STARS

University of Central Florida
STARS

Honors Undergraduate Theses

UCF Theses and Dissertations

2016

Supervisor Expectations, Event Reporting, and Patient Safety Perceptions: Exploring Potential Moderators and Mediators

Claudia Hernandez
University of Central Florida

Part of the Industrial and Organizational Psychology Commons

Find similar works at: https://stars.library.ucf.edu/honorstheses

University of Central Florida Libraries http://library.ucf.edu

Recommended Citation

University of Central Florida

STARS
Showcase of Text, Archives, Research & Scholarship

SUPERVISOR EXPECTATIONS, EVENT REPORTING, AND PATIENT
SAFETY PERCEPTIONS:
EXPLORING PORTNTIAL MODERATORS AND MEDIATORS

by

CLAUDIA HERNANDEZ

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Sciences
and at The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Summer Term, 2016

Thesis Chair: Dr. Shawn Burke

ABSTRACT

Given the high number of errors and negative events committed within medical settings, the emphasis on patient safety culture is becoming more prevalent. Despite this effort, underreporting has been and continues to be an issue in this area. Some research has shown a link between underreporting and lack of management responsiveness, but more work is necessary to identify reasons for underreporting and potential mitigating solutions. The objective of the present research is to answer questions regarding the impact supervisors have on staff's patient safety perceptions and event reporting, through the use of archival survey data collected with the AHRQ Hospital Safety Culture Survey (2004). Probable moderators and mediators of key relationships were explored as well. Results are presented and their implications are discussed herein.

DEDICATIONS

To my mother, Carmen Blanco, and my father, Daniel Hernandez, who sacrificed everything they knew, moving to the U.S. from Cuba, in order for my life to be enriched with opportunities such as this one and countless others.

To my fiancé, Eric Ramos, for always pushing me to achieve the unimaginable,

Most importantly, to the patients who have lost their lives or suffered injuries from preventable medical errors.

ACKNOWLEDGMENTS

I would like to express my deepest appreciation to my mentors and the individuals who have made this thesis possible. Dr. Burke, thank you for believing in me, pushing me to excel, and for taking the time to edit and review my thesis countless times. I would have been lost during this process without your guidance. I'd also like to thank Dr. Cleavenger and Dr. Wang for always being wonderful mentors, even outside of work related to my thesis. Thank you, Marissa Shuffler, for your support and contribution to this project. Thank you to everyone in the McNair program, especially Michael and Natalia, who encourage and inspire minorities to achieve higher education and to reach goals for which are doubted by society. Thank you to all staff at the honors college for your help throughout this process since day one. Eric, mom, and dad: From the bottom of my heart, thank you for being the light at the end of the tunnel. To all of the graduate students at my research lab who inspired me, friends, family, mentors and mentees (Michelle and Marvin), thank you for the unwavering support you have provided for me.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

The Institute of Medicine reported that medical error is the eighth leading cause of death in the United States, resulting in 100,000 deaths each year (IOM, 2000). Given the criticality of this issue, hospitals have focused their efforts on promoting patient safety by improving safety culture within organizations (Blegen, 2010). Although errors and other medical events have negative repercussions, they can also act as a catalyst for learning. After errors or events occur, it is possible for staff to learn about what leads to these events and how to prevent them in the future (Zhao & Olivera, 2006). One method that has proven to facilitate learning about prevention is error/event reporting (Zhao & Olivera, 2006). Yet, underreporting, in the medical setting, is common (Cohen, 2000).

Underreporting has been linked to perceived lack of management responsiveness (Clarke, 1998) and organizational safety climate (Zohar, 2003). Yet, little research explores other factors that could be related to underreporting of medical errors/events. Learning about the factors that impact reporting can help us better to understand how to mitigate organizational training design and promote patient safety climate within the medical setting. One relatively neglected area within the literature involves the impact that supervisor expectations have on staff's patient safety perceptions, and ultimately, event reporting. Although literature has repeatedly shown that leaders can play a large role in the development of culture, and have often been identified as a key factor in organizational effectiveness (Hackman, 1990), further exploration regarding how leaders impact subordinate safety perceptions and reporting outcomes is vital.

Therefore, the purpose of the present research is to identify relationships related to supervisor expectations regarding patient safety. Additionally, it seeks to explore potential

moderators and mediators related to event reporting frequency and perceptions of patient safety held by staff.

LITERATURE REVIEW

Patient Safety Culture

Since the Institute of Medicine report was released (2000), there has been an emphasis, within the medical setting, on patient safety and the type of organizational culture that promotes it. The culture of an organization consists of the "shared norms, values, behavior patterns, rituals and traditions" of the employees within an organization (Blegen et al., 2010). Therefore, a patient safety culture can be defined in the same way, but in regards to an organization's health and safety management (Health and Safety Commission Advisory Committee on the Safety of Nuclear Installations, 1993). Literature has suggested that hospital staffs' ability to avoid harm will be enhanced when a safety culture can be created. Conversely, under conditions with poor safety culture, there is a reduced emphasis on safety performance (Hofmann, Morgeson, & Gerras, 2003). Research has shown that a significant indicator of an organization's safety culture is the perceptions held of patient safety culture (Zhao & Olivera, 2006). Therefore, it becomes imperative to impact these perceptions, especially given that variations across staff members within the same hospital unit have been found. Thomas, Sexton, and Helmreich (2003) found that physicians reported more positive perceptions of safety climate than nurses. Yet, other studies have found no difference between physicians and nurses patient safety perceptions (Makary, 2006). Therefore, in order to better understand what is driving patient safety perceptions and what the outcomes of reporting are, additional research in this area is necessary.

Event Reporting

Reporting of errors and events (e.g., slips, lapses, and near misses) has been shown to lead to learning and thereby positive future outcomes such as increased patient safety (Zhao & Olivera, 2006). However, issues tend to arise regardless of the type of reporting system in place. Systems of event/error reporting can either be mandatory or voluntary. The issue with practitioners under mandatory systems is that they are less likely to provide detailed information because their primary motivation is "self-protection and adherence" (Cohen, 2000). Voluntary systems also encourage practitioners to report situations and mistakes that did not result in harm but had the potential to do so, referred to as near misses. Although voluntary systems have been found to be more effective, regardless of the type of system, underreporting is still an issue. Underreporting of medical events has been found to range from 50%-96%, each year (Cohen, 2000).

Given that near misses do not require reporting, personnel miss out on vital information regarding causes and prevention, which in turn, diminishes opportunities to learn and ultimately, leads to more serious events, such as errors. Error refers to a patient suffering injury, complication that results in disability, or death due to hospital management (Thomas et al., 2000). However, near misses have been estimated to occur four times more frequently than actual errors (Ibojie & Urbaniak, 2000), which means that most reports would entail a near miss, rather than an error. However if it is not mandatory to report near misses and people are afraid to provide details of the event, more errors are likely to occur because staff members are not learning from mistakes. Therefore, it is crucial to focus on the reporting of near misses, which could result in fewer errors, and ultimately, fewer yearly deaths in medical settings.

Supervisor Expectations and Non- Punitive Responses

Two under-examined variables that may influence patient safety perceptions and frequency of event reporting are supervisor expectations and non-punitive responses to errors. Given that even early research has suggested that "leaders create climate" (Lewin et al., 1939), the expectations set and actions made by supervisors can either cultivate or discourage an environment that focuses on patient safety. The Agency for Healthcare Research and Quality (AHRQ) considers supervisor expectations regarding patient safety as "the extent to which supervisors/managers consider staff suggestions to improve patient safety and address patient safety problems" (2016).

It is critical to conduct research that can begin to answer the question of how supervisor expectations affect patient safety perceptions and event reporting. Given that a supervisor is a type of leader, examining the leadership literature is a step in the right direction for answering this question. Studies have shown that the quality of leadership has the potential to impact organizational climate (Wu, Chen, & Li, 2008). For example, the relationship between leadership and safety climate has been linked to leader's concern for group members' well-being (Hofmann et al., 2003). Consequently, shared climate perceptions progress as a result of continued member–leader interactions (Kozlowski and Doherty, 1989). Similarly, research has shown that leaders can create a psychologically safe climate that facilitates interpersonal risk taking and, in turn, learning (Edmondson, 1999). Given that event reporting, even under a voluntary system, involves interpersonal risk taking the following hypotheses are put forth:

Hypothesis 1a: *There will be a positive relationship between supervisors' emphasis on patient safety and frequency of event reporting within the unit.*

Another key predictor of positive patient safety culture is the presence of a non-punitive system of error reporting (Sanders & Cook, 2007), which can be defined as "the extent to which staff feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file" (AHRQ, 2016) .The primary reasons why people fail to report adverse events are due to fear of repercussions, the belief that error can be seen as incompetence, and potential legal discoveries regarding the error (Cohen, 2000). Therefore, emphasis on a system that promotes learning, rather than punishing practitioners for errors, is necessary for promoting safety culture. Additionally, research has revealed that event reporting is only possible in a non-punitive environment where staff members will not be blamed for mistakes (Smits, Christiaans-Dingelhoff, Wagner, Wal, & Groenewegen, 2008). Given the influence a leader can have on their subordinates and the effects of a non-punitive environment, I propose the following hypotheses:

Hypothesis 1b: *Non-punitive response environment will moderate the relationship between supervisor patient safety expectations and frequency of events reported, such that as perceptions of a non-punitive response to errors increases, the relationship between supervisor patient safety and frequency of events reported becomes stronger.*
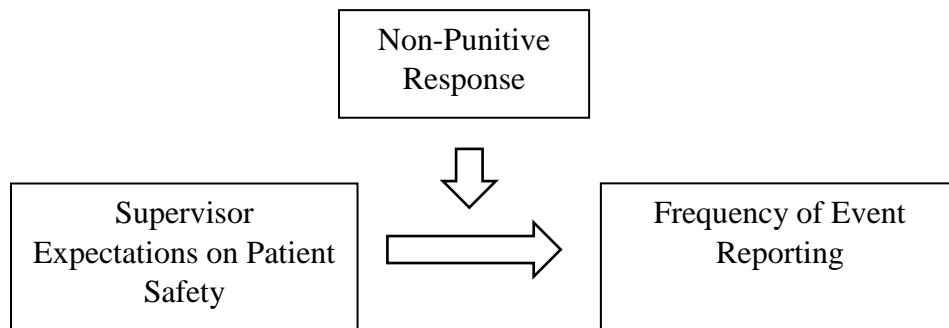
```
          ┌─────────────────┐
          │  Non-Punitive   │
          │    Response     │
          └─────────────────┘
                  ⇩
┌─────────────────┐         ┌─────────────────┐
│   Supervisor    │  ⟹     │ Frequency of Event│
│ Expectations on Patient│  │    Reporting    │
│     Safety      │         │                 │
└─────────────────┘         └─────────────────┘
```

Figure 1: Proposed Model for Hypothesis 1b

As previously mentioned, leaders are responsible for creating enabling structures that allow organizations to perform effectively (Hackamn, 1990). Thereby, they can create a climate where safety is valued. The expectations supervisors hold regarding patient safety are not only contingent upon the actions they initiate, but also how they take what staff members have to say into consideration (AHRQ, 2016). Therefore, it is likely that when supervisors' expectations are high, there is a climate where patient safety is valued by others in the unit as well. Relatedly, modeling patient safety expectations and showing the importance of patient safety through organizational reward systems, such as encouraging a non-punitive environment, will further translate into increased patient safety perceptions by staff members. Non-punitive systems may be one way to show that patient safety is valued. Therefore, the following hypotheses are put forward regarding the transfer of patient safety ideals from supervisors to subordinates:

Hypothesis 2a: *There will be a positive relationship between supervisor patient safety expectations and patient safety perceptions of staff.*

Hypothesis 2b*: A non-punitive response environment will moderate the relationship between supervisor patient safety expectations and patient safety perceptions of staff, such that*

as perceptions of a non-punitive response to errors increases, the relationship between

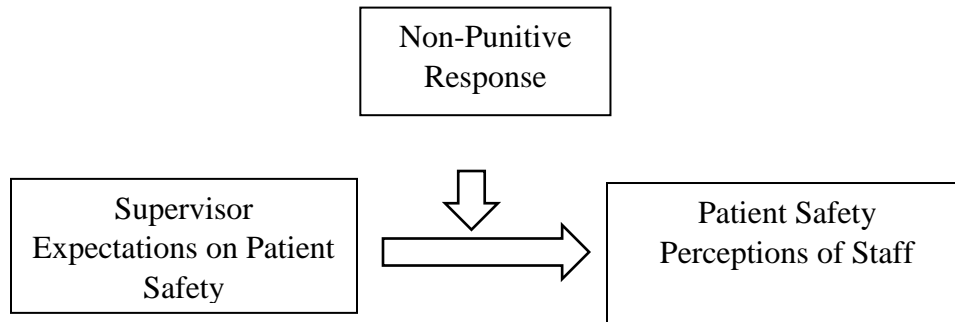*supervisor patient safety and patient safety perceptions by staff members.*

Figure 2: Proposed Model for Hypothesis 2b

Communication Openness

Another factor vital to patient safety climate is communication openness. A myriad of literature shows that ineffective communication has been found to be a large contributor of medical errors and events (Lingard et al., 2004). So much so, that 70% of adverse medical events have been reported to be attributed to ineffective communication (McConaughey, 2008). Communication openness can be defined as "message sending and receiving behaviors superiors, subordinates, and peers with regard to task, personal and innovative topics" (Rogers, 1987).

Openness to communication has been shown to relate to organizational success due to its ability to prevent crises (Rogers, 1987). It has also been shown to be an antecedent to group members' reaction to conflict. Specifically, low levels of communication openness are predictive of negative reactions (Ayoko, 2007). On the contrary, communication openness within medical teams has been shown to predict the extent to which staff members understand patient care goals (Reader, Flin, Mearns, & Cuthbertson, 2007). Consequently, discussing errors with others can

encourage individuals recognize the causes of their errors, which in turn, leads to the development of task knowledge (Rybowiak et al., 1999).

Although communication openness has proven to be a vital component of safety culture and predictive of medical errors, the occurrence of events continues to be an issue. According to a study conducted by Sexton and Helmreich (2000), medical personnel seem to understand the importance of a communicative and open environment, with over 80% of them reporting that discussions are an important part of safety. Yet, 25% of the participants reported not being encouraged to report their safety concerns. Their top suggestion for improving patient safety was "better communication."

Therefore, the final proposed hypothesis is as follows:

Hypothesis 3: *Communication openness will mediate the relationship between supervisor patient safety expectations and patient safety perceptions of staff.*
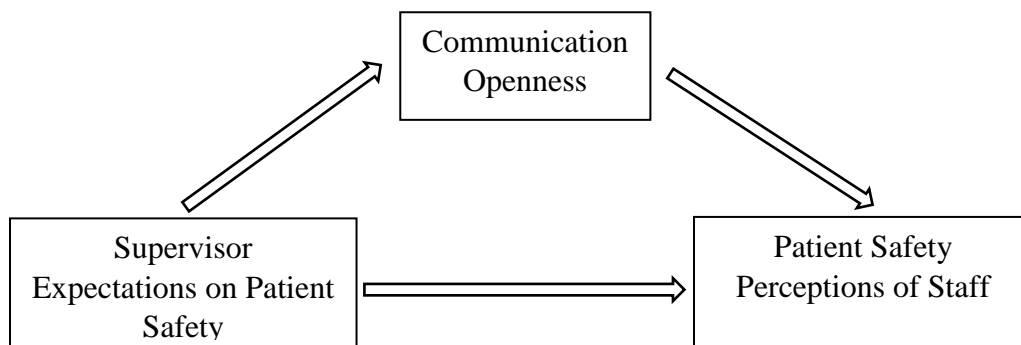
Figure 3: Proposed Model for Hypothesis 3

METHODOLOGY

Participants

Participants (N = 7,265) were obtained from a large southeastern hospital in the United States. Hospital staff, ranging across positions (i.e., physician, nurse, technician, etc.), received an online survey. Additionally, participants ranged across various hospital units. Self- reports showed that 10.7% of respondents worked in different units/no specific unit, 8.9% in Pediatrics, 7.1 % in surgery, 7% in Radiology, and 5.9% in Obstetrics (all units and respective percentages can be found in Table 1).

Table 1: Percentage of Respondents in Each Unit

Hospital Units	Percentage of Respondents
Many different units/no specific unit	10.70
Pediatrics	8.90
Surgery	7.10
Radiology	7.0
Obstetrics	5.90
Medicine	5.00
Rehabilitation	4.30
Anesthesiology	4.00
Psychiatry/Mental Health	3.70
Pharmacy	3.50
Laboratory	2.30
Intensive Care Unite	1.80

Emergency Department	1.70
Other	34.2

Procedure

The current study uses archival data collected from the administration of the AHRQ

Hospital Survey on Patient Safety (AHRQ, 2004) to test all hypotheses. Hospital staff was

initially contacted through email during August 2014 with a request from human resources to

participate in the online survey. In order to facilitate participation, survey ambassadors within

each unit were selected to serve as a person to promote the survey and encourage other unit

members to complete it within the required timeframe (2 weeks). This ambassador was someone

who was considered a respected team member. Participation was encouraged, but completely

voluntary. The survey was completed online, through a trusted third party survey software called

Vovici. All data collected within the two-week period was included in the present study.

Measures

The Agency for Healthcare Research and Quality (AHRQ) *Hospital Survey on Patient*

Safety was distributed to participants for the present study. This survey was designed by AHRQ

to evaluate patient safety climate within hospitals. In total, the survey examines 12 different

dimensions, but only five were of interest for the purposes of the current study (each will be

further detailed below). All items were answered through self-report using Likert scales (see

Appendix A for complete scales). This archival data serves as the data used to test all hypotheses

contained herein.

Supervisor Expectations. Perceptions of supervisor expectations regarding patient safety within the unit were measured using a 4-item scale. Items such as "whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts" were scored on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Cronbach's alpha for this measure was .78.

Non Punitive Response to Error. This 3-item scale assesses the degree to which staff members felt that they would be penalized for reporting mistakes. It is important to note that the items within this measure refer to mistakes, not errors. However, given that the AHRQ (2004) refers to this measure as "response to error", wording has remained as stated originally, for consistency. Items such as "when an event is reported, it feels like the person is being written up, not the problem" were scored on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). All items within this measure were negatively worded and have, therefore, been reverse scored. Therefore, a high value on this measure now indicates a climate where mistakes are not held against staff members (i.e., non-punitive environment). Cronbach's alpha for this measure was .82.

Event Reporting Frequency. The frequency of reporting medical events was assessed by using a 3-item scale. These questions did not ask about actual errors committed, but rather about near misses, which did not result in patient harm. Therefore, this measure indicates the degree to which underreporting of medical events is occurring. Items such as "when a mistake is made, but is caught and corrected before affecting the patient, how often is this reported" were scored on a 5-point Likert scale ranging from *Never* (1) to *Always* (5). Cronbach's alpha for this measure was .94.

Patient Safety Perceptions. The overall perception of patient safety held by staff was measured using a 4-item scale. Items such as "our procedures and systems are good at preventing errors from happening" were scored on a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Cronbach's alpha for this measure was .69.

Communication Openness. Finally, the degree to which there is an open and free environment for communication within the unit was measured using a 3-item scale. Items such as "staff will freely speak up if they see something that may negatively affect patient care" were scored on a 5-point Likert scale ranging from *Never* (1) to *Always* (5). Cronbach's alpha for this measure was .64.

RESULTS

All analyses were performed using the latest version of SPSS, a statistical analysis program. Descriptive statistics and intercorrelations between supervisor safety expectations, staff patient safety perceptions, non-punitive response to errors, frequency of event reporting, and communication openness can be seen in Table 2. Additionally, Table 5 depicts the degree to which each hypothesized relationship was supported.

To analyze hypotheses 1a and 2a, Pearson product-moment correlations were computed to assess the relationship between supervisor expectations regarding patient safety and frequency of event reporting, as well as the relationship between supervisor expectations regarding patient safety and staff patient safety perceptions, respectively. As hypothesized, results indicated that a significant positive relationship exists between supervisor expectations of patient safety and frequency of event reporting ($r = .41$, $p = .00$), such that when supervisor expectations regarding patient safety were higher, frequency of event reporting also increased. Similarly, results also indicated that a positive relationship exists between supervisor expectations of patient safety expectations staff member expectations of patient safety ($r = .62$, $p = .00$), such that when supervisor expectations were higher, staff member expectations of patient safety also increased. Therefore, both Hypotheses 1a and 2a were supported.

Table 2: Correlations, Means, and Standard Deviations of Variables

	Mean	SD	1	2	3	4
1. Supervisor Expectations	3.89	0.98	—			
2. Non-Punitive Response	3.24	0.95	.384**			
3. Reporting Frequency	3.35	1.52	.406**	.109**		
4. Staff Patient Safety Perceptions	3.54	1.00	.617**	.403**	.415**	
5. Communication Openness	3.57	1.05	.638**	.416**	.446**	.580**

Note. **p>.01

To analyze Hypotheses 1b and 2b, Hayes PROCESS macro version 2.13 (2013), model one was implemented. For Hypothesis 1b, supervisor expectations regarding patient safety was the independent variable, non-punitive responses to error was the moderator, and frequency of events was the dependent variable (see Table 4). Results provided support for Hypothesis 1b in that the interaction between perceptions of non-punitive responses to error and supervisor expectations regarding patient safety was significant (b=.1259, SE_b=.02, t(6850)=7.59, p<.01, 95% CI: .0929, .1589). This result suggests that the relationship between supervisor expectations concerning patient safety and the frequency with which staff reported mistakes depends on the degree to which they perceived a non-punitive response to error. The conditional effects of supervisor expectations on frequency of reports were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of staff perceptions regarding the degree to which there is a non-punitive response to errors. Results indicated a significant positive association between supervisor expectations regarding patient safety and frequency of

event reporting, but this relationship was strongest when staff members perceived there was a high degree of non-punitive response to errors (b=.7312, SE_b=.02, t(6850)=29.58, p<.01, 95% CI: .6827, .7796) than for moderate (b=.6116, SE_b=.02, t(6850)=30.67, p<.01, 95% CI: .5725, .6507) and lower levels (b=.4920, SE_b=.03, t(6850)=18.86, p<.01, 95% CI: .4409, .5432). See Figure 4 for a plot of the interaction.

Table 3: Summary of Moderator Analysis with Event Reporting Frequency as the Dependent Variable

Predictors	*B*	*SE*	*T*	*p*	95% Confidence Interval	
					Lower bound	Upper Bound
Constant	3.36	.02	192.66	.00	3.33	3.40
Non-punitive Response	-.04	.02	-2.34	.02	-.08	-.01
Supervisor Expectations	.61	.02	30.67	.00	.57	.65
Non-punitive Response* Supervisor Expectations	.13	.02	7.59	.00	.09	.16

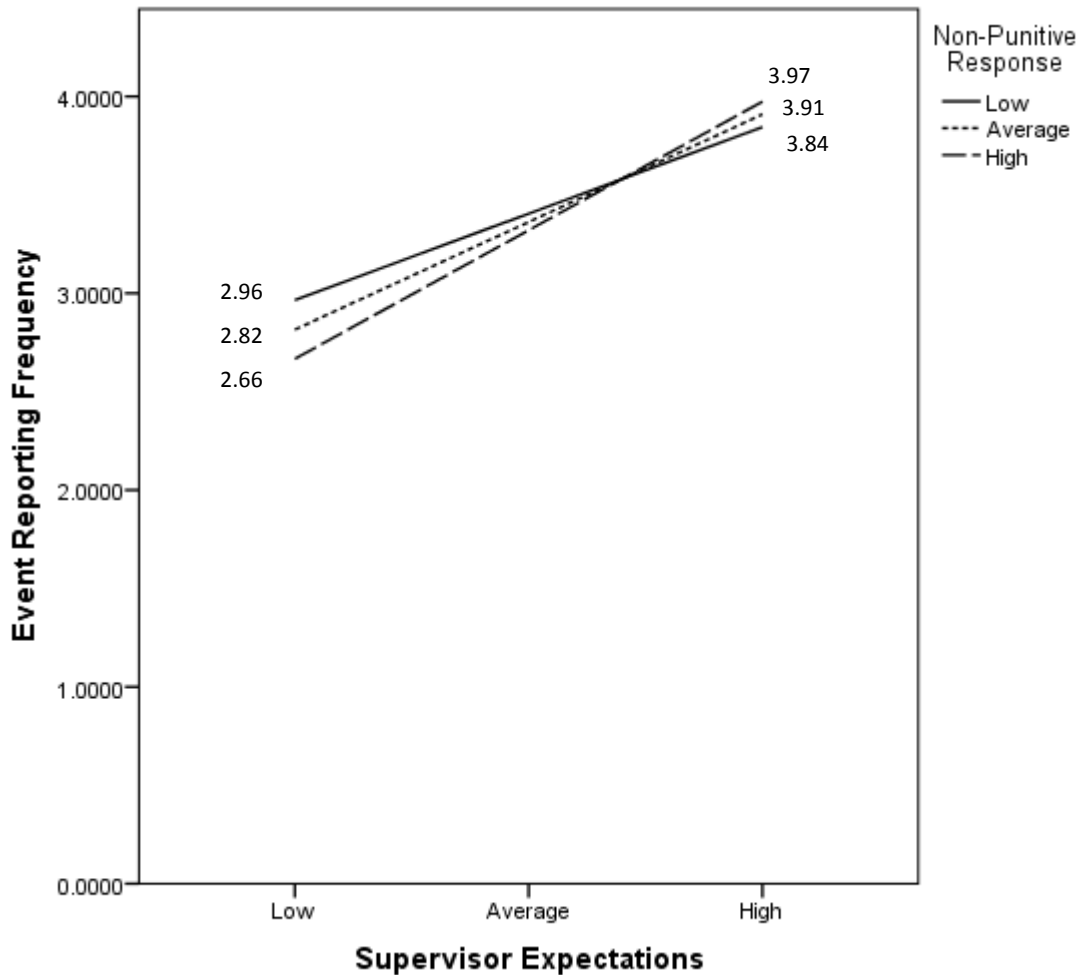Note. B= Unstandardized beta; SE= Standard error

Figure 4: Conditional Effects of Supervisor Expectations on Frequency of Event Reporting

For Hypothesis 2b, supervisor expectations regarding patient safety was the independent variable, non-punitive responses to error was the moderator, and patient safety perceptions of staff was the dependent variable (see Table 5). Results provided support for Hypothesis 2b in that the interaction between perceptions of non-punitive responses to error and supervisor expectations regarding patient safety was significant (b=.0725, SE_b=.01, t(7009)=8.87, p<.01, 95% CI: .0565, .0885). This result suggests that the relationship between supervisor expectations

concerning patient safety and staff perceptions of patient safety within the unit depend on the

degree to which they perceived a non-punitive response to error. The conditional effects of

supervisor expectations on staff perceptions were tested for low (-1 *SD* below the mean),

moderate (mean), and high (+1 *SD* above the mean) levels of staff perceptions regarding the

degree to which there is a non-punitive response to errors. Results indicated a significant positive

association between supervisor expectations regarding patient safety and safety perceptions held

by staff, but this relationship was strongest when staff members perceived there was high degree

of a non-punitive response to errors (b=.5145, SE_b=.01, $t(7009)$=40.47, p<.01, 95% CI: .4896,

.5394) than for moderate (b=.4457, SE_b=.01, $t(7009)$=45.57, p<.01, 95% CI: .4265, .4649) and

lower levels (b=.3770, SE_b=.01, $t(7009)$=30.79, p<.01, 95% CI: .3530, .4010). See Figure 5 for

a plot of the interaction.

Table 4: Summary of Moderator Analysis with Staff Patient Safety Perceptions as the
Dependent Variable

Predictors	*B*	*SE*	*T*	*p*	95% Confidence Interval	
					Lower bound	Upper Bound
Constant	2.08	.11	19.61	.00	1.87	2.29
Non-punitive Response	-.07	.03	-2.12	.03	-.13	-.01
Supervisor Expectations	.21	.03	7.56	.00	.15	.27
Non-punitive Response x Supervisor Expectations	.07	.01	8.87	.00	.06	.09

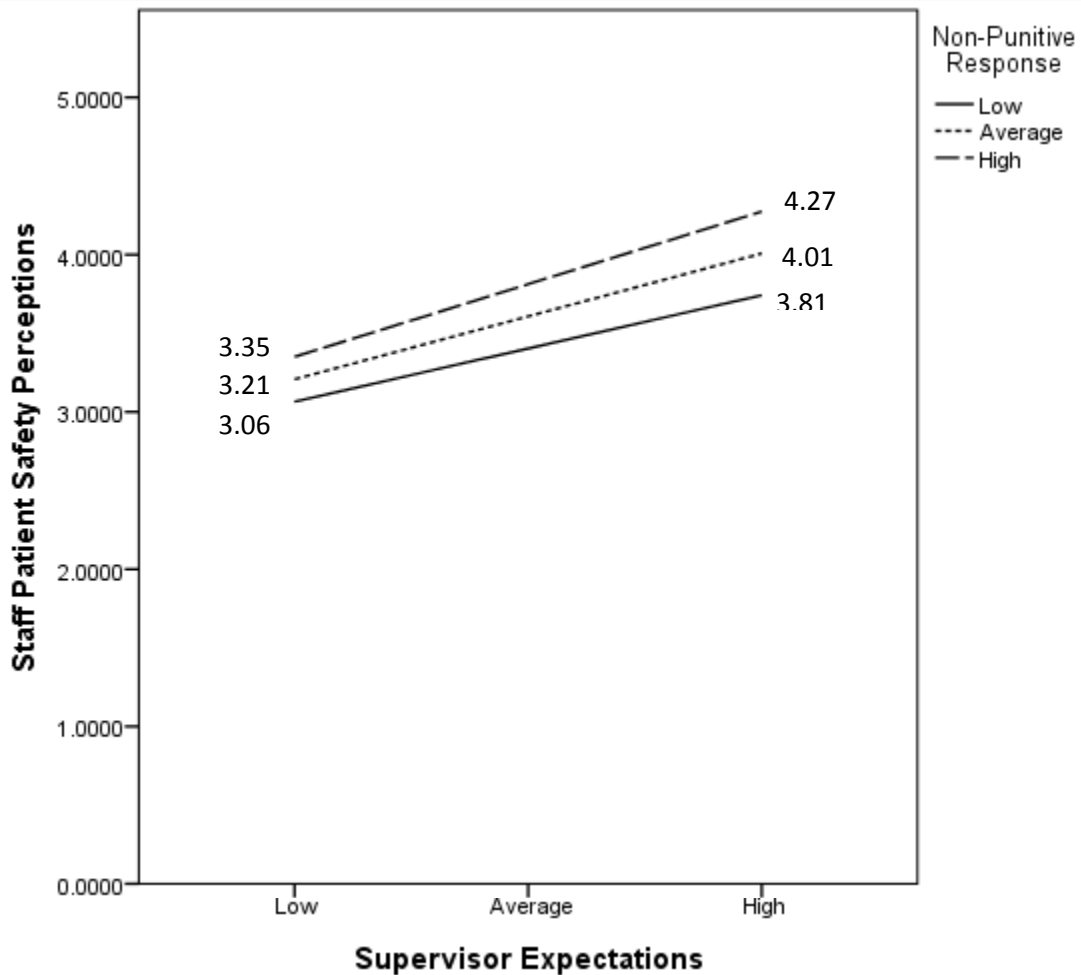Note. B= Unstandardized beta; SE= Standard error;

Figure 5: Conditional Effects of Supervisor Expectations on Staff's Patient Safety Perceptions

For Hypothesis 3, supervisor expectations regarding patient safety was the independent variable, communication openness was the mediator, and staff patient safety perceptions of staff was the dependent variable (see Figure 4). There was a significant indirect relationship of supervisor expectations regarding patient safety on staff members' patient safety perceptions through communication openness (b=.1898, 95 CI: .1698, .2103). This represents a small to moderate effect, k^2=.198, 95% CI: .1820, .2257. This supports Hypothesis 3 and suggests that

communication openness partially mediates the relationship. Both direct and indirect effects can
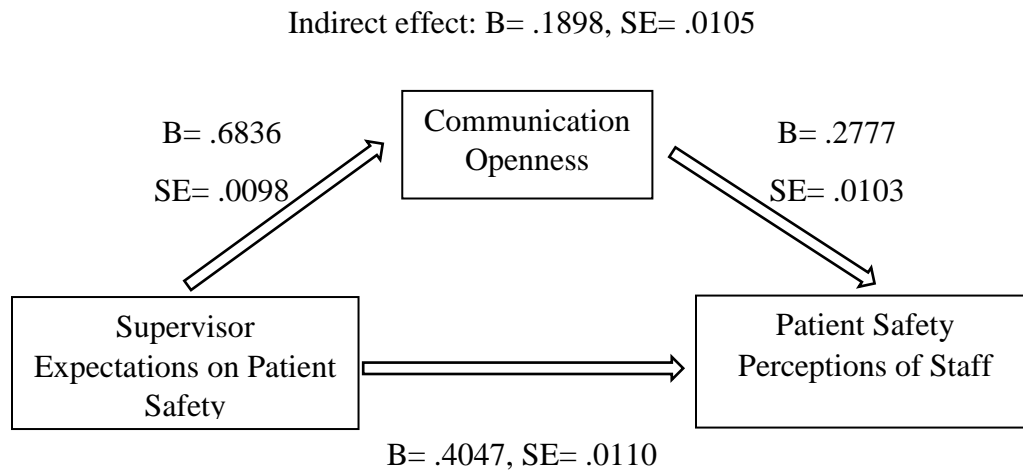
be seen in Figure 6.

Indirect effect: B= .1898, SE= .0105

Figure 6: Mediated Model of Direct and Indirect Effects of Supervisor Expectations on Patient
Safety Perceptions through Communication Openness

Table 5: Summary Table of Hypotheses and Results

Hypotheses		Support
H1a	There will be a positive relationship between supervisor patient safety expectations and frequency of events reported.	Yes
H1b	A non-punitive response environment will moderate the relationship between supervisor patient safety expectations and frequency of events reported, such that as non-punitive response increases, the relationship between supervisor patient safety and frequency of events reported becomes stronger.	Yes
H2a	There will be a positive relationship between supervisor patient safety expectations and patient safety perceptions of staff.	Yes
H2b	A non-punitive response environment will moderate the relationship between supervisor patient safety expectations and patient safety perceptions of staff, such that as non-punitive response increases, the relationship between supervisor patient safety and patient safety perceptions by staff members.	Yes
H3	Communication openness will mediate the relationship between supervisor patient safety expectations and patient safety perceptions of staff.	Yes

DISCUSSION

Summary of Findings

The purpose of this study was to answer three main questions in order to better understand how supervisors' expectations regarding patient safety impact staffs' patient safety perceptions, and ultimately, how frequently they are reporting their mistakes. Given that other current research does not examine how supervisors impact error and event reporting by staff members, this study contributes new results to the field. Although there is still work to be done in this area, this study points researchers in the direction to finding answers that will lead to not only better safety climate, but also effective methods, such as event reporting, to promote learning. The leadership literature reveals that leaders catalyze climate, but it is imperative to identify whether the presence of safety climate is resulting in the transfer of positive outcomes. Therefore, the results from the present research hold vital practical implications.

The first question aimed to address whether a non-punitive environment strengthens the relationship between supervisors' patient safety expectations and the perceptions staff members have regarding patient safety. Results indicated that the relationship does become stronger when a non-punitive environment is present.

Thereafter, the second question was intended to find out whether event reporting frequency increases once staff members are conscious of patient safety and feel that they are in an environment that will not penalize them for their mistakes. Results showed that in this case, reporting does rise.

The results from these questions suggest that supervisors should not only set expectations that promote safety, but should also avoid a system that penalizes staff members for reporting

22

errors and events. As previous research has indicated, ensuring that mistakes are reported is crucial because it can help mitigate the emergence of errors, which cause actual harm to the patient, in the future.

The final question, which reflects Hypothesis 3, intended to find out if communication openness is necessary in order for supervisors to transfer the importance of patient safety to subordinates, as well as to find out if other factors should also be explored. Results from the present study met both of these objectives. We found that communication openness is needed in order for transfer to occur from supervisor to staff members. Yet, given that it only accounted for 20% of the relationship, this tells us that other variables are essential for transfer to occur.

Limitations and future research

Although the present study begins to reveal the relationship that exists between supervisor expectations and patient safety outcomes, it is not free of limitations. Being that this data was collected using a survey and variables were not manipulated within a controlled environment, a causal effect cannot be determined for hypotheses 1 and 2. However, because a non-punitive environment would stem from the climate created by a leader, it is unlikely that supervisor expectations regarding patient safety increase due to the presence of a non-punitive environment. However, in accordance with the proposed hypotheses and the results presented herein, it is likely that a non-punitive environment exists due to increased patient safety expectations from supervisors.

Another limitation is that the survey did not contain any quality control items. Given that archival data was utilized, it was not possible to incorporate items such as "select 4 here" to ensure the respondent was fully attentive during the survey. Due to the fast paced and demanding

environment in which the respondents work, it is recommended to take this approach in the future.

The final limitation of this study is that these self-reports are based on perceptions, which could be biased. There is no objective tool to measure any of the variables. However, the high Cronbach's alpha (.94) for the measure of reporting frequency lessens this notion. Yet, for future research, it is recommended to use an objective measure regarding the frequency of event reporting. For instance, the total number of events reported can be counted and reported by a supervisor by using past records, rather than giving respondents a range that represents how frequently they report medical events.

Moreover, regarding the results that communication openness didn't fully account for the relationship between supervisor expectations and staffs' patient safety perceptions, future research should explore other potential mediators. Identifying all of the variables necessary for this transfer to occur would help organizations and supervisors become better informed on factors to emphasize in organizational training and in day -to-day work activities.

Conclusion

The principle purpose of this study was to investigate how supervisor expectations regarding patient safety impact perceptions and error reporting by subordinates. Additionally, we were interested in exploring variables that result in positive outcomes regarding event reporting. The findings of this study have the potential to help supervisors learn about the type of environment and factors to promote safety in the workplace. Results revealed that it is important for supervisors to have high expectations regarding patient safety and promote an environment that is non-punitive (i.e., doesn't penalize staff for errors reported) in order to increase patient

safety perceptions of staff members and result in increased event reporting. These results have vital implications given that past research has shown that reporting promotes learning ((Zhao & Olivera, 2006), which could consequently lead to fewer harmful errors. Additionally, the present research has highlighted the importance of having open communication within hospital units. Overall, there are still questions that require future research in order to be answered, but this study has underscored the importance supervisor decisions and work environments when it comes to promoting patient safety climate.

APPENDIX

Supervisor/Manager Expectations & Actions Promoting Patient Safety
(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)
1. My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.
2. My supervisor/manager seriously considers staff suggestions for improving patient safety.
3. Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. (negatively worded) B4. My supervisor/manager overlooks patient safety problems that happen over and over. (negatively worded)

Overall Perceptions of Patient Safety
(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)
1. Patient safety is never sacrificed to get more work done.
2. Our procedures and systems are good at preventing errors from happening.
3. It is just by chance that more serious mistakes don't happen around here. (negatively worded)
4. We have patient safety problems in this unit. (negatively worded)

Nonpunitive Response to Errors
(Strongly Disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree)
1. Staff feel like their mistakes are held against them. (negatively worded)
2. When an event is reported, it feels like the person is being written up, not the problem. (negatively worded)
3. Staff worry that mistakes they make are kept in their personnel file. (negatively worded)

Communication Openness
(Never, Rarely, Sometimes, Most of the time, Always)
1. Staff will freely speak up if they see something that may negatively affect patient care.
2. Staff feel free to question the decisions or actions of those with more authority.
3. Staff are afraid to ask questions when something does not seem right. (negatively worded)

Frequency of Events Reported
(Never, Rarely, Sometimes, Most of the time, Always)
1. When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?
2. When a mistake is made, but has no potential to harm the patient, how often is this reported?
3. When a mistake is made that could harm the patient, but does not, how often is this reported?

*Note: The scales used herein were extracted from the larger AHRQ patient safety Measure (AHRQ, 2004)

REFERENCES

Ayoko, O. B. (2007). Communication openness, conflict events and reactions to conflict in culturally diverse workgroups. *Cross Cultural Management: An International Journal*, *14*(2), 105-124.

Blegen, M. A., Sehgal, N. L., Alldredge, B. K., Gearhart, S., Auerbach, A. A., & Wachter, R. M. (2010). Republished paper: Improving safety culture on adult medical units through multidisciplinary teamwork and communication interventions: The TOPS Project. *Postgraduate Medical Journal, 86*(1022), 729-733.

Clarke, S. (1998). Organizational factors affecting the incident reporting of train drivers. *Work & Stress*, 12, 6 –16.

Cohen, M. R. (2000). Why error reporting systems should be voluntary. *British Medical Journal, 320*(7237), 728-729.

Edmondson, A. (1999). Psychological safety and learning behavior in work teams. *Administrative Science Quarterly, 44*(2), 350-383.

Hayes, A. F. (2013). Introduction to mediation, moderation, and conditional process analysis: *A regression-based approach*. Guilford Press.

Health and Safety Commission. (1993). Organising for safety: Third report of the ACSNI (Advisory Committee on the Safety of Nuclear Installations) study group on human factors. *Sudbury, England: HSE Books.*

Hofmann, D.A., Morgeson, F.P., Gerras, S.J., (2003). Climate as a moderator of the relationship

between LMX and content-specific citizenship behavior: Safety climate as an exemplar.

Journal of Applied Psychology, 88, 170–178.

Hospital survey on patient safety culture. (2004). Agency for Healthcare Research and Quality,

Rockville, MD. http://www.ahrq.gov/professionals/quality-patient

safety/patientsafetyculture/hospital/index.html

Hospital survey on patient safety culture. (2016). Agency for Healthcare Research and Quality,

Rockville, MD. http://www.ahrq.gov/professionals/quality-patient

safety/patientsafetyculture/hospital/index.html

Ibojie, J., & Urbaniak, S. J. (2000). Comparing near misses with actual mistransfusion events: A

more accurate reflection of transfusion errors. *British Journal of Haematology, 108*(2),

458-460.

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To err is human: Building a

Safer Health System* (Vol. 6). National Academies Press.

Kozlowski, S.W., Doherty, M.L., 1989. Integration of climate and leadership: examination of a

neglected issue. *Journal of Applied Psychology*, 74, 546–553.

Lewin, K., Lippitt, R., White, R.K., 1939. Patterns of aggressive behavior in experimentally

created social climates. *Journal of Social Psychology*, 10, 271–299.

Lingard, L., Espin, S., Whyte, S., Regehr, G., Baker, G. R., Reznick, R., ... & Grober, E. (2004).

    Communication failures in the operating room: an observational classification of

    recurrent types and effects. *Quality and Safety in Health Care, 13*(5), 330-334.

Makary, M. A., Sexton, J. B., Freischlag, J. A., Holzmueller, C. G., Millman, E. A., Rowen, L.,

    & Pronovost, P. J. (2006). Operating room teamwork among physicians and nurses:

    Teamwork in the eye of the beholder. *Journal of the American College of*

    Surgeons, *202*(5), 746-752.

McConaughey, E. (2008). Crew resource management in healthcare: the evolution of teamwork

    training and MedTeams. *Journal of Perinatal & Neonatal Nursing, 22*(2), 96-104.

Hackman, J. R. (1990). *Groups that work and those that don't* (No. E10 H123). Jossey-Bass.

Reader, T. W., Flin, R., Mearns, K., & Cuthbertson, B. H. (2007). Interdisciplinary

    communication in the intensive care unit. *British Journal of Anaesthesia, 98*(3), 347-352.

Sanderson, J., & Cook, G. (2007). ABC of patient safety. *UK: Blackwell*, 2.

Sexton, J. B., & Helmreich, R. (2000). Communication and teamwork in the surgical operating

    room. In *Panel presentation at the Aerospace Medical Association Conference, Houston,*

    Texas.

Smits, M., Christiaans-Dingelhoff, I., Wagner, C., Wal, G., & Groenewegen, P. P. (2008). The

    psychometric properties of the 'Hospital Survey on Patient Safety Culture' in Dutch

    hospitals*. BMC health services research, 8*(1), 1.

Sorra, J. S., & Dyer, N. (2010). Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. *BMC Health Services Research, 10*(1), 1.

Thomas, E. J., Studdert, D. M., Burstin, H. R., Orav, E. J., Zeena, T., Williams, E. J., ... & Brennan, T. A. (2000). Incidence and types of adverse events and negligent care in Utah and Colorado. *Medical Care*, 261-271.

Thomas, E. J., Sexton, J. B., & Helmreich, R. L. (2003). Discrepant attitudes about teamwork among critical care nurses and physicians. *Critical Care Medicine*, *31*(3), 956-959.

Wu, T. C., Chen, C. H., & Li, C. C. (2008). A correlation among safety leadership, safety climate and safety performance. *Journal of Loss Prevention in the Process Industries, 21*(3), 307-318.

Zhao, B., & Olivera, F. (2006). Error reporting in organizations. *Academy of Management Review, 31*(4), 1012-1030.

Zohar, D. (2003). Safety climate: Conceptual and measurement issues.