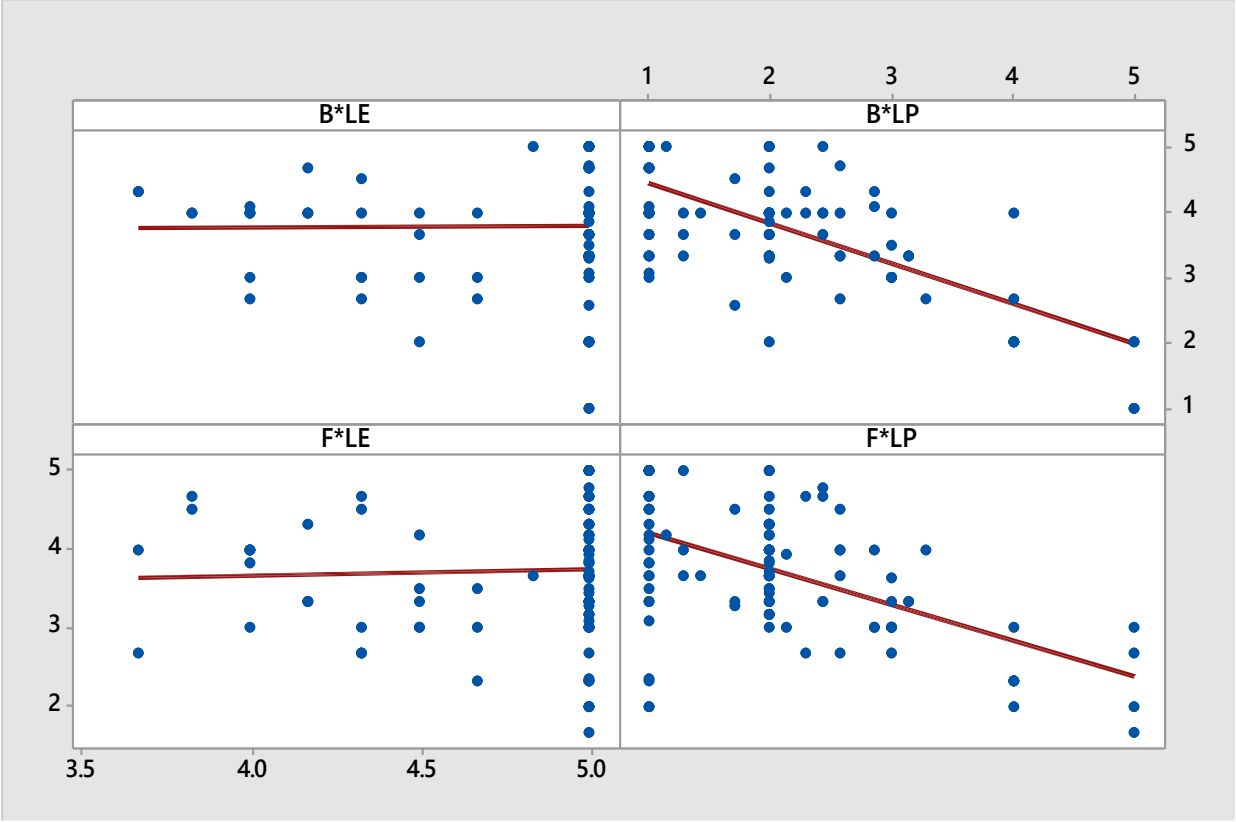

Table C8

RQ 3: The Relationship Between the Hospital's Performance Improvement Processes and Its Safety Culture Improvement

HSOPS Performance Improvement Processes	*r*	*p*-value	Interpretation	Decision	Remarks
T-TPQ Team Function	-0.563	$p < .001$	Moderate	Reject Ho	Significant
T-TPQ Leadership	-0.582	$p < .001$	Moderate	Reject Ho	Significant
T-TPQ Situation Monitoring	-0.605	$p < .001$	Moderate	Reject Ho	Significant
T-TPQ Mutual Support	-0.571	$p < .001$	Moderate	Reject Ho	Significant
T-TPQ Communication	-0.554	$p < .001$	Moderate	Reject Ho	Significant

Note. Reject Ho if $p < 0.05$

Table C8 shows that TeamSTEPPS attitude in terms of Team Function ($r = -0.563$, $p < .001$), Leadership ($r = -0.582$, $p < .001$), Situation Monitoring ($r = -0.605$, $p < .001$), Mutual Support ($r = -0.571$, $p < .001$), and Communication ($r = -0.554$, $p < .001$) has significant relationship to performance improvement processes at 0.05 level of significance. Thus, as TeamSTEPPS perception decreases, the need for performance improvement processes increases. Refer to Figure C7 scatterplot below:

Figure C8

RQ 3: Scatterplot Graph for Table C8

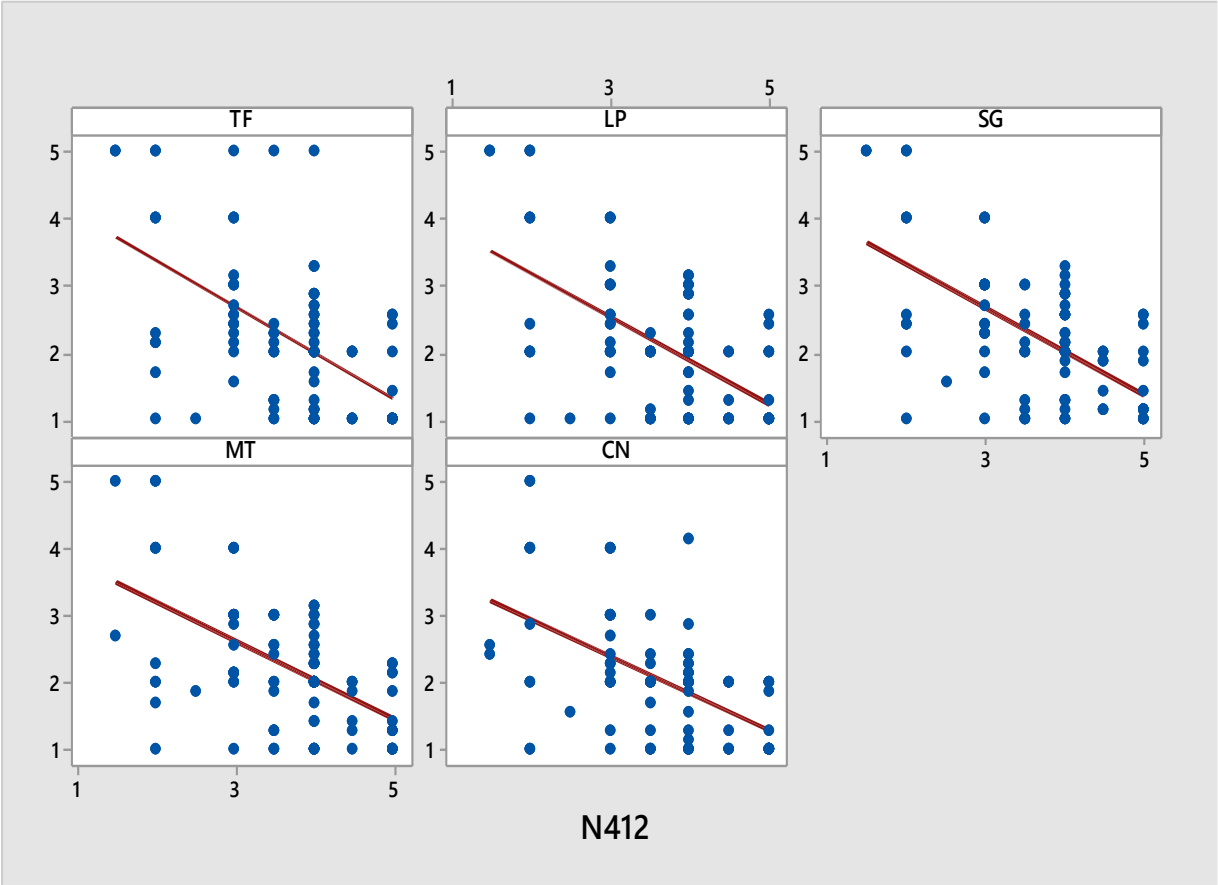

Table C9

RQ 3: The Relationship Between the Hospital's Performance Improvement Processes and Its Safety Culture Improvement

		HSOPS Section D: Reporting Patient Safety Events	HSOPS Section E: Patient Safety Rating	HSOPS Section F: Your Hospital
HSOPS Section A: Your Unit/Work Area	Pearson *r*	0.346	0.649	0.715
	p-value	$p < .001$	$p < .001$	$p < .001$
	Interpretation	Weak	Moderate	Moderate
	Remarks	Significant	Significant	Significant
T-TAQ Team Structure	Pearson *r*	0.156	0.003	0.066
	p-value	$p = .105$	$p = .972$	$p = .491$
	Interpretation	No Relationship	No Relationship	No Relationship
	Remarks	Not Significant	Not Significant	Not Significant
T-TPQ Team Function	Pearson *r*	-0.260	-0.461	-0.579
	p-value	$p = .006$	$p < .001$	$p < .001$
	Interpretation	Weak	Moderate	Moderate
	Remarks	Significant	Significant	Significant

Note. Reject Ho if $p < 0.05$

Table C9 shows that HSOPS Section A: Your Unit/Work Area has significant relationship to HSOPS Section D: Reporting Patient Safety Events ($r = 0.346$, $p < .001$), HSOPS Section E: Patient Safety Rating ($r = 0.649$, $p < .001$) and HSOPS Section F: Your Hospital ($r = 0.715$, $p < .001$) at 0.05 level of significance. Thus, as HSOPS Section A: Your Unit/Work Area increases, HSOPS Section D: Reporting Patient Safety Events, HSOPS Section E: Patient Safety Rating, and HSOPS Section F: Your Hospital also increase.

T-TAQ Team Structure has no significant relationship to HSOPS Section D: Reporting Patient Safety Events ($r = 0.156$, $p = 0.105$), HSOPS Section E: Patient Safety Rating ($r = 0.003$, $p = .972$), and HSOPS Section F: Your Hospital ($r = 0.066$, $p = .491$) at 0.05 level of significance.

Also, T-TAQ Team Function has a significant relationship to HSOPS Section D: Reporting Patient Safety Events (r = -0.260, p = .006), HSOPS Section E (r = -0.461, p < .001), and HSOPS Section F: Your Hospital (r = -0.579, p < .001) at 0.05 level of significance. Thus, as the T-TAQ Team Function increases, HSOPS Section D: Reporting Patient Safety Events, HSOPS Section E: Patient Safety Rating, and HSOPS Section F: Your Hospital decrease. Refer to Figure C9 below.

Figure C9

RQ 3: Scatterplot Graph for Table C9

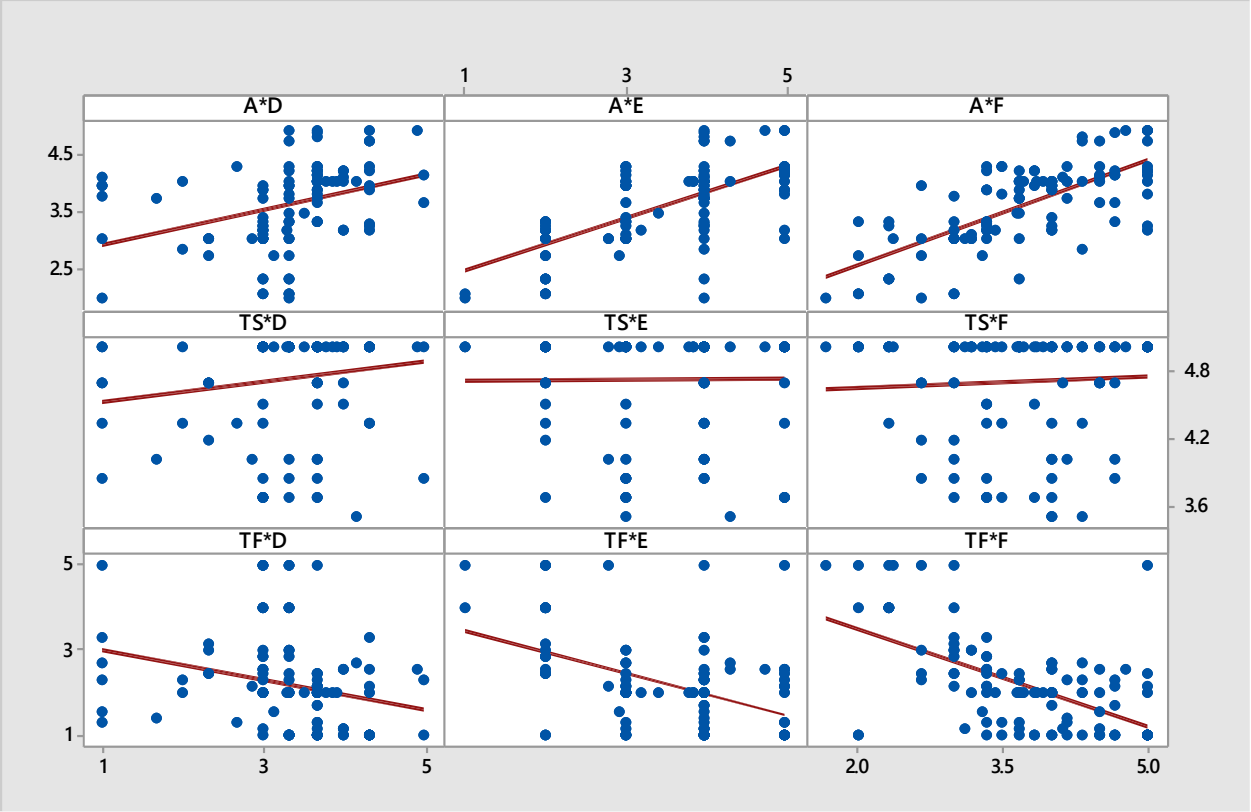

Table C10

RQ 4: The Relationship Between the Hospital's Performance Improvement Processes and TeamSTEPPS Sustenance

		HSOPS Section D: Reporting Patient Safety Events	HSOPS Section E: Patient Safety Rating	HSOPS Section F: Your Hospital
HSOPS Patient Safety Compliance Improvement Processes	Pearson *r*	0.235	0.351	0.567
	p-value	$p = .014$	$p < .001$	$p < .001$
	Interpretation	Weak	Weak	Moderate
	Remarks	Significant	Significant	Significant
HSOPS Performance Improvement Processes	Pearson *r*	0.327	0.448	0.578
	p-value	$p = .001$	$p < .001$	$p < .001$
	Interpretation	Weak	Moderate	Moderate
	Remarks	Significant	Significant	Significant

Note. Reject Ho if $p < 0.05$

Table C10 shows that HSOPS Section A Item 4: Patient Safety Compliance Improvement Processes has significant relationship to HSOPS Section D: Reporting Patient Safety Events ($r = 0.235$, $p = 0.014$), HSOPS Section E: Patient Safety Rating ($r = 0.351$, $p < .001$) and HSOPS Section F: Your Hospital ($r = 0.567$, $p < .001$) at 0.05 level of significance. Thus, as HSOPS Section A Item 4: Patient Safety Compliance Improvement Processes increases, HSOPS Section D: Reporting Patient Safety Issues, HSOPS Section E: Patient Safety Rating, and HSOPS Section F: Your Hospital also increase.

Also, HSOPS Section A Item 12: has significant relationship to HSOPS Section D: Reporting Patient Safety Events ($r = 0.327$, $p = .001$), HSOPS Section E: Patient Safety Rating ($r = 0.448$, $p < .001$) and HSOPS Section F: Your Hospital ($r = 0.578$, $p < .001$) at 0.05 level of significance. Thus, as HSOPS Section A Item 12: Performance Improvement Processes increases, HSOPS

Section D: Reporting Patient Safety Events, HSOPS Section E: Patient Safety Rating, and HSOPS Section F: Your Hospital also increase. Refer to Figure C10 below.

Figure C10

RQ 4: Scatterplot Graph for Table C10