A Root Cause Analysis Of The Barriers To Transparency Among Physicians A Systemic Perspective

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A ROOT CAUSE ANALYSIS OF THE BARRIERS TO TRANSPARENCY AMONG PHYSICIANS: A SYSTEMIC PERSPECTIVE

by

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ABSTRACT

Transparency in healthcare relates to formally reporting medical errors and disclosing bad outcomes to patients and families. Unfortunately, most physicians are not in the habit of communicating transparently, as many studies have shown the existence of a large medical error information gap. Research also shows that creating a culture of transparency would mutually support patient safety and risk management goals by concomitantly reducing medical errors and alleviating the malpractice crisis.

Three predictor variables are used to represent the various dimensions of the context just described. *Perfectionism* represents the intrapersonal domain, *socio-organizational climate* represents the interpersonal and institutional domains, and *medico-legal environment* represents the societal domain. Chin and Benne’s normative re-educative strategy provides theoretical support for the notion that successful organizational change hinges upon addressing the structural and cultural barriers displayed by individuals and groups.

The Physician Transparency Questionnaire was completed by 270 physicians who were drawn from a multi-site healthcare organization in Central Florida. Structural equation modeling was used to determine whether perfectionism, socio-organizational climate, and medico-legal environment significantly predict two transparency outcomes, namely, error reporting transparency and provider-patient transparency.

Perfectionism and socio-organizational climate were found to be statistically significant predictors. Collectively, these variables accounted for nearly half of the variance in each transparency outcome. Within socio-organizational climate, policies had the greatest influence
on transparency, followed by immunity and professional norms. Multiple group analysis showed that the covariance model developed in this study generalizes across gender, medical specialty, and occupation. In addition, group means comparisons tests revealed a number of interesting trends in error reporting and disclosure practices that provide insights about the behavioral and cognitive psychology behind transparent communication: 1) Physicians are more inclined to engage in provider-patient transparency compared to error reporting transparency, 2) physicians are more inclined to report serious errors compared to less serious errors, and 3) physicians are more inclined to express sympathy for bad outcomes than they are to apologize for a preventable error or be honest about the details surrounding bad outcomes.

These results suggest that change efforts would need to be directed at medical education curricula and health provider organizations to ensure that current and future generations of physicians replace the pursuit for perfectionism with the pursuit for excellence. Also, a number of institutional changes are recommended, such as clearly communicating transparency policies and guidelines, promoting professional norms that encourage learning from mistakes rather than an aversion to error, and reassuring physicians that reporting and disclosure activities will not compromise their reputation. From the perspective of patient safety advocates and risk managers, the results are heartening because they emphasize a key principle in quality improvement - i.e., small changes can yield big results.

From an ethical standpoint, this research suggests that healthcare organizations can inhibit (or facilitate) the emergence of professional virtues. Thus, although organizations cannot make a physician become virtuous, it is within their power to create conditions that encourage the physician to practice certain virtues. With respect to leadership styles, this research finds that
bottom-up, grassroots change efforts can elicit professional virtues, and that culture change in healthcare lies beyond the scope of the medico-legal system.
In loving memory of my Father,
Gerard,
Who lived by the adage that
“Only those who risk going too far will ever know how far they can go”
And who inspired me to do the same.
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I also owe many thanks to Dr. Stephen Knych for supervising this study at Florida Hospital, and most importantly, for allowing this research to have a real world impact on healthcare. His unrelenting enthusiasm and faith has made this research a most joyful, meaningful, and memorable experience. I also thank him for his tremendous efforts at coordinating data collection and for garnering the support of key individuals at Florida Hospital.
I thank the chief medical officers, patient safety officers, and medical staff coordinators at all 8 Florida Hospital campuses; Dr. Neil Finkler at Florida Physicians Medical Group; and all physician-participants for helping me to surpass my data collection goals.

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TABLE OF CONTENTS

LIST OF FIGURES ........................................................................................................................................... xii
LIST OF TABLES .................................................................................................................................................. xiii
LIST OF ACRONYMS AND ABBREVIATIONS ........................................................................................................ xiv

CHAPTER 1: INTRODUCTION .............................................................................................................................. 1
  Significance of the Problem ................................................................................................................................. 1
  Medical Errors .................................................................................................................................................... 1
  Medical Malpractice .......................................................................................................................................... 2
  Why Transparency Matters in Healthcare ........................................................................................................ 4
  Rationale and Research Questions ..................................................................................................................... 5
  Theoretical Context ........................................................................................................................................... 8
  Scope of the Study ............................................................................................................................................. 8
  Expected Findings ............................................................................................................................................ 8
  Definitions of Key Terms ................................................................................................................................ 9
  Chapter Summary ........................................................................................................................................... 11

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK ................................................................. 13
  Medical Errors and Malpractice Litigation: A Root Cause Analysis ................................................................. 13
    Intrapersonal Barriers: Psycho-Social Profile of Physicians ........................................................................... 13
    Interpersonal Barriers: Physician-Patient Relationships ............................................................................. 17
    Institutional Barriers: Healthcare Culture and Policies .............................................................................. 19
    Societal Barriers: Medico-Legal Environment ............................................................................................... 21
    Compounded Effects of Individual, Organizational, and Societal Forces ................................................... 26
  Evidence of Successful Transparency Efforts .................................................................................................... 27
  Theoretical Support .......................................................................................................................................... 30
    Descriptive Theory: What’s the Problem? ........................................................................................................ 30
    Prescriptive Theory: What’s the Plan? ............................................................................................................. 32
  Chapter Summary ........................................................................................................................................... 37

CHAPTER 3: METHODOLOGY .............................................................................................................................. 38
  Conceptual Framework and Hypotheses ........................................................................................................... 38
Chapter Summary......................................................................................... 85
CHAPTER 5: DISCUSSION ........................................................................ 86
Perfectionism .......................................................................................... 86
Construct Validity .................................................................................. 86
Hypothesis Testing ................................................................................. 86
Directions for Future Research .............................................................. 87
Socio-Organizational Climate ................................................................. 88
Construct Validity .................................................................................. 88
Hypothesis Testing ................................................................................. 88
Directions for Future Research .............................................................. 90
Recommendations and Suggestions for Organizational Change .......... 91
Medico-Legal Environment .................................................................. 93
Construct Validity .................................................................................. 93
Hypothesis Testing ................................................................................. 94
Directions for Future Research .............................................................. 94
Transparency Outcomes ...................................................................... 95
Construct Validity .................................................................................. 95
Hypothesis Testing ................................................................................. 98
Directions for Future Research .............................................................. 101
Limitations ............................................................................................ 103
Conclusions ........................................................................................... 105
Implications for Practice ...................................................................... 105
Implications for Theory and Public Affairs ......................................... 107
Chapter Summary .................................................................................. 110
APPENDIX A: UCF INSTITUTIONAL REVIEW BOARD APPROVAL LETTER ....... 111
APPENDIX B: FLORIDA HOSPITAL INSTITUTIONAL REVIEW BOARD LETTERS .... 113
APPENDIX C: LETTER OF INVITE .......................................................... 115
APPENDIX D: QUESTIONNAIRE ............................................................ 117
APPENDIX E: PTQ RESPONSE PERCENTAGES REPORT ....................... 123
REFERENCES .......................................................................................... 126
LIST OF FIGURES

Figure 1. Psychosocial Determinants of Transparency: A Normative Re-Educative Approach.. 39
Figure 2. Ajzen’s Conceptual Framework for the Theory of Planned Behavior ...................... 46
Figure 3. Measurement Model for Perfectionism ........................................................................ 57
Figure 4. Measurement Model for Socio-Organizational Climate ............................................. 57
Figure 5. Measurement Model for Medico-Legal Environment ................................................... 58
Figure 6. Measurement Model for Error Reporting Transparency ............................................... 58
Figure 7. Measurement Model for Provider-Patient Transparency ............................................. 58
Figure 8. Covariance Structure Matrix for Predictors of Transparency ........................................ 60
Figure 9. Measurement Model for Perfectionism ................................................................. 69
Figure 10. Measurement Model for Socio-Organizational Climate ............................................ 70
Figure 11. Measurement Model for Medico Legal Environment ................................................... 72
Figure 12. Generic Measurement Model for Transparency .......................................................... 73
Figure 13. Generic Measurement Model for Error Reporting Transparency .............................. 74
Figure 14. Revised Measurement Model for Error Reporting Transparency .............................. 75
Figure 15. Generic Covariance Structure Model: Effect of Perfectionism, Socio-Organizational Climate, and Medico-Legal Environment on Transparency ........................................... 77
Figure 16. Revised Covariance Structure Model: Effect of Perfectionism and Socio-Organizational Climate on Error Reporting and Provider-Patient Transparency ........................... 78
Figure 17. Direct Influence of Socio-Organizational Climate Indicators on Error Reporting and Provider-Patient Transparency ...................................................................................................... 81
Figure 18. Propensity for Transparency according to Error Type .............................................. 83
Figure 19. Propensity for Transparency according to Provider-Patient Transparency Activity... 84
Figure 20. Hypothesized relationship between Error Severity and Error Reporting Transparency ............................................................................................................................. 100
Figure 21. Hypothesized relationship between Error Severity and Provider-Patient Transparency ............................................................................................................................. 102
Figure 22. Longitudinal Design for Effectiveness of Transparency Training Program ............. 103
LIST OF TABLES

Table 1. Summary of Physician Characteristics .......................................................... 66
Table 2. Descriptive Statistics for Study Variables ...................................................... 67
Table 3. Parameter Estimates for Perfectionism Indicators .......................................... 69
Table 4. Parameter Estimates for Socio-Organizational Climate Indicators ..................... 71
Table 5. Parameter Estimates for Medico-Legal Environment Indicators ......................... 72
Table 6. Parameter Estimates for Transparency Indicators .......................................... 73
Table 7. Parameter Estimates for Transparency Indicators .......................................... 76
Table 8. Parameter Estimates for the Influence of Perfectionism and Socio-Organizational Climate on Error Reporting and Provider-Patient Transparency .................. 79
Table 9. Parameter Estimates for Transparency and Indicators for Socio-Organizational Climate ........................................................................................................... 80
Table 10. Paired T-Test Results for Error Reporting v. Provider-Patient Transparency ........ 82
Table 11. Repeated Measures ANOVA for Error Types ................................................. 83
Table 12. Post Hoc Tests for Error Types ..................................................................... 83
Table 13. Repeated Measures ANOVA for Provider-Patient Transparency Activities ........ 84
Table 14. Post Hoc Tests for Provider-Patient Transparency Activities .......................... 84
# LIST OF ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFA</td>
<td>Confirmatory factor analysis</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>JCAHO</td>
<td>Joint Commission for the Accreditation of Healthcare Organizations</td>
</tr>
<tr>
<td>NCCMERP</td>
<td>National Coordinating Council for Medication Error Reporting and Prevention</td>
</tr>
<tr>
<td>PTQ</td>
<td>Physician Transparency Questionnaire</td>
</tr>
<tr>
<td>SEM</td>
<td>Structural equation modeling</td>
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CHAPTER 1: INTRODUCTION

From an ethical standpoint, transparent communication allows physicians to fulfill their professional responsibilities to tell the truth. Unfortunately, transparency is not a normative practice, as is evidenced by a healthcare system that is rife with error underreporting and a lack of error disclosure. However, heightened concerns for medical errors and medical malpractice have spawned a sudden and marked interest in creating a culture of transparency.

Significance of the Problem

Medical Errors

Several landmark studies have brought the US healthcare system under intense scrutiny. The Harvard Medical Malpractice Study estimated the incidence of adverse events in hospitalized patients to occur at a rate of 3.7 percent, and also reported that 27.6 percent of adverse events were a result of negligence (Brennan et al., 1991). In 1999, the Institute of Medicine (IOM) released its report suggesting that medical errors in the US result in as many as 98,000 deaths per year and are considered a leading cause of death. Healthgrades reported that among Medicare patients alone, patient safety errors cost this federal program $8.8 billion and 238,337 preventable deaths between the years 2004 and 2006 (Shapiro, 2008). This research also found that 1.1 million medical errors occur annually and that three percent of Medicare patients are victims of iatrogenesis. Moreover, the recent finding that 44 percent of adverse events are preventable (Office of Inspector General, 2010) suggests that the potential to improve patient safety is enormous.
Researchers have argued that medical error statistics are exaggerated. McDonald, Weiner, and Hui (2000) indicate that most patients who are admitted to hospitals are prone to death and disease before they are even admitted. Moreover, they suggest that the research that produced the IOM’s error statistics are flawed which therefore invalidates the conclusions in their report. For example, some of this research was based solely on observational techniques (i.e. reviewing medical records retroactively); whereas other studies did not make use of control groups. As such, it is unclear whether certain adverse outcomes actually cause death or whether they are merely correlated with death.

The reverse has also been argued, namely that medical error estimates are underestimated (Leape, 2002). In light of the finding that 20 to 40 percent of autopsies reveal potentially fatal misdiagnoses, Leape (2000) argued that a considerable number of errors are never brought to the physician’s attention. Also, the use of medical records to ascertain error rates can actually deflate error estimates given that not all errors are recorded on medical records. It is also important to consider that some medical errors are privately experienced by the physician, given that mistakes which do not produce serious harm are more likely to go unnoticed.

In the end, it may not be productive to argue about the precision of medical error rates. A more responsible approach is to err on the side of patient safety and make concerted efforts to reduce the incidence of error in medicine.

Medical Malpractice

There is a pressing need to reduce medical malpractice litigation activity in our nation’s healthcare system. The Kaiser Family Foundation (2009) reported that during 2008, the US
healthcare system paid out 11,021 settlements averaging $327,034 per claim, for a total annual payout exceeding $3.6 billion. Additionally, the average length of time spent on litigation cases is more than two years (Press & DeFrances, 1997). A host of problems stems from the high level of litigious activity, including marked increases in physicians’ professional liability insurance rates: One study reported that from 2000 to 2003, our nation’s median increase for the price of basic general surgery malpractice coverage was 29 percent (Dranove & Gron, 2005).

Elevated professional liability insurance rates have adverse effects on access to care and healthcare quality. It has been shown in some states that over 52% of physicians are practicing defensive medicine by decreasing or eliminating their use of riskier clinical procedures, most notably in the areas of surgery and obstetrics (Brooks, Menachemi, Hughes & Clawson, 2004); whereas others have reported that elevated professional liability insurance rates are causing physicians to flee to other states or close down their medical practices altogether (Dranove & Gron, 2005).

Another by-product of excessive malpractice litigation relates to the well-being of health provider organizations: Research has shown that malpractice litigation is associated with job stress in healthcare organizations. In one study, it was reported that hospital departments with a current record of malpractice litigation reported higher levels of job stress compared to similar departments having no such records (Jones, Barge, Steffy, Fay, Kunz, & Wuebker, 1988). A subsequent study found a positive correlation between workplace stress levels of hospital employees and the incidence of malpractice claims. Thus, considering the detrimental effects of job stress, including decreased job satisfaction and morale, and increased turnover, it is clear that
malpractice litigation has economic ramifications that extend far beyond those associated with litigation fees.

Why Transparency Matters in Healthcare

Transparency relates to the quality of communication that takes place in healthcare settings between patients, physicians, and external reporting agencies. In some instances, transparency is not necessarily the best policy, as is the case with truth-telling. In the context of this study, transparency relates to the frequency and consistency of disclosure practices and the level of honesty in the communication of bad outcomes and preventable medical errors. Given that the ultimate goal in this research is to diminish malpractice litigation and medical error rates, a high level of transparency is assumed to be the best course of action. Unfortunately, research has amply shown that our healthcare system is plagued with error underreporting and a lack of error disclosure (Gallagher et al., 2006b; Hobgood, Hevia, Tamayo-Sarver, Weiner, & Riviello, 2005; Lawton & Parker, 2002; Taylor et al., 2004).

Overall, the literature on transparency provides enough reason for one to believe that transparent communication is an effective deterrent of medical errors and an effective risk management tool. Research has shown that transparent communication improves the provider-patient relationship and thus creates a buffer against litigation activity (Kachalia et al. 2010; Gallagher et al., 2006c; Wu, 1999). As far as medical errors are concerned, the IOM (2000) has made it abundantly clear that the more we know about medical errors the more we can do to prevent them. In the context of total quality management, medical errors are referred to as “gems” (Leape, 1994) and “medical treasures” (Blumenthal, 1994).
The literature also suggests that medical errors and medical malpractice are the by-products of a medical error information gap (Perez & DiDona, 2010) which can be eliminated though physicians’ consistent and continuous engagement in transparent communication with colleagues, patients, and external reporting agencies. Research has also revealed a large number of barriers to transparency (Kaldjian, Jones, Rosenthal, Tripp-Reimer, & Hillis, 2006), suggesting that a systemic overhaul would be needed to change the culture in healthcare.

As compelling as the arguments in favor of transparency appear, convincing physicians to adopt transparency is a tall order. In addition, relying exclusively on rational appeals will not endow physicians with enough moral courage to continually engage in comprehensive medical error reporting and disclosure. Instead, the first step towards establishing a culture of transparency is to acknowledge the pervasiveness of the problem by identifying the true nature of the barriers to transparency.

**Rationale and Research Questions**

The type of change that is needed to establish transparency should take into consideration that the barriers to transparency are systemic and pervasive (Liang, 2002). In other words, a systemic problem calls for a robust solution. In light of this, the present study sets out to define the most appropriate and effective change strategy for establishing a culture of transparency in healthcare by developing a theoretical framework that reflects the systemic nature of the problem. The purpose of this study is therefore to examine the associations between physicians’ propensities for transparency and the intrapersonal, interpersonal, institutional, and societal barriers to transparency. Thus, the research questions that will guide this study are:

1) What are the psycho-social predictors of transparency?
2) What is the relative importance of each predictor?

Identifying the most significant barriers transparency can inform healthcare leaders about where to direct their change efforts. For instance, if individual factors are found to predict transparency, this might suggest that change efforts should be directed at modifying medical education curricula. If organizational factors are found to predict transparency, then healthcare leaders may have to revise policies in the work environment. Lastly, if societal factors are found to predict transparency, then the recommendation would be that legislators and policy-makers should play a larger role in the pursuit for transparency.

To date, several researchers have classified factors associated with transparency. Jeffe and colleagues (2004) conducted a study using physician-based focus groups that identified six barriers and six facilitators related to error reporting, most of which related to organizational policies. It is not clear whether the researchers also inquired about disclosing bad outcomes to patients.

A more in-depth analysis is provided by Kaldjian and colleagues (2006) who uncovered 59 facilitating and impeding factors that affect physicians’ willingness to disclose errors. These factors were categorized into one of eight domains: Responsibility to patient, responsibility to profession, responsibility to self, responsibility to community, attitudinal barriers, uncertainties, helplessness, and fears and anxieties.

Barach and Small (2000) conducted a similar study in non-medical settings where barriers and incentives to error reporting were identified at the individual, organizational, and
societal levels. The barriers and incentives were classified as legal, cultural (i.e. attitudes, values, beliefs), regulatory, and financial.

Several shortcomings in each of these studies provide the impetus for the research questions in the present study. First, a holistic analysis of factors that are associated with transparency in healthcare has yet to emerge, namely, one that includes individual and contextual variables. Second, research has yet to quantify the relationship between the predictors of transparency and transparency outcomes.

Third, although many researchers have thus far suggested reasons why transparency is not yet normative, the taxonomies produced in each study do not identify the relative importance of each factor. As mentioned earlier, determining which factors are more predictive of transparency can inform change agents about where to direct their efforts. Lastly, the taxonomies of transparency factors do not distinguish between those that account for error disclosure to patients from those that pertain to formal error reporting. Thus, in the context of this study, transparency is conceived as two separate constructs: Provider-patient transparency and error reporting transparency.

Despite the aforementioned shortcomings, the findings produced in each study laid the groundwork for the present research by identifying factors that might be responsible for transparency. As such, some the factors identified by Barach and Small (2000), Jeffe and Colleagues (2004), and Kaldjian and colleagues (2006) were categorized according to the domains represented in the theoretical model applied herein (i.e., individual, socio-organizational, and societal). The prior delineation of factors also facilitated the development of questionnaire items that were included in the Physician Transparency Questionnaire.
Theoretical Context

This study is supported by two organizational change theories: Lewin’s force field analysis and Chin and Benne’s normative re-educative strategy.

In the context of this study, Lewin’s theories are descriptive. Lewin (1958) proposes that change happens when driving forces are weaker than restraining forces. When the two forces are equivalent, the organization can only maintain the status quo. In the context of this study, Lewin’s theory suggests that forces that drive transparency encounter forces that inhibit transparency, ultimately suggesting that change agents should either increase the number of facilitating factors or decrease the number barriers to transparency.

The second theory is Chin and Benne’s (1985) normative re-educative strategy. In the context of this study, the normative-re-educative strategy is prescriptive. It proposes that norms, values, attitudes, and relationships must be addressed in order to achieve organizational change. The theory also proposes that organizational change must occur within the system, and between the system and its external environment. In the context of this study, the normative re-educative strategy suggests that transparency efforts must take into account individual, group, and societal factors, and pay attention to fundamental structures in the culture (e.g. attitudes) in order to be considered effective.

Scope of the Study

In this study, transparency is defined as the degree to which the physician engages in formal error reporting and error disclosure to patients and families. Non-random samples of physicians were drawn from a multi-site hospital system in Central Florida.
A correlational research design will be used to determine the degree of relationships between three predictor variables, namely, perfectionism, socio-organizational climate, and medico-legal environment; and two outcome variables, namely, provider-patient transparency and error reporting transparency.

Considering that there are no known instruments that measure these variables, the Physician Transparency Questionnaire (PTQ) was created for the specific purposes of this research. The items in the PTQ were derived from several studies which support the idea that perfectionism, socio-organizational climate, and medico-legal environment are related to transparency. The PTQ is a paper-and-pencil questionnaire that contains 37-items that measure 5 factors. All items except for demographic questions use a five-point Likert scale.

SPSS will be used to conduct descriptive analyses Cronbach internal reliability tests, and group means comparisons tests. AMOS will be used to perform confirmatory factor analysis which will ascertain the construct validity of each variable. Following this, covariance structure modeling will be performed to estimate the relationships between the predictor and outcome variables.

*Expected Findings*

In this research, perfectionism, socio-organizational climate, and medico-legal environment are defined as barriers to transparency. As such, perfectionism, socio-organizational climate, and medico-legal environment are expected to be negatively associated with error reporting transparency and provider-patient transparency.
This study will also investigate differences in the propensity for transparency among different types of medical errors (i.e., no harm, minor harm, hospitalization, and life threatening) and among different provider-patient transparency activities (i.e., the use apology, sympathy, and honesty in disclosing bad outcomes).

To date, only a handful of studies have undertaken the task of measuring the propensity for transparency among physicians. A lot of variation exists in the way that transparency is measured. Some studies measure transparency by gauging physicians’ responses to specific hypothetical clinical scenarios (e.g. Blendon et al., 2002), whereas others have gauged physicians’ responses to generic definitions of medical errors and adverse outcomes (e.g. Gallagher et al., 2003).

As a result, there is little consensus on how to measure transparency. Also, a transparency scale has yet to be validated and established in healthcare. Thus, the PTQ may potentially inform researchers and patient safety experts about the most effective and accurate way to measure the propensity for transparency.

Definitions of Key Terms

Perfectionism: Degree to which physician holds perfectionist beliefs.

Socio-Organizational Climate: Perceived interpersonal and institutional barriers to transparency.

Medico-Legal Environment: Perceived societal barriers to transparency.

Provider-Patient Transparency: Propensity to communicate honestly about bad outcomes with patients and families.
Error Reporting Transparency: Propensity to formally report medical errors.

Medical Error: Failure of a planned action to be completed as intended or the use of the wrong plan to achieve an aim (Institute of Medicine, 2000). This excludes intentional and reckless actions that harm the patient.

Bad Outcome: Preventable and non-preventable medical error.

Error Reporting: Formally disclosing an error to a internal or external reporting system.

Disclosure: Disclosing a bad outcome to a patient and/or their relatives.

No Harm Error: An error that had the potential to harm but did not.

Minor Harm Error: An error causing an injury that is easily treated and has no lasting effects.

Hospitalization Error: An error causing hospital admission or prolonged hospital stay.

Life-Saving Intervention Error: An error that was life threatening that resulted in a successful life-saving intervention.

Chapter Summary

Transparency refers to the quality of communication in healthcare as it relates to formally reporting medical errors and disclosing bad outcomes to patients and families. The lack of transparency in healthcare is problematic because of its association with medical errors and medical malpractice. Research shows that enhancing transparent communication is an effective way to enhance patient safety and healthcare quality, and is also considered an effective
malpractice risk management tool. In order to identify the myriad of barriers to transparency, this research sets out to identify psycho-social barriers to transparency.
CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Medical Errors and Malpractice Litigation: A Root Cause Analysis

A complex system of barriers has been identified in relation to physician transparency. In the subsequent section this system is discussed in terms of intrapersonal, interpersonal, institutional, and societal-level barriers that together can undermine transparency and the sense of psychological safety that is necessary for effective disclosure and learning from error.

Intrapersonal Barriers: Psycho-Social Profile of Physicians

The best place to start investigating physicians’ tendencies to adopt the deny-and-defend approach to communicating errors and bad outcomes is in medical school, where physicians are in the formative years of their careers, and where attitudes, beliefs, and professional virtues are likely to shape. It may seem strange to propose further education to some of the most highly-trained professionals; however, education takes on many forms, and one of those is learning that knowledge does not automatically translate into success and professionalism.

The medical education environment has been questioned for failing to develop good moral character in medical students. Ensuring that physicians develop morally sound work virtues would guide them in their medical practice by encouraging them to act in others’ best interests, and possibly deter them from engaging in deviant behaviors. One cohort study assessed undergraduate medical students’ moral reasoning skills in their first and third years of medical school. The findings revealed a significant decline in moral development by the end of year three (Patenaude, Niyonsenga, & Fafard, 2003). Even more disappointing are the findings...
that medical school might decrease ethical sensitivity (Hebert, Meslin, & Dunn, 1992), and that most medical students feel pressured to act unethically (Hicks, Lin, Robertson, & Woodrow, 2001).

Other studies have revealed medical students’ perceptions that the ethical dilemmas they encounter in clinical settings - even though they are recognized as being problematic - cannot be discussed with their clinical teachers. For example, focus group sessions uncovered that medical students are often afraid of their clinical teachers and are thus reluctant to question the morality of the clinical situations they encounter (Hicks et al., 2001). These findings suggest the existence of a hidden curriculum that inhibits medical students from developing ethical and professional virtues that are critical to career development in medicine (Self, Schrader, Baldwin, & Wolinsky, 1993).

Several scholars have questioned the quality of student-teacher relationships in medical school. For example, research shows that 53% of residents experience public humiliation or belittlement by senior residents during their internship (Daugherty, Baldwin, & Rowley, 1998) and that medical education is characterized by a hierarchical and competitive atmosphere (Lempp & Seale, 2004). In addition, the Morbidity and Mortality Conference is often an example of an educational initiative that often uses shame to discourage medical errors (Goldberg, Kuhn, Andrew, & Thomas, 2002).

While these findings undoubtedly do not describe the experience of every student physician, they do provoke serious questions about the nature of medical education and urge us to consider what constitutes a healthy learning environment for medical students. Overall, the findings suggest that unhealthy socio-academic experiences might stimulate the emergence of
defensive personality structures that inhibit physicians from engaging in transparent communication. In other words, we must ask ourselves: If the medical education system underemphasizes psychologically safe learning environments that support moral development, and if physicians are trained - albeit inadvertently - to constantly protect themselves against criticism, then what is the likelihood that they will own up to medical errors in the future?

These findings demonstrate that physicians’ professional virtues and psychosocial profiles are at odds with the American Medical Association code of ethics, specifically, with principle that physicians have a duty to ensure that patients’ needs are placed ahead of professional interests (American Medical Association, 2009). It seems that a strong ethical foundation and an interpersonal sensitivity are indispensable to the goal of instituting transparency in healthcare.

Although several studies identify a lag in physicians’ moral development, an alternative explanation for poor transparency is that most physicians have good intentions; the problem is that they encounter attitudinal barriers that discourage error reporting and disclosure. A recent study identified taxonomies of factors that affect physicians’ willingness to disclose errors. Specifically, it was found that perpetuating perfectionism, fearing the possibility of looking foolish in front of junior colleagues or trainees, and fearing a sense of personal failure, loss of self-esteem, and threat to one’s identity as a healer were significant barriers to transparency (Kaldjian, Jones, Rosenthal, Tripp-Reimer, & Hills, 2006).

David Hilfiker became well-known as a result of publishing an unusual article about his experiences with medical errors. Not surprisingly, Hilfiker’s article receives a great deal of attention as he is one of the few physicians to have openly discussed his professional mistakes.
In this article, he makes the following poignant statement about the ubiquitous pursuit for perfectionism in medicine:

“This perfection is a grand illusion, of course, a game of mirrors that everyone plays. Doctors hide their mistakes from patients, from other doctors, even from themselves. Open discussion of mistakes is banished from the consultation room, from the operating room, from physicians’ meetings. Mistakes become gossip, and are spoken of openly only in court. Unable to admit our mistakes, we physicians are cut off from healing. We cannot ask for forgiveness, and we get none. We are thwarted, stunted; we do not grow… But if we are unable to deal openly with those that do occur, we will find neurotic ways to protect ourselves from the pain we feel. Little wonder that physicians are accused of playing God. Little wonder that we are defensive about our judgments, that we blame the patient or the previous physician when things go wrong, that we yell at nurses for their mistakes”. (Hilfiker, 1984, p.120-121)

McKegney (1989) described medical education as an “abusive and neglectful family system” that is characterized by expectations of perfectionism, denial, indirect communication patterns, rigidity, and isolation. He also argued that dysfunctional teaching styles are inherited and passed along from one generation of educators to the next. Thus, medical educators have been striving to identify these dysfunctional dynamics and integrate new training and development principles that mutually support technical and professional moral development.

For example, the Accreditation Council for Graduate Medical Education has incorporated a number of competencies into educational curricula, including: compassionate, appropriate, and effective patient care; practice-based learning and improvement of interpersonal and communication skills to work effectively with patients, families, and other professionals; professionalism with respect to compassion, integrity, and respect for others; and accountability to society and the profession (Accreditation Council for Graduate Medical Education, 2007). Integration of these concepts as core components of medical school curricula were an important
step in laying the foundation for a professional culture of transparency. Robust evaluations of such policy changes are needed, however, to most accurately evaluate their impact.

**Interpersonal Barriers: Physician-Patient Relationships**

A significant portion of malpractice litigation is caused by a relational breakdown between the patient and the provider (Liebman & Hyman, 2004). Medical liability studies have shown that patients’ and families’ decisions to sue their physician stems from the occurrence of an injury coupled with the perception that the physician communicated poorly and was insensitive in handling the incident (Vincent, Young, & Phillips, 1994). This study also found that 37% of those who sued their physician felt that an apology would have eliminated their need to seek legal retribution. Similarly, other research has found that 24% of families who sued their physician for perinatal injuries believed that the physician had concealed the details surrounding the incident (Hickson, Clayton, Githens, & Sloan, 1992).

Patients will initiate malpractice litigation because their physician failed to admit or apologize for an error. When physicians react to an adverse outcome with silence, this compromises the patient’s dignity and erodes trust in the provider-patient relationship (Wu, Cavanaugh, McPhee, Lo, & Micco, 1997). Moreover, seeing that patients generally expect explanations for adverse outcomes, a lack thereof increases their willingness to sue the physician in order to obtain that information (Cohen, 2004). Lastly, it has been argued that some victims of medical errors are concerned that unless the physician admits responsibility, they will likely repeat the error in the future (Cohen, 2004). Hence, some patients feel that it is their duty to sue in order to protect the well-being of other patients.
Kavaler and Spiegel (2003) pointed out that approximately 88 percent of lawyers handling malpractice cases stated that their plaintiffs (i.e. patient and/or family) were surprised by the adverse outcome, which suggests the possibility that physicians are not adequately informing their patients about the consequences of treatments and procedures. Moreover, they found that 80 percent of malpractice lawyers claimed that physicians had failed to respond to their patients’ complaints. Kavaler and Spiegel emphasize that communication between doctors and patients must be improved, and suggest that physicians should always maintain eye contact and refrain from interrupting the patient when they are speaking, so as to convey to the patient that their concerns have been acknowledged.

The Sorry Works Coalition (http://www.sorryworks.net/) is an advocacy organization for disclosure, apology, and upfront compensation for adverse medical events. Their mission statement conveys that the nature of the malpractice crisis is in reality a customer service problem, therefore implying that malpractice problems can be alleviated by healing the interactions between patients and providers (Wojcieszak, Banda, & Houk, 2006). Hence, part of the solution is to implement in-house apology and disclosure training programs where physicians are taught to communicate bad outcomes to patients and families in an honest and proactive manner. Studies of such programs have documented reductions in claims and liability costs, as well as benefits for providers themselves (Kachalia et al. 2010; Gallagher et al., 2006c). For example, nearly 75% of clinicians reported feeling relief after disclosing a serious event to their patient (Gallagher et al., 2006c), suggesting that disclosure can be an important mechanism for facilitating the emotional healing of both patients and physicians.
However, we should not presume that the physician is exclusively responsible for unhealthy doctor-patient dynamics. Oftentimes, patients have unrealistic expectations about treatments and therefore place impossible demands on the physician, which in turn makes it hard for the physician to be candid about errors. Blumenthal (1994) describes an implicit “social contract” in medicine where the patient grants the physician extraordinary power and decision-making authority in exchange for an error-free practice. This suggests that the initial physician-patient encounter should include a frank discussion about what should and should not be expected about treatments and outcomes. This also highlights that the current trend towards patient-centered care has the potential to reduce the physician’s burden of care and hopefully, take us one step closer to achieving transparency.

Institutional Barriers: Healthcare Culture and Policies

Healthcare organizations operate in a climate that is characterized by norms that perpetuate fear, blame, and secrecy (Horns & Loper, 2002; Sibbald, 2001; Wei, 2006), and the end result is a system that is plagued with error reporting gaps (IOM, 1999). Historically, healthcare professionals have been reluctant to express sympathy, remorse, or responsibility for adverse outcomes on the advice of attorneys, insurance companies, and hospital administrators. These groups promulgated the belief that admissions of fault and expressions of regret would invite litigation because such statements could be used in court as evidence of medical malpractice (Sparkman, 2005). An example of this is illustrated by the following clause that is included in some malpractice insurance policies: “The insured shall not, except at his own cost, make any payment, admit any liability, settle any claims, assume any obligations, or incur any expense without the written consent of the company” (American Institute for CPCU, 1998,
Physicians have also feared that having an open and honest conversation about a medical error would lead to loss of malpractice insurance coverage or increased premiums (Boothman, Blackwell, Campbell, Commiskey, & Anderson, 2009).

Patient safety advocates are increasingly recognizing the importance of establishing cultures where trust and open communication are the norm (Gallagher, Studdert, & Levinson, 2007). For instance, the IOM has recommended that the collection of a wide range of error data through computerized systems is the most effective way to eliminate medical errors.

However, asking physicians to report medical errors is a tall order. Naturally, fears of legal and financial liabilities inhibit physicians from being outspoken about their clinical mistakes (Kaldjian, Jones, Rosenthal, Tripp-Reimer & Hillis, 2006), and not surprisingly, studies investigating physicians’ attitudes and intentions to report errors have shown that their willingness to report increases when they believe that disclosure will not be met with a punitive response (Garbutt et al., 2008). This suggests that in order to create an atmosphere that engenders openness from health professionals, leaders of health provider organizations should provide physicians with some form of immunity and support once they report an error. Immunity in this sense however, does not imply freedom from accountability.

At the same time, studies have shown that patients expect error disclosure (Hobgood, Peck, Gilbert, Chappell, & Zhou, 2002; Mazor, Simon, & Gurwitz, 2004) and moreover, prefer that error reports be released publicly (Blendon, DesRoches, & Brodie, 2002) so as to better inform their decisions about choosing a health provider. Although public reports might ensure performance accountability and protect patients from negligent physicians, we must not forget that confidential error reporting systems are one mechanism with the potential to reduce the
hostility of the medico-legal environment and therefore encourage transparency. Thus, the challenge for healthcare leaders is to strike a balance between professional accountability and patient safety.

Healthcare leaders can start by creating an atmosphere that is conducive to error reporting; that is, by creating a culture that expects and rewards transparency, and where it is expected that peers and leaders support those who report and admit errors. Confidential error reporting is intended first and foremost to enhance patient safety by uncovering systematic flaws and creating a culture that is learning-oriented. Specifically, Weaver (2011) defined supportive, learning-oriented patient safety climates as those in which: (1) providers perceive that the response to error by peers and leaders will be non-punitive, (2) there is an explicit emphasis on approaching error with a learning orientation and a salient commitment to continuous learning from defects and glitches, (3) there is explicit feedback and communication regarding error and proactive discussions regarding how the next patient could be harmed, and (4) providers perceive that their team members work effectively as a cohesive unit toward shared patient safety goals. Empirically, units with a supportive learning climate were found to be the safest in a study of 84 units sampled from seven hospitals (Weaver, 2011). Overall, developing and promoting a patient safety culture that is supportive and learning-oriented is one strategy that unit and organizational leaders can use to facilitate transparency.

Societal Barriers: Medico-Legal Environment

Several researchers have reported that the legal environment is a major determinant of disclosure behavior. For instance, Baginski, Hassell, and Kimbrough (2001) demonstrated that the legal environment significantly influences disclosure practices in the area of management. In
this study, management earnings forecast disclosures were compared between the US and Canada. These countries are considered to operate in similar business climates yet are said to have different legal climates in the sense that the judicial interpretations create a far less litigious environment in Canada than in the US. The findings revealed that in Canada, there is a higher frequency of management earnings forecast disclosures than in the US, and furthermore, that Canadian managers make more precise and more long-term forecasts compared to managers in the US.

Several factors explain why Canadian physicians practice in a much less litigious environment than US physicians. As mentioned earlier, physicians in the US face constant threats of escalating insurance premiums and loss of insurability (Mello, Studdert, & Brennan, 2003). An even more noteworthy difference between these countries is that their differing tort reforms result in US physicians being four times more likely to be sued compared to Canadian physicians (Coyte, Dewees, & Trebilcock, 1991; Picard & Robertson, 1996).

The US medico-legal climate is filled to the brim with litigious patients and lawyers. This in turn has exacerbated the malpractice crisis as physicians are under the constant threats of incurring a damaged reputation, legal punishment, and financial losses. Malpractice tort reforms, such as capped damage awards, have been met with little success. As a result, legislators have designed several policies that are meant to curb medical errors and alleviate the malpractice crisis by influencing physicians’ communication habits. For instance, state legislators are enacting laws to encourage error reporting.

According to the National Academy of State Health Policy (2007), state legislators are enacting laws that mandate reporting behaviors among physicians in order to improve patient
safety and increase accountability for errors. As of 2007, error reporting was mandatory in 25 states (Rosenthal, Takach, & Portland, 2007). Mandatory systems may be ineffective, however, because they are often perceived as being designed to identify and punish “bad” physicians and facilities rather than as a mechanism to actively correct and learn from errors (Cohen, 2000).

A closer look at these statutes reveals that for the most part, only serious errors must be reported. According to the Institute of Medicine (2000) however, collecting data on less serious errors is indispensable to enhancing patient safety. For one thing, minor errors are more frequent and numerous and thus provide analysts with more information to understand the nature of medical errors. Moreover, research has shown that less serious errors are more likely to be reported altogether (Garbutt et al., 2007), seeing that they are less likely to invoke feelings of guilt and shame among physicians. Lastly, many states face a number of challenges including small numbers of error reports, and a lack of clinical expertise and other resources that are critical for identifying error trends (Rosenthal & Booth, 2005).

As an alternative to mandatory reporting, patient safety experts have emphasized voluntary reporting systems as a means to achieve quality improvement goals. Their argument is that voluntary systems are more effective and provide better information for reducing medical errors (Agency for Healthcare Research and Quality, 2003) because they allow physicians to report in-error depth information without fears of reprisal (Cohen, 2000). Despite these arguments, as of 2007 Oregon was the only state to enact a voluntary reporting system (Rosenthal et al., 2007).

At the federal level, the Patient Safety and Quality Improvement Act (PSQIA) was enacted in 2005 and described as a “giant leap for changing the culture and improving the quality
of care delivered in our health care entities” (Mattie & Ben-Chitrit, 2007). In essence, the PSQIA established voluntary, confidential reporting systems whereby Patient Safety Organizations (PSO) could collect data on patient safety events, analyze errors, and identify best practices. However, the effectiveness of PSOs is yet to be determined. Although 65 PSOs have been listed since 2009, few have begun to receive patient safety data or have even entered into contracts with health services organizations (US Government Accountability Office, 2010).

In an effort to mend the provider-patient relationship and to curb the medical malpractice problem, 36 states have also enacted so-called apology laws (Mattie & Ben-Chitrit, 2007). Simply put, an apology law is a statute that allows physicians to express sympathy and regret - and in some cases admit responsibility - without having their statements used against them in court. As such, the apology law is meant to create an environment that is less litigious.

Research on the impact of apology laws is scant. One study demonstrated that apology laws have no significant impact on claims rates (Perez & DiDona, 2009), while a more recent study found that apology laws reduced the amount of the time needed to settle cases by roughly 20 percent, and decreased average claims payments for serious injury cases by 14 to 17 percent (Ho & Liu, 2011). The effectiveness of apology laws is questioned on the merits that legislators are too remote from the delivery of healthcare services to significantly impact physicians’ behavior (Perez & DiDona, 2009). Another problem is that there are holes in the protections afforded by apology laws such that two thirds of state apology statutes protect only expressions of regret, leaving out any admission of fault or responsibility. Yet another issue is that malpractice lawyers are more inclined to pursue cases where apologies have been made, even if these statements cannot be used as evidence of malpractice behavior (Gallagher et al., 2007). In
the end, apology laws may not reassure physicians that it is safe to communicate transparently - and that is assuming that physicians are even aware that these laws exist.

Overall, these findings provide mixed support for government involvement in patient safety initiatives, and furthermore, demonstrate that the legal system can both help and hinder transparency efforts. One the one hand, apology laws can alleviate some of the hostility in the medico-legal environment and therefore encourage physicians to communicate more openly with patients and families. On the other hand, mandatory reporting laws have not stimulated adequate levels of reporting activity as they fail to recognize that 1) medical errors are largely a private experience, and 2) that legislating morality and personal behavior is impractical. Another caveat regarding mandatory reporting systems is that they can thwart patient safety goals by undermining the physician’s sense of self-determination and rendering the medico-legal climate more threatening than it already is.

Although patient safety advocates convey optimism for voluntary reporting, it should not be forgotten that the effectiveness of these systems is hinged upon eradicating the tendencies for perfectionism and shame-and-blame, so that physicians can find the *willingness* to report a broad spectrum of medical errors.

Taken together, these findings suggest that the plan to institutionalize transparency should consist mainly of grassroots efforts that are geared towards enhancing the quality of medical education and implementing disclosure programs at the organizational level, all the while empowering physicians to adopt an attitude of candor in dealing with medical errors.
Compounded Effects of Individual, Organizational, and Societal Forces

According to the Gestalt perspective, when analyzing and understanding a human system, the whole is always greater than the sum of its parts. Applying this perspective to the issues of transparency means considering the compounding effects of the intrapersonal, interpersonal, institutional, and societal barriers to transparency and error disclosure.

To start with, disclosing medical errors has been documented as an often agonizing and psychologically painful experience for physicians because it implicates their sense of professional competence (Banja, 2005). Medical mistakes in general are a great source of distress for physicians (Christensen, Levinson, & Dunn, 1992; Gallagher & Lucas, 2005; Newman, 1996) that generate feelings of remorse, guilt, inadequacy, and frustration (Hobgood, Hevia, Tamayo-Sarver, Weiner, & Riviello, 2005). Although some errors occur out of negligence and lackadaisical behavior, it is important to acknowledge that most physicians have pursued medicine with the intention of beneficence - to relieve others’ pain and suffering.

What emerges from this systemic analysis is that medical error conversations cause physicians to face recriminations from patients, lawyers, hospital-employers, insurance companies, and their own conscience, along with the threats of incurring legal and financial penalties. Furthermore, all of this occurs against the backdrop of a medico-legal climate that does little to make patients more forgiving, lawyers less litigious, and physicians more communicative; and a medical education system that emphasizes perfection over ethical behavior. It is therefore not surprising that many physicians develop “medical narcissism” - a psychological armor of sorts that protects against the continual attacks on the physician’s self-
esteem and allows them to cope with their work (Banja, 2005). From a patient safety perspective however, medical narcissism is antithetical to transparency.

There is little consensus on what constitutes a medical error, and moreover, complex treatments and procedures create wiggle room for determining adverse outcomes to be non-erroneous in nature. For example, it has been noted that “most physicians are much worse than judges or juries in distinguishing between honest misjudgments and negligent errors, often confusing blameworthy deviation with acceptable professional standards and blameless misfortune” (Kapp, 1997, p.788).

However, in a culture of transparency, it is less important to determine precisely whether a medical error occurred and whether it was preventable, seeing that physicians would be more inclined to disclose these events - at least for the sake of learning about them. In the end however, no single party or entity is to blame: Poor transparency is more accurately portrayed as a product of the milieu in which physicians learn, practice, and live.

Evidence of Successful Transparency Efforts

Patient safety and transparency initiatives are on the rise. Between 2002 and 2005, the percentage of institutions that established disclosure policies increased from 36 percent to 68 percent (Gallagher et al., 2006a; Lamb, Studdert, Bohmer, Berwick, & Brennan, 2003) A recent article in Time Magazine has declared the Department of Veterans Affairs (VA) Hospitals as superior health services providers in the US (Waller, 2006). For decades, VA hospitals have made concerted efforts to improve patient safety. For example, their patient safety information system, which they nicknamed “SPOT”, combined with their non-punitive approach to
addressing medical errors, has gained clinicians’ trust and collaboration in a patient safety initiative, as is evidenced by an enormous increase in annual error incident reports from 257 in the year 2000 to 74,480 in 2005 (US Department of Veterans Affairs, 2006).

The relationship between effective provider-patient communication and lower malpractice litigation rates is supported by Levinson, Roter, Mullooly, Dull, and Frankel (1997) who demonstrated that significant differences between physicians with zero-claim histories and physicians with existing claim histories are a result of physicians’ communication styles. It was reported that the physicians in the ‘no claims’ group more often used humor and statements of orientation, and tended to engage in facilitation techniques where patients’ opinions and understanding of clinical information could be ascertained. Although these communication techniques do not pertain to transparency per se, this research provides yet more evidence that healthy provider-patient communication is associated with a reduced likelihood of malpractice litigation.

The apology and disclosure program at the University of Michigan Health System (UMHS) is among the most touted examples of successful transparency efforts in healthcare. Since the program was implemented in 1999, their abandonment of the deny-and-defend approach to communicating about adverse outcomes led to significant reductions in malpractice litigation rates, time needed to resolve litigation, and settlement amounts awarded (Balcerzak & Leonhardt, 2008; Boothman, Blackwell, Cambell, Commiskey, & Anderson, 2009; Clinton & Obama, 2006). Specifically, between 2001 and 2005 it was reported that annual litigation costs dropped from $3 million to $1 million; the average time to resolve claims decreased from 20.7 months to 9.5 months; and the number of claims and lawsuits dropped from 262 to 114.
Another highly successful program was reported at COPIC, a large medical malpractice insurance carrier based in Colorado. Their program combined disclosure practices for anticipated and unanticipated events, combined with early compensation, in order to prevent injury cases from entering into the legal system altogether (Boothman, Blackwell, Cambell, Commiskey & Anderson, 2009). According the Hartford Courant (2006)—"payments to aggrieved patients were under $6,000, compared with about $284,000 for doctors not in the program."

The Bureau of Veterans Affairs (VA) hospital in Lexington, Kentucky, is an example of an effective medical error disclosure program that encourages extreme honesty (Kraman & Hamm, 1999). According to Walling and Ackerman (2006), since the late 1980s, the VA hospital has been encouraging expressions of sympathy and admissions of fault, and actively seeks to disclose medical errors by offering their staff the necessary support for filing a claim. As a result of these concerted efforts, this VA hospital has seen astonishing results as they have reduced lawsuits and costs associated with settlements and defense fees. In a seventeen year period, only three cases have gone to trial. In addition to resolving disputes in a less adversarial manner, the VA’s average settlement cost is now $16,000 per case – a figure which stands in sharp contrast to the national VA average of $98,000.

Disclosure programs are not limited to alleviating the malpractice crisis. The National Nosocomial Infection Survey, which is operated by Centers for Disease Control and Prevention, is a voluntary reporting system for hospital-acquired infections. It was shown that nosocomial-infection rates were 32 percent lower in hospitals that implemented the program than in hospitals without the program (Haley et al., 1985).
It is not surprising that the apology and disclosure programs discussed herein have generated considerable attention. This is mainly because leaders in these organizations enacted programs that apply a relatively simple and straightforward solution (i.e., saying “I’m sorry”) to rather complex and costly healthcare problems. Moreover, their actions were perceived to be bold, especially considering that they were guided by the very principle – transparency – that was historically admonished in the healthcare industry. These organizations are thus considered exemplary in their efforts to be transparent.

Theoretical Support

The present section will review various organizational change theories in order to describe, from a theoretical perspective, why transparent communication is not yet normative in healthcare, despite its known potential to reduce medical errors and malpractice litigation. The theories discussed in this section will also clarify where the healthcare industry stands in its quest to establish transparency, and suggest the process that must be undertaken in order to attain higher levels of transparency.

Descriptive Theory: What’s the Problem?

A consistent yet unfortunate reality about organizational change is that it does not come easily (Quinn, Spreitzer & Brown, 2000; Strebel, 1996), and this is likely because change represents the death of the status quo (Bozak, 2003) and the loss of familiar routine (Applebaum & Wohl, 2000). To illustrate the high failure rate of organizational change efforts, one researcher found that approximately 75 percent of all total quality management, reengineering, strategic planning, and downsizing initiatives have either failed or have disrupted the system to a point where it was seriously jeopardized (Cameron, 1997). It seems that this trend will continue
until it is realized that failed organizational change efforts result from failing to successfully alter the human system (Quinn et al., 2000). For example, one study revealed senior managers’ predominant belief that modifying a company’s structure will transform employee behavior, although formal structure is the last element that should be addressed in organizational change efforts (Beer, Eisenstat & Spector, 1990).

Lewin’s (1958) force field analysis theory was an attempt to explain the organizational change process. According to Lewin, organizational stability is the result of two opposing energies - known as driving and restraining forces - that constantly push against one another. He argued that stability is a dynamic rather than a static phenomenon because eventually, a change in the strength of either of these forces destabilizes the organization, for better or for worse. When driving forces are strengthened or similarly, when restraining forces are diminished, the organization moves towards desired change. On the other hand, when restraining forces are increased, this creates resistance to change thereby causing the organization to maintain the status quo.

In addition to describing the dynamics of change, Lewin (1958) outlined the stages of change. The first is the unfreezing stage where cognitive dissonance is experienced which creates the awareness that change is needed. This is oftentimes a turbulent and chaotic period seeing that the unfreezing stage involves challenging fundamental beliefs and assumptions. The unfreezing stage is often hard to overcome because of the natural tendency for humans to seek safety and predictability, therefore causing them to resist new conditions that might threaten their established identities. Being “change ready” thus requires the willingness to relinquish familiarity and control over one’s environment.
In the second stage, the individual or organization enters the *changing* process, where actions are taken and transformation occurs by way of learning something new. The third and final stage, called *refreezing*, is when the image and identity of the organization are reified, and occurs only once the proposed changes have been fully integrated. Depending on the discrepancy between the organization’s desired and observed outcomes, this process is repeated until the final results are satisfactory.

In the context of the present study, Lewin’s force field analysis allows one to identify the driving and restraining forces that explain why the widespread adoption of transparency in healthcare has been so difficult to achieve. As was discussed earlier, the healthcare system is confronted with numerous restraining forces, such as perfectionism, a culture of shame and blame, and a litigious medico-legal environment. Lewin’s theory also highlights that the US healthcare system has yet to surpass the first change stage. It is quite apparent that the healthcare culture is still “frozen”, as its modus operandi for dealing with errors is a shame-and-blame and deny-and-defend approach. Given these antagonistic conditions, it becomes quite clear that a paradigm shift needs to occur in order for a culture of transparency to prevail.

**Prescriptive Theory: What’s the Plan?**

Indeed, change theorists have expressed their differences about what constitutes an effective change method. Chin and Benne (1985) offered a comprehensive classification of change strategies (in other words, “meta-theory”), and in doing so clarified the predominant mindset that has guided, though more often misguided, leaders and other change agents. The categories of change strategies are known as *empirical-rational, power-coercive*, and *normative-re-educative*. 
According to Chin and Benne (1985), empirical-rational change strategies assume that individuals are purely rational, and that once rational self-interests are clarified, individuals will feel compelled to effect certain changes. Therefore, change is about convincing people to see the wisdom behind the proposed changes so as to earn their commitment and loyalty to the process. Moreover, the empirical-rational strategy assumes that change occurs by way of transferring expert-level information in a one-way, top-down fashion (Miles, Thangaraj, Dawei, & Huiqin, 2002). Initially, effecting change through rational appeals is highly attractive because the method is simple: Accurate information and persuasive communication are the only tools required. But as Chin and Benne point out, using it as a single change strategy can be problematic, especially in cases where the group of change targets displays deep resistance towards the change.

What this suggests is that other forms of cognitions such as attitudes, values, and norms, also play a role in the change process and therefore need to be addressed. Furthermore, one-way communication might be inadequate, especially when the proposed changes are deep-seated. The implication for establishing transparency is that providing physicians with logical reasons as to why they should communicate transparently (e.g. outlining the connection between apologies and reduced litigation rates) might be necessary for them to understand why transparency is important; but insufficient as far as motivating them to communicate transparently. For these reasons, the empirical-rational strategy is unlikely to lead the healthcare industry into a culture of transparency.

Chin and Benne (1985) also discuss power-coercive strategies as comprising change efforts that rely heavily on punishment. The idea is that members of a system should listen to
those who hold power, even if members feel that the proposed changes are inappropriate (Miles et al., 2002). At times, change agents draw upon moral power, which involves playing with sentiments such as shame and guilt. Although the power-coercive strategy takes into account the role of emotions and therefore might seem more sophisticated than the empirical-rational approach, power-coercive strategies attempt to stimulate change through coercion.

According to Yukl (1994), the use of coercion is likely to yield disappointing results: Either those being threatened will superficially comply by going along with the request with apathy and minimal effort, or they will resist the request altogether. Furthermore, what is unlikely to result is true commitment, whereby change targets internally agree with a request and do everything in their power to carry it out effectively. Thus, the healthcare culture of shame and blame which has failed to reduce medical errors and improve patient safety (Berwick, 2001; Horns & Loper, 2002; Krizek, 2000; Sibbald, 2001) is a prime example of the ineffectiveness of the power-coercive approach.

Chin and Benne’s (1985) normative re-educative approach seems to be the most promising of all change strategies. This strategy is similar to the empirical-rational approach in that it takes into account the importance of knowledge; however it assumes that knowledge is social rather than rational by considering that values, attitudes, norms, and institutionalized relationships – in other words, the components of a culture - must be modified in order to achieve successful organizational change.

Miles and colleagues (2002) outline five assumptions in this strategy. First, organizational change needs to occur within the system (i.e. at the individual level), and between the system and its external environment. Second, change requires involvement and participation
from individual members (i.e. grassroots change efforts). Third, change agents should replace power dominance and one-way communication patterns with mutual collaboration and two-way communication. Fourth, deeper level assumptions such as attitudes and values must be challenged. And finally, the change process should enhance personal growth, as this will empower the system to direct itself towards change in the future.

The normative re-educative strategy has numerous implications for the establishment of transparency in healthcare. First, it tells us that transparency efforts require an examination of individual factors in conjunction with an understanding of the broader context in which physicians operate. Second, establishing transparency requires two-way communication between physicians and patient safety advocates. The third point is that fundamental structures such as attitudes, values, norms, and institutional relationships must be addressed to establish a transparent culture. In other words, healthcare is in need of a complete cultural overhaul (Garbutt et al., 2007; Jeffe et al., 2004; Leape, 1994; Leape & Berwick, 2005; Leape et al., 1998; Nance, 2008). And lastly, transparency efforts should be accompanied by the sub-goal of enhancing the personal growth and development of physicians. It is believed that satisfying these conditions will allow leaders to unfreeze the healthcare culture, at least as a first step towards establishing a culture of transparency.

In the context of this research, Chin and Benne’s normative re-educative strategy will be applied to measure physicians’ propensities to communicate transparently, in spite of the multitude of barriers they encounter. Hence, actual change is not what is being measured in this research; rather, this research will inform us about physicians’ readiness and willingness to communicate transparently.
Empirical support for the normative re-educative strategy is scant, especially as it relates to research in healthcare settings. To date, several authors have expressed the belief that this strategy offers a promising way to achieve fundamental change in healthcare. (Biley & Whale, 1996; McPhail, 1997; Soumerai & Avorn, 1984). Empirical support for the viability of the normative re-educative approach is provided by Edmond (1999), who demonstrated successful implementation of integrated care pathways in a nursing unit using the normative re-educative strategy, thereby supporting two of Chin and Benne’s (1985) five assumptions: Targeting change at the individual level, and applying a participatory approach.

Other researchers have compared the effectiveness of the normative-re-educative versus the empirical-rational strategy by assessing the impact of two change tactics on hospital infection rates. Their results showed that the normative re-educative strategy led to a statistically significant decrease in infection rates, whereas no significant difference was noted in the empirical-rational condition (Reilly, McIntosh, & Currie, 2002). However, their research only tested the normative re-educative strategy’s assumption about adopting a participatory approach to change.

Lastly, Barach and Small’s (2000) study on near-miss reporting systems in various industries supported the importance of addressing factors representing multiple domains in attempting to stimulate change. Specifically, they found that individual, organizational, and societal influences could incentivize or prevent error reporting activities.

Overall, the normative re-educative model is only partially supported. In light of this, the present study sets out to generate additional support for the model as it applies to healthcare. Specifically, this research will test the assumptions attitudes, norms, and institutional
relationships are important components of organizational change, and that addressing individual and contextual factors is indispensable to the change process.

Chapter Summary

Multiple factors explain why healthcare is characterized by poor transparency practices. At the intrapersonal level, factors include a medical education curriculum that offers little training moral and interpersonal skills, and a medical education setting where belittlement, humiliation, and the pursuit for perfectionism are make up the “hidden curriculum. At the interpersonal and institutional levels, factors include a professional or organizational culture that uses shame-and-blame and deny-and-defend strategies in the face of medical errors and bad outcomes. At the societal level factors include features in the medico-legal climate such has hostile and litigious patients, as well as transparency legislation whose effectiveness is questionable. Lewin’s force field analysis is used to describe the issue of poor transparency in healthcare. Chin and Benne’s normative re-educative strategy provides theoretical support that change efforts should address factors representing multiple domains and should also consider the effects of norms, attitudes, values, and relationships.
CHAPTER 3: METHODOLOGY

Conceptual Framework and Hypotheses

Three exogenous variables in this study represent varying dimensions of the context studied. Looking at the constructs in Figure 1, perfectionism represents the intrapersonal domain; socio-organizational climate represents the interpersonal and institutional domain; and medico-legal environment represents the societal domain. However, it should be noted that this study is based on physicians’ perceptions of their perfectionist tendencies, socio-organizational climate, and medico-legal environment. Therefore, the unit of analysis is limited to the physician.

The purpose of this research is not to blame physicians for not being transparent enough. Rather, this research assumes that the lack of transparency is a product of the environment in which physicians operate. Thus, the systemic nature of this problem justifies a holistic analysis. Support for a holistic framework is found in Chin and Benne’s (1985) normative re-educative strategy which assumes that change requires a consideration of individual and contextual factors. The normative re-educative strategy also supports the use of perfectionism and socio-organizational climate as predictor variables as it assumes that attitudes, values, norms, and institutional relationships must be redefined in order to successfully change an organization.
Figure 1. Psychosocial Determinants of Transparency: A Normative Re-Educative Approach

The Relationship between Perfectionism and Transparency

Perfectionism is based on the fundamental belief that perfection is achievable and that is anything less than perfect is unacceptable. Perfectionism can be a maladaptive trait which causes individuals to feel a chronic sense of failure and shame (Burns, 1980; Hamachek, 1978; Hollender, 1965; Pacht, 1984). It has also been suggested that perfectionism is a multifaceted construct, and as such, perfectionism has taken on a variety of meanings (Flett & Hewitt, 2002). Thus, perfectionism in this study is broken down into several indicators so as to identify the various thought patterns which are posited to interfere with transparent communication.

The first perfectionism indicator in this study is called *self-imposed* perfectionism and refers to self-generated professional expectations that are unrealistically high (Frost, Marten, Lahart, & Rosenblate, 1990). Gabbard’s (1985) case studies reveal the tendency for physicians to have an exaggerated sense of responsibility for matters beyond their control, a chronic sense that they are not doing enough, and not surprisingly, a difficulty in relaxing and a reluctance to
take vacations. It is believed that physicians’ reluctance to freely admit errors not only exacerbates the distress associated with making a mistake (Christensen, Levinson, & Dunn, 1992; Newman, 1996); perfectionism also leads to other maladaptive behaviors, such as blaming others, which in turn add inhibits the establishment of an error-transparent culture.

The second indicator is called *other-imposed* perfectionism and refers to the standards imposed on the physician by patients and the healthcare profession. This indicator is similar to Flett and Hewitt’s (2002) concept of socially prescribed perfectionism which relates to the standards imposed on the individual by society. Hilfiker (1984) argues that physicians are ill-prepared to deal with medical errors because nothing in their training prepares them to communicate in this manner. Along the same lines, Dubovsky and Schrier (1983) suggest that the infallibility illusion is cultivated in medical school where trainees develop an obsession for perfection that later follows them into their practice. The widely held assumption among trainees that physicians are not as fallible as the average human being (Dubovsky & Schrier, 1983) is a testament to their pursuit for perfection.

Flett and Hewitt (2002) further suggest that perfectionists often redirect their perfectionist tendencies outwards by holding others to unrealistically high standards, hence the third indicator is called *other-directed* perfectionism. A prime of example of how physicians sometimes project perfectionism onto others is offered by Dubovsky and Schrier (1983) who explain the origins of the perfectionist mindset in medicine. They suggest that senior physicians who are unable to accept their own limitations (i.e. they are themselves perfectionists) tend to be overly critical and controlling of their subordinate trainees, out of a fear that trainees’ weaknesses will bring to light their own.
The fourth indicator is called *image* and refers to the tendency for perfectionists to feel highly self-conscious and to make every effort to ensure that their shortcomings are not visible to others (Frost et al., 1995). Several researchers have reported the physicians’ reluctance to discuss errors, even in informal settings (Christensen, Levinson, & Dunn, 1992; Newman, 2006). Christensen and colleagues (1992) reported the beliefs of one physician who disclosed his strong expectations of being ridiculed by his colleagues about his mistakes. His precise words were “I can get crucified if I screw up” (p. 427). This particular physician was even afraid to disclose errors to his spouse. Similarly, Kaldjian and colleagues (2006) found that the fear of looking foolish in front of junior colleagues and trainees is an impediment to error disclosure.

Kaldjian, Jones, Rosenthal, Tripp-Reimer, and Hillis (2006) found that perpetuating perfectionism is an attitudinal barrier to error disclosure, and that the willingness to accept one’s fallibility facilitates error disclosure. One of the problems with perfectionism is that it inevitably leads to feelings of shame: Given that the perfectionist internalizes unrealistically high expectations, they eventually fall short of their standards (Flett & Hewitt, 2002). The perfectionist is then motivated to rid themselves of their shamefulness by engaging in maladaptive behaviors. Hewitt and Flett (1991) have shown that some perfectionist traits - particularly those that concern having unrealistically high expectations of others - are significantly correlated with blaming others. One might therefore posit that avoiding responsibility for one’s own actions is a convenient way out of experiencing shame. In addition to setting themselves up for eventual “failure” (i.e. because unachievable standards are internalized), perfectionists are also highly concerned about their image and therefore are more likely to conceal their mistakes. Thus, it becomes apparent that the stronger the physician’s
perfectionist attitude, the less transparent they are likely to be. In light of these findings, the following hypotheses are derived:

Considering the research on perfectionism and transparency, the following hypotheses are generated:

H₁: As physician perfectionism scores increase, medical error transparency and provider patient transparency scores will decrease

The Relationship between Socio-Organizational Climate and Transparency

Substantial research has highlighted the importance of increasing socio-organizational support in order to achieve transparency. For instance, Edmonson (2004) found that error detection is influenced by organizational characteristics. A review of the literature suggests that several factors in the healthcare socio-organizational climate may encourage or inhibit physicians from communicating transparently. As such, five indicators have been identified for this construct.

The first indicator, called immunity, refers to the characteristics of the healthcare organization’s reporting system. Research predominantly supports the use of voluntary, confidential, non-punitive reporting systems in order to elicit higher reporting rates (Weissman et al., 2005). It has also been shown that punitive disciplinary systems are detrimental to patient safety efforts because they increase physicians’ reluctance to step forward and disclose errors (Greely, 1991; Vincent & Coulter, 2002). In a similar vein, it was argued earlier that mandatory error reporting systems are ineffective because they emphasize punishment over error correction (Cohen, 2000). Voluntary systems that protect those who disclose errors and that are non-punitive tend to yield greater amounts of process information that is essential to preventing
medical errors (Barach & Small, 2000). It has been widely reported that fears of reprisal; loss of reputation, position, or advancement; fears of negative publicity; believing error reporting systems penalize those who are honest; and lacking of confidentiality and immunity after disclosure inhibit error reporting (Jeffe et al., 2004; Kaldjian et al., 2006; Leape, 2002).

The second indicator is called peer competition which measures the degree to which competitiveness characterizes the work atmosphere and relationships among healthcare co-workers. Some have argued that the fear of loss of respect from peers is a barrier to error reporting (Wu et al., 1997) and that competition with peers inhibits error disclosure (Kaldjian et al., 2006).

The third indicator, called moral support, refers to whether physicians are emotionally supported by their institution in the after their involvement in a bad clinical outcome. The relationship between the availability of emotional support and transparent communication has been well-established (Christensen, et al., 1992; Jeffe et al., 2004). Kaldjian and colleagues (2006) demonstrated that one impediment to error disclosure is lacking institutional and collegial support after disclosure, such as a professional forum to discuss errors. In a later study, Kaldjian and colleagues (2008) reported that an atmosphere of forgiveness may increase error disclosure rates among physicians. As was discussed earlier, a culture of shame and blame prevents physicians from admitting their mistakes. Physicians are in need of empathy and forgiveness in order to overcome the negative feelings that accompany bad outcomes (Dobovsky & Schrier, 1983). Also, it has been extensively argued that physicians seek social support, validation, and re-affirmation from their peers in order to mitigate the emotional impact of having committed an error (Christensen et al., 1992; Goldberg et al., 1991; Newman, 1996).
The fourth indicator is called *policy support* which relates to organizational policies and procedures that encourage error reporting and disclosure. Jeffe and colleagues (2004) found that physicians’ lack of knowledge on how and what to report was a significant barrier to error reporting, and that clear reporting guidelines would facilitate transparent communication. Kaldjian and colleagues (2006) identified uncertainty about how to disclose errors and uncertainty about what errors to disclose as two factors that impede transparency. In a later study, Kaldjian and colleagues (2008) surveyed physicians about the likelihood of reporting hypothetical errors, past instances of reporting behaviors, and attitudes about error reporting. They found a gap between physicians’ intentions and actual behaviors such that most respondents had intentions to report certain errors, but few had actually reported them in the past. They explained this gap with their finding that 62.3 percent of faculty physicians lacked knowledge on how to report errors. Thus it seems that even when physicians are willing to report errors, the lack of institutional support presents itself as a barrier to transparency.

The fifth indicator is called perfectionist *norms*. The moral imperative embedded in the Hippocratic Oath, “first, do no harm”, may have produced unintended consequences. Although it is meant to remind physicians to refrain from increasing another’s suffering, it also places an enormous burden on their shoulders by leading them to believe that error is altogether forbidden (Leape, 1994; Newman, 1996). The irony is thus that the moral imperative, which was promoted to ensure healthcare quality, may in the end compromise healthcare quality by making physicians weary of errors to a point where they are afraid to discuss them. What this suggests is that the moral imperative should be followed by a new norm, stating “second, once you have harmed, report, disclose, and learn”.

44
Leape (1994) argues that physicians are taught to strive for an error-free practice. Role models in medicine socialize their students to adopt perfection as their professional standard. Moreover, blame is commonly used to encourage ideal performance among physician trainees. As a result, medicine has created the “perfectibility model” which maintains that proper training and motivation (e.g., punishment) will prevent physicians from ever making mistakes (Leape, 1994). Thus, it is hard to imagine that physicians – many of whom are trained to uphold the infallibility illusion – would be receptive to the idea of communicating transparently about bad outcomes. Along the same lines, Newman (1996) suggested that to admit imperfection in healthcare is socially unacceptable.

In light of these findings, the following two hypotheses are generated:

**H2:** As physicians’ perceptions of socio-organizational barriers increase, medical error transparency and provider patient transparency scores will decrease

Ajzen’s (1991) theory of planned behavior (TPB) was developed to measure the discrepancy between attitudes and behaviors. The TPB postulate that attitudes, norms, and perceived behavioral controls are related to intentions, and that intentions are in turn related to behaviors. An earlier version of the theory operated on the assumption that behaviors are voluntary, in other words, within the individual’s control (Fishbein & Ajzen, 1975). Thus, the TPB was modified such that perceptions of behavioral controls are assumed to mediate the relationship between attitudes, norms, intentions, and behaviors. The TPB also predicts that behavior is directly affected by perceived behavioral control, whereas behavior is only indirectly influenced by norms and attitudes. The diagram in Figure 2 illustrates the conceptual model put forth by Ajzen in the TPB.
Figure 2. Ajzen’s Conceptual Framework for the Theory of Planned Behavior

In the context of this research, policy and immunity can be considered measures of perceived behavioral control. The items in the PTQ that pertain to this indicator ask about the physician’s awareness of clear guidelines for reporting and disclosing errors, and whether the organization encourages error reporting and disclosure. Jeffe and colleagues’ (2004) finding that physicians lack knowledge on how to report errors, as well as Kaldjian and colleagues’ (2008) finding about the discrepancy between physicians’ intentions to report and their actual reporting behaviors, collectively suggest that policies might be better predictors of transparency compared to norms, immunity, peer competition, and moral support. In light of this, the following hypothesis is generated:

$H_{2c}$: Policy and immunity will yield stronger causal relationships with transparency compared to norms, peer competition, and moral support.

The Relationship between Medico-Legal Environment and Transparency

This construct refers to factors in the medico-legal environment that inhibit transparency. The first indicator, called legislative protection, measures physicians’ understanding of malpractice law and the degree to which they feel protected by it. As Kapp (1997) points out,
although physicians’ apprehension about medical malpractice is understandable, their reluctance to communicate transparently is based on a faulty understanding of the law. Rather, it is widely accepted that the tendency to conceal medical errors is counterproductive and does not constitute sound risk management strategy (Kavaler & Speigel, 2003; Hickson et al., 1992; Levinson et al., 1997; Vincent et al., 1994; Wu et al., 1997).

The second indicator, called patient litigiousness, refers to physicians’ perceptions about patients’ inclinations to seek legal retribution against their provider. The importance of this indicator is captured by research which suggests that the US legal climate is far more litigious than the legal climate in Canada (Coyte, Dewees, & Trebilcock, 1991; Picard & Robertson, 1996), which in turn inhibits the emergence of a culture of full disclosure (Baginski, Hassell, & Kimbrough, 2001).

The second indicator is called malpractice risks and refers to the perceived fears and risks associated with malpractice litigation. It has been widely reported that fearing legal liability prevents error disclosure in healthcare (Gallagher & Lucas, 2005; Gallagher, Waterman, Ebers, Fraser, & Levinson, 2003; Goldberg et al., 2002; Kaldjian et al., 2006; Leape, 2005).

Given the research about legal barriers and transparency, the following two hypotheses are generated:

H₃: As physicians’ perceptions of legal barriers increase, provider-patient transparency and error reporting transparency scores will decrease

Error Reporting Transparency

This construct measures physicians’ responses to errors that vary in the severity of harm inflicted on the patient. The error definitions are largely based on the National Coordinating
Council for Medication Error Reporting and Prevention (NCC MERP) index for categorizing medication errors. The medical errors investigated in this research include no harm errors which are errors that had the potential to harm but did not, minor harm errors which are errors that cause an injury that is easily treated and has no lasting effects, hospitalization errors which are errors that cause admission to a hospital or prolonged hospital stay, and life-saving intervention errors which are errors that require life-saving interventions but do not result in death.

Questions about errors causing death were excluded from the PTQ. In order for the PTQ to reliably measure transparency, limiting the questions about transparency to no harm and minor harm, and serious harm errors is more likely to elicit honest responses from physicians. Although no harm and minor harm errors do not result in serious consequences, they are considered an invaluable source of error information (Kaldjian et al., 2008). Less serious errors also occur more frequently, which allows for greater quantitative analyses (Barach & Small, 2000; IOM, 2000) and a greater understanding about systematic flaws.

Four indicators have been devised to measure this construct: No harm questions ask about reporting behaviors for errors that have not led to injury. Minor harm questions ask about reporting behaviors for errors that have resulted in injury that is easily treated and has no lasting effects. Given that no harm and minor harm errors are commonplace (IOM, 2000), the assumption is made that the physician has, at some point, committed these types of errors.

Hospitalization asks about reporting behaviors for errors that caused admission to the hospital or prolonged patient stay. Life-saving asks about reporting behaviors for errors that required life-saving interventions and did not result in death. There is no assumption that the
physician committed this type of error as the question only asks about the physician’s modus operandi.

Provider-Patient Transparency

This construct concerns the relationship between the provider and the patient, and more specifically, measures physicians’ propensities to communicate transparently about preventable and non-preventable medical errors. A review of the literature suggests that apologies, expressions of sympathy and regret, and disclosing all details about bad outcomes are associated with increased honesty in the physician-patient relationship and accordingly, reduced malpractice litigation rates (Cohen, 2004; Liebman & Hyman, 2004; Wojcieszak, 2007).

This construct includes three indicators: Apology, which refers to physicians’ propensities to apologize to patients and families for preventable errors; sympathy, which refers to physicians’ propensities to express sympathy or regret to patients and families for a bad outcome; and honesty, which refers to physicians’ propensities to disclose the details of bad outcomes to patients and families.

The Effect of Transparency Practices on Physicians’ Propensities to Report and Disclose Errors

In general, error reporting activities are more complicated and involve more practical barriers compared to provider-patient transparency. Specifically, expressing sympathy for a bad outcome and disclosing the details surrounding bad outcomes are more straightforward processes compared to formal error reporting, as they do not entail filling out paperwork, notifying a reporting agency, or even determining whether an adverse outcome was a mistake or a natural consequence of the illness. Therefore, this study will also determine whether there are
significant differences in the propensity for transparency between error reporting transparency and provider patient transparency.

\[ H_{4a}: \text{The mean score for error reporting transparency will differ significantly from the mean score for provider patient transparency.} \]

It is also informative to consider whether different types of errors are associated with different propensities for transparency. When the IOM released its landmark report about medical errors in 1999, a comment was made that less serious errors are more likely to be reported, given that they produce less guilt than serious errors. However, little is known about physicians’ tendencies to report different types of medical errors. One problem with reporting no harm and minor harm errors is that they are less noticeable than serious errors. The assumption that less serious errors are often privately experienced means that physicians are less publicly accountable for them. Also, the fact that JCAHO focuses so intently on sentinel events may inadvertently reinforce the idea that less serious errors do not have to be reported.

It is also useful to determine whether certain provider-patient transparency behaviors are practiced more often than others, as doing so may inform risk managers about the aspects of provider-patient communication that need to be addressed. As discussed earlier, much scholarly literature and research has concluded that provider patient transparency is a means to reduce malpractice litigation. However, little is known about how physicians go about disclosure with patients and families. Therefore, this study will determine whether there are significant differences between physicians’ tendencies to apologize for preventable errors, express sympathy for bad outcomes, and communicate honestly about the details surrounding bad outcomes. In light of this, the following 2 hypotheses are generated:
H₄₅: The mean scores for no harm, minor harm, hospital, and life threatening errors will be significantly different from each other.

H₄₆: The mean scores for apology, sympathy, and honesty will be significantly different from each other.

Method

Sampling

Non-random purposive sampling was used to obtain a cross-sectional sample of physicians who were drawn from a multi-site healthcare system located in Central Florida. The researcher met with physicians at regularly scheduled board meetings to distribute the survey. The survey was also distributed electronically via email. Participation in this study was voluntary. The sampling frame included roughly 2000 physicians.

Measures, Instrumentation, and Scoring

The PTQ is a 37-item behavioral and attitudinal screening paper-and-pencil questionnaire that asks physicians about 5 attributes: Perfectionism, socio-organizational climate, medico-legal environment, provider-patient transparency, and medical error transparency. Considering that no known instruments measure the variables delineated in this study, the items in the PTQ were based on a literature review of factors that are known to interfere or encourage transparent communication in healthcare. Given the novelty of this instrument, it was piloted on a sample of 30 physicians and subsequently evaluated in terms of reliability and validity. Please see Appendix D for a copy of the PTQ.
All items except for demographic questions use a five-point Likert scale, where 1 refers to “strongly agree”, 2 refers to “agree”, 3 refers to “mixed feelings”, 4 refers to “disagree”, and 5 refers to “strongly disagree”.

Given that no harm and minor harm errors are commonplace (IOM, 2000), the assumption is made that the physician has, at some point, committed these types of errors. Therefore, the PTQ asks different questions for no harm and minor harm errors versus hospitalization and life-threatening errors.

Although all four indicators were associated with the question “In the event of a medical error that (severity of harm), my routine practice is to report the error to…”, the no harm and minor harm errors were also associated with the question “There are past instances of medical errors which resulted in (severity of harm) which I did not report”. This question was not posed with regard to hospitalization and life-threatening errors. Because these types of errors occur less often and thus do not describe the experience of every physician, presenting physicians with this statement would have produced misleading results. For example, if a physician-respondent never committed an error that resulted in a life-saving intervention, and subsequently disagreed with the statement “There are past instances of medical errors which resulted in (severity of harm) that I did not report”, then that response could be interpreted in two ways: 1) the physician is transparent, or 2) the physician never encountered this type of error.

With respect to the items measuring provider-patient transparency, the assumption was made that the physician experienced bad outcomes and preventable errors. Therefore, questions about honest communication and sympathetic statements include statements that read: “There are past instances of bad outcomes for which I did not provide complete explanations to patients and
families”, and “there are past instances of bad outcomes for which I did not express sympathy to patients and families”. Considering that a bad outcome includes preventable and non-preventable errors, offering detailed explanations and expressions of sympathy are most appropriate under these circumstances. With respect to apologetic statements, the items referred specifically to preventable medical errors rather than bad outcomes. Considering that apologies are, among other things, an admission of responsibility, they are considered more appropriate in situations where the error was avoidable.

Procedure

Design

A correlational research design was used to determine the degree of relationships between three exogenous and two endogenous variables.

Variables

Perfectionism

Participants were asked about their perfectionist beliefs and thought patterns. This construct included four indicators: self-imposed (items 7 and 18), other-imposed (items 1 and 14), other-directed (items 26 and 33), and image (3, 10, and 23).

Socio-Organizational Climate

Participants were asked about their perceptions of formal and informal organizational support. This construct includes four indicators: Immunity (2, 13, 16, and 31), peer competition (item 35), moral support (item 21), norms (item 29), and policy support (items 6, 9, 24, and 27).
Medico-Legal Environment

Participants were asked to evaluate the degree of hostility in the medico-legal environment. This construct includes 3 indicators: Legislative protection (4), patient litigiousness (items 20 and 36), and malpractice risk (items 12 and 34).

Provider-Patient Transparency

Participants were asked about their tendencies to communicate transparently with patients and families regarding preventable and non-preventable medical errors. This construct includes three indicators: Apology (items 8 and 22), sympathy (items 15 and 30), and honesty (items 5 and 17).

Error Reporting Transparency

Participants were asked about their tendencies to formally report generic categories of errors that vary in the severity of harm. This construct includes five indicators: No harm (items 19 and 28), minor harm (items 11 and 25), hospitalization (item 32), and life-saving (item 37).

Demographics

The PTQ collected data on occupation (e.g., resident, staff), medical specialty area, years of experience, proportion of time spent on direct patient care, age, marital status, ethnicity, and gender. These demographics will serve as control variables to determine whether they can be considered alternative explanations for transparent behavior.

Statistical Analyses

SPSS will be used to conduct descriptive analyses, including identifying missing data and outliers, examining the demographic characteristics of respondents, testing the instrument’s
reliability with Cronbach’s alpha, and performing group means comparisons tests. AMOS (version 18) will be used to assess construct validity and to conduct various structural equation modeling (SEM) analyses which use the maximum likelihood method to test for model fit. According to Wan (2002), SEM involves two critical steps: First, measurement models for latent constructs must be validated; and second, the overall model (i.e. one that includes all measurement models) must be fitted. This research will conduct factor analysis to satisfy the first stage, followed by covariance structure modeling for the second stage.

SEM is an extension of multiple regression analysis. One advantage in using SEM is that it allows the use of latent construct which are comprised of several observed indicators, which is furthermore very well suited for survey research in the social sciences. SEM separates error variance from meaningful variance among the measures (Newcomb, 1990). Controlling for error in this way allows for a more accurate estimate of the effects of the exogenous/predictor variables on the endogenous/outcome variables as well as a more accurate assessment of test reliability. The creation of measurement models specifies relationships between the observed indicators and their latent constructs, and is tested using confirmatory factor analysis. Another advantage to using SEM is that it allows for the exploration of the causal relationships among latent exogenous and endogenous variables; SEM is the only statistical technique that can handle this sort of analysis (Byrne, 2001). Moreover, it is especially useful in this study given that all variables are latent and that the exogenous variables are expected to co-vary.

Measurement Models and Evaluation

In the social sciences, the use of latent, ambiguous constructs is commonplace. In order to overcome some of this ambiguity, indicators are developed so as to provide operational
definitions that allow the construct to be measured. Therefore, measurement models, such as those depicted in Figures 3 through 7, are developed to determine the associations between the indicators and their latent construct(s). To achieve this goal, the measurement models depicted herein shall undergo factor analysis, a correlational technique that determines meaningful clusters of shared variance by eliminating redundant and/or unimportant interrelationships, thereby producing a more parsimonious model.

In the next step, CFA tests the relationship between observed data and the latent constructs. CFA first validates constructs individually, and then validates clusters of constructs (which are either endogenous or exogenous, but not both) to determine if any relationships between constructs exist. During this process, redundant, meaningless, or unimportant relationships are eliminated, hence reducing the number of parameters to be estimated which consequently increases power in any future analyses. More specifically, the model is revised by looking at the factor loadings among indicators and variables. High factor loadings \((r \geq 0.80)\) among indicators usually justify the elimination of indicators, whereas high factor loadings among variables usually justify variable consolidation which occurs by combining indicators for several variables into a single variable. Indicators with small factor loadings are usually removed from the model. Lastly, error terms may be correlated, although this should be executed with caution so as to avoid making the model overly complex. CFA concludes when comparative statistics convey the degree of “fit” between the conceptual model and the observed data set and allow the researcher select either the generic or the revised model. Once the researcher has selected the best model, equality constraints are then imposed on the model to test the degree to
which the model is appropriate for various physician subgroups. The subgroups will be derived from the demographic items in the PTQ.

Figure 3. Measurement Model for Perfectionism

Figure 4. Measurement Model for Socio-Organizational Climate
Model Specification and Evaluation

Covariance structure modeling is a technique that determines whether the relationships between the exogenous and endogenous variables are statistically significant ($\alpha = .05$). The
covariance structure model presented in Figure 7 depicts the relationship between the two endogenous and three exogenous variables and was derived from prior research. It is expected that socio-organizational climate and medico-legal environment will be positively related to both transparency outcomes, whereas perfectionism will be negatively related to the transparency outcomes. Causal specifications that are not significant will be removed from the model.

Evaluation of the model will be judged on the basis of (a) the appropriateness of the direction, strength, and significance of parameter estimates; (b) the convergence of parameter estimates with the chi-square goodness of fit test ($\chi^2$), goodness of fit index (GFI; Bollen, 1989), adjusted GFI (AGFI; Bollen, 1989), normed fit index (NFI; Bentler& Bonnet, 1980), Tucker Lewis Index (TLI; Tucker & Lewis, 1973), and the root mean squared error of approximation (RMSEA; Steiger, 1990); (c) a comparison of the constrained model with its unconstrained counterpart using the chi-square difference test; and (d) the model’s ability to explain the variance ($R^2$) of both transparency outcomes.
Figure 8. Covariance Structure Matrix for Predictors of Transparency

**Multiple Group Analysis**

To ensure the generalizability of the covariance structure model, multiple group analysis will be conducted to determine whether the model fits across physician gender, occupation (staff versus resident physician), and medical specialty. As is summarized below, research suggests that these three characteristics may be related to transparency.

Research shows that women are more adept at relationship building (Lane & Crane, 2002), which might cause them to communicate transparently with greater ease. When we consider the finding that men are significantly more likely to be involved in a malpractice claim compared to women (Abott, 2003; Taragin, Wilczek, Kars, Trout, & Carson, 1992), a question
arises as to whether women are more likely to engage in provider-patient transparency compared to men.

Several studies show that medical specialty and occupational status may influence transparency behaviors. First, some areas of medical practice (e.g. surgical specialties) involve higher risk procedures compared to other specialties which may in turn influence propensities for error reporting. Gallagher and colleagues (2006b) suggested that surgeons are more accustomed to discussing adverse outcomes with patients and families (i.e. during the informed consent process), and amongst themselves (i.e. during morbidity and mortality conferences) compared to medical specialists. Garbutt and colleagues (2007) suggested that pediatricians face a unique challenge when it comes to provider-patient transparency because they have to deal with the presence of a third party, namely, the child’s primary caregiver.

Control Variables

Age and leadership responsibilities will be controlled for in the covariance structure model. Research has demonstrated the influence of physician experience on transparency. Sweet and Bernat (1997) reported that attending physicians are significantly more likely to agree with the statement that “physicians should tell patients the truth” compared to medical residents. Other research finds that older professionals are more likely to be concerned with malpractice litigation, blame from colleagues, professional discipline, and loss of reputation (Kaldjian et al., 2007), which suggests that age can inhibit transparency.

It is reasonable to suggest that a physician’s leadership status can enhance the propensity for transparency, as leaders in general are expected to be role models for desirable behavior. It is also plausible to think that physician leaders stand more to lose in terms of reputation, which in
turn might inhibit transparency practices. In this study, leadership status is measured by the percentage of time spent on direct patient care; as such, the less time spent with patients, the greater the leadership responsibilities.

**Group Mean Comparisons**

In order to compare differences in the propensities for error reporting versus provider-patient transparency, a paired t-test will be conducted to compare mean scores for each set of responses. Subsequently, two repeated measures analysis of variance tests will determine whether there are significant differences in the propensities for transparency among the various error reporting practices (no harm, minor harm, hospitalization, life-threatening) and provider-patient transparency practices (apology, sympathy, honesty).

**Sample Size and Power Analysis**

Sample size is an important determinant of conclusion validity, especially when using SEM where statistical tests are quite sensitive to sample size (Weston & Gore, 2006). The concern is that when the sample is too small, it decreases confidence in causal inferences and moreover inhibits the extent to which the results can be generalized to the population of interest, which in this case corresponds to physicians. A justification of sample size is achieved through power analysis. Although SEM requires a minimum sample size of 200, a more accurate way to determine the appropriate sample size is to start by calculating the number of parameters or causal specifications to be estimated. Next, it is recommended that this number be multiplied by at least 5, although a larger multiplier is preferable. Given that there are 48 parameters to be estimated in this study, a minimum sample size of 240 is required.
Ethical Issues

The potential for risk in this study is minimal. Some questions ask respondents to answer whether they have reported medical errors or apologized to patients for bad outcomes. Should this cause any discomfort, it is expected to be short-lived (i.e. for the duration of survey completion).

After approval by the institutional review boards at participating institutions, the PTQ will be distributed at medical staff meetings. No personal identifying information will be collected. Moreover, participants will be assured that their data will remain anonymous.

Chapter Summary

The lack of transparency in healthcare is a systematic and pervasive problem. To reflect this reality, variables representing intrapersonal, interpersonal, institutional, and societal domains will be investigated: Perfectionism, socio-organizational climate, and medico-legal environment. Transparency consists of two factors, namely, error reporting transparency and provider-patient transparency. The PTQ contains 37 items that inquire about these 5 factors. Non-random samples of physicians will be drawn from a multi-site healthcare organization in Central Florida. A correlational design will be used to determine the relationships between perfectionism, socio-organizational climate, medico-legal environment, error reporting transparency and provider-patient transparency. SPSS will be used to perform descriptive analyses and Cronbach’s reliability test. AMOS will be used to perform confirmatory factor analysis and covariance structure modeling. The main limitation in this study is that social desirability may prompt physicians to exaggerate their transparency scores. This study does not pose significant ethical research problems.
CHAPTER 4: RESULTS

Feasibility and Internal Consistency

The pilot study was conducted on 30 physicians at a hospital in the Central Florida region. The PTQ was administered at the start of medical staff meetings which provided a generous time-frame in which physicians could complete the questionnaire. Nonetheless, it was noted that physicians have little patience for completing questionnaires, as some complained to the researcher that the PTQ contained too many questions, while others completed only the first half of the PTQ. Thus, in order to ensure that high response rates would be obtained in the large scale administration of the PTQ, reducing the length of the instrument was a critical step in the piloting process.

The initial version of the PTQ contained 64 items and was reduced to 37 items after the instrument’s internal reliability was assessed. Cronbach’s alpha analyses showed that 27 items contributed negatively to the scales’ reliabilities. Once these items were deleted, the reliability of each scale was determined to be good. Specifically, Cronbach’s alpha coefficient was 0.771 for perfectionism, 0.831 for socio-organizational climate, 0.719 for medico-legal environment, 0.763 for provider-patient transparency, and 0.794 for medical error transparency.

Characteristics of the Physician Sample

The survey response rate was roughly 60 percent (270/450) which yielded a sample of 270 physicians. The characteristics of questionnaire respondents are summarized in Table 1. Most of the 270 physicians were male (68.5%), married (80.0%), and white (53.3%). The physicians in this sample represented 8 medical specialties, although the specialties with the
strongest representations were family medicine (28.9%) and internal medicine (24.4%). Also, 80.7% were attending physicians, and 93.2% spend at least 75% of their work time on direct patient care. The age range in this sample was 25 to 75, with a mean of 45.5 years. Years of experience ranged from 0 to 55 years, with a mean of 12.49 years.
Table 1. Summary of Physician Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency</th>
<th>Percentage</th>
<th>% Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>1.9</td>
</tr>
<tr>
<td>Male</td>
<td>185</td>
<td>68.5</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>29.6</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td>Married</td>
<td>216</td>
<td>80.0</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>34</td>
<td>12.6</td>
<td></td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>11</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>2</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td>4.8</td>
</tr>
<tr>
<td>White</td>
<td>144</td>
<td>53.3</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>23</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>28</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>56</td>
<td>20.7</td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>1</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Specialty</td>
<td></td>
<td></td>
<td>5.9</td>
</tr>
<tr>
<td>Family</td>
<td>78</td>
<td>28.9</td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>66</td>
<td>24.4</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td>24</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>30</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td>27</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>14</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>ObGyn</td>
<td>13</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>Pathology</td>
<td>2</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td>2.2</td>
</tr>
<tr>
<td>Staff/Attending</td>
<td>218</td>
<td>80.7</td>
<td></td>
</tr>
<tr>
<td>Resident</td>
<td>46</td>
<td>17.0</td>
<td></td>
</tr>
<tr>
<td>% Time on Direct Patient Care</td>
<td></td>
<td></td>
<td>2.6</td>
</tr>
<tr>
<td>100</td>
<td>170</td>
<td>63.0</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>75</td>
<td>27.8</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>9</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>5</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>25-50</td>
<td>161</td>
<td>59.6</td>
<td></td>
</tr>
<tr>
<td>51-75</td>
<td>82</td>
<td>30.4</td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td>7.8</td>
</tr>
<tr>
<td>0-10</td>
<td>119</td>
<td>44.1</td>
<td></td>
</tr>
<tr>
<td>11-25</td>
<td>102</td>
<td>37.8</td>
<td></td>
</tr>
<tr>
<td>26+</td>
<td>28</td>
<td>10.4</td>
<td></td>
</tr>
</tbody>
</table>
Table 2 summarizes means, standard deviations, and response ranges for the exogenous and endogenous variables. Mean imputation was used to substitute the missing values in this analysis. The Shapiro-Wilk normality test was conducted on each of the indicators; it was found that none were normally distributed. Thus, a log transformation using SPSS was used to normalize the data for each indicator. The response percentages for each Likert scale response option are reported in Appendix E.

Table 2. Descriptive Statistics for Study Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perfectionism</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-imposed</td>
<td>2</td>
<td>5</td>
<td>3.73</td>
<td>0.59</td>
</tr>
<tr>
<td>Other-imposed</td>
<td>1</td>
<td>5</td>
<td>3.66</td>
<td>0.98</td>
</tr>
<tr>
<td>Other-directed</td>
<td>1</td>
<td>5</td>
<td>2.98</td>
<td>0.65</td>
</tr>
<tr>
<td>Image</td>
<td>1</td>
<td>5</td>
<td>2.99</td>
<td>0.63</td>
</tr>
<tr>
<td><strong>Socio-Organizational Support</strong></td>
<td></td>
<td></td>
<td>2.59</td>
<td>0.54</td>
</tr>
<tr>
<td>Policy</td>
<td>1</td>
<td>5</td>
<td>2.62</td>
<td>0.71</td>
</tr>
<tr>
<td>Immunity</td>
<td>1</td>
<td>5</td>
<td>2.41</td>
<td>0.62</td>
</tr>
<tr>
<td>Moral support</td>
<td>1</td>
<td>5</td>
<td>2.91</td>
<td>1.01</td>
</tr>
<tr>
<td>Peer Competition</td>
<td>1</td>
<td>5</td>
<td>2.87</td>
<td>1.07</td>
</tr>
<tr>
<td>Norms</td>
<td>1</td>
<td>5</td>
<td>1.94</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Medico-Legal Environment</strong></td>
<td></td>
<td></td>
<td>3.29</td>
<td>0.66</td>
</tr>
<tr>
<td>Malpractice risk</td>
<td>1</td>
<td>5</td>
<td>3.12</td>
<td>0.81</td>
</tr>
<tr>
<td>Patient litigiousness</td>
<td>1</td>
<td>5</td>
<td>3.05</td>
<td>0.89</td>
</tr>
<tr>
<td>Legislative protection</td>
<td>1</td>
<td>5</td>
<td>4.10</td>
<td>0.98</td>
</tr>
<tr>
<td><strong>Error Reporting Transparency</strong></td>
<td></td>
<td></td>
<td>3.51</td>
<td>0.64</td>
</tr>
<tr>
<td>No harm</td>
<td>1</td>
<td>5</td>
<td>3.21</td>
<td>0.87</td>
</tr>
<tr>
<td>Minor harm</td>
<td>1</td>
<td>5</td>
<td>3.56</td>
<td>0.80</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>1</td>
<td>5</td>
<td>3.77</td>
<td>0.83</td>
</tr>
<tr>
<td>Life saving</td>
<td>1</td>
<td>5</td>
<td>3.76</td>
<td>0.89</td>
</tr>
<tr>
<td><strong>Provider-Patient Transparency</strong></td>
<td></td>
<td></td>
<td>3.98</td>
<td>0.56</td>
</tr>
<tr>
<td>Apology</td>
<td>2</td>
<td>5</td>
<td>3.85</td>
<td>0.70</td>
</tr>
<tr>
<td>Sympathy</td>
<td>2</td>
<td>5</td>
<td>4.12</td>
<td>0.63</td>
</tr>
<tr>
<td>Honesty</td>
<td>1</td>
<td>5</td>
<td>3.95</td>
<td>0.72</td>
</tr>
</tbody>
</table>
Confirmatory Factor Analysis

This study examined 5 latent constructs: 1) Perfectionism; 2) Socio-Organizational Support; 3) Medico-Legal Environment; 4) Provider-Patient Transparency; and 5) Error Reporting Transparency. Confirmatory factor analysis was used to ascertain construct validity. The items with insignificant factor loadings were removed from the measurement models, while some error terms were correlated with one another to achieve model fit. The revised models were later used to examine the hypothesized relationships between the endogenous and exogenous variables via structural equation modeling. A Pearson correlation analysis determined that the indicators were not highly correlated.

Measurement Model for Perfectionism

Perfectionism is an exogenous latent variable with 4 indicators: Self-imposed (SelfImp), other imposed (OtherImp), other-directed (OtherDir), and image (Image). Some indicators were associated with more than one questionnaire item. Therefore, the values for these indicators were obtained by computing an average score across the items. Figure 9 illustrates the generic, single factor model for perfectionism with standardized regression weights. All factor loadings are statistically significant, $p < .005$, as is depicted by the bolded coefficients in Figure 9. The best indicators are self-imposed and other imposed perfectionism, which account for 43% and 28% of the variance in perfectionism, respectively.
Figure 9. Measurement Model for Perfectionism

Goodness-of-fit statistics reveal that the generic model is a good fit. The $\chi^2$/df ratio (1.64, $p = 0.19$) and Root Mean Square Error Approximation (RMSEA) (0.05) are small, and the Goodness of Fit Index (GFI) (0.99), Adjusted Goodness of Fit Index (AGFI) (0.97), Normed Fit Index (NFI) (0.96), and Tucker Lewis Index (TLI) (0.94) are large. Therefore, the generic model is retained as the final measurement model for perfectionism. Table 3 presents the parameter estimates for the perfectionism indicators.

Table 3. Parameter Estimates for Perfectionism Indicators

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>SelfImp → Perfectionism</td>
<td>.65</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>OtherImp → Perfectionism</td>
<td>.53</td>
<td>1.52</td>
<td>3.87*</td>
</tr>
<tr>
<td>OtherDir → Perfectionism</td>
<td>.26</td>
<td>.54</td>
<td>2.82*</td>
</tr>
<tr>
<td>Image → Perfectionism</td>
<td>.41</td>
<td>.92</td>
<td>3.77*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .005 level
Measurement Model for Socio-Organizational Climate

Socio-organizational climate is an exogenous latent variable with 5 indicators: Policy (Policy), immunity (Immunity), peer competition (PeerCom), moral support (MorSup) and norms (Norms). Some indicators were associated with more than one questionnaire item. Therefore, the values for these indicators were obtained by computing an average score across the items. Figure 10 illustrates the generic, single factor model for socio-organizational climate with standardized regression weights. All factor loadings are found to be statistically significant, \( p < 0.01 \), and are depicted by the bolded coefficients in Figure 10. The best indicators are policy, immunity, and moral support, which account for 54\%, 40\%, and 35\% of the variance in socio-organizational climate, respectively.

Figure 10. Measurement Model for Socio-Organizational Climate

Goodness-of-fit statistics reveal that the generic model is a good fit. The \( \chi^2/df \) ratio (1.62, \( p = 0.15 \)) and RMSEA (0.05) are small, and the GFI (0.99), AGFI (0.97), NFI (0.96), and TLI
(0.97) are large. Therefore, the generic model is retained as the final measurement model for socio-organizational climate. Table 4 presents the parameter estimates for the socio-organizational climate indicators.

Table 4. Parameter Estimates for Socio-Organizational Climate Indicators

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunity → Socio-Org Climate</td>
<td>.63</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Policy → Socio-Org Climate</td>
<td>.74</td>
<td>1.35</td>
<td>7.15*</td>
</tr>
<tr>
<td>MorSup → Socio-Org Climate</td>
<td>.59</td>
<td>1.52</td>
<td>6.87*</td>
</tr>
<tr>
<td>Norms → Socio-Org Climate</td>
<td>.42</td>
<td>.90</td>
<td>5.34*</td>
</tr>
<tr>
<td>PeerCom → Socio-Org Climate</td>
<td>.19</td>
<td>.51</td>
<td>2.54*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .01 level

Measurement Model for Medico-Legal Environment

Medico-legal environment is an exogenous latent variable with 3 indicators: Legislative protection (LegProt), patient litigiousness (PatLit), and malpractice risk (MalRisk). Some indicators were associated with more than one questionnaire item. Therefore, the values for these indicators were obtained by computing an average score across the items. Figure 11 illustrates the generic, single factor model for medico-legal environment with standardized regression weights. All factor loadings are statistically significant, p < .001, as is depicted by the bolded coefficients in Figure 11. The best indicator is malpractice risk which accounts for 60% of the variance in medico-legal environment.
This model is just identified. Therefore, the generic model is retained as the final measurement model for medico-legal environment. Table 5 presents the parameter estimates for the medico-legal environment indicators.

### Table 5. Parameter Estimates for Medico-Legal Environment Indicators

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>LegProt → MedLegEnv</td>
<td>.35</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>PatLit → MedLegEnv</td>
<td>.57</td>
<td>1.71</td>
<td>4.20*</td>
</tr>
<tr>
<td>MalRisk → MedLegEnv</td>
<td>.78</td>
<td>2.08</td>
<td>3.67*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .001 level

**Measurement Model for Provider-Patient Transparency**

Provider-patient transparency is an exogenous latent variable with 3 indicators: Apology, sympathy, and honesty. Some indicators were associated with more than one questionnaire item. Therefore, the values for these indicators were obtained by computing an average score across the items. Figure 12 illustrates the generic, single factor model for provider-patient transparency with standardized regression weights. All factor loadings are statistically significant, p < .001, as is depicted by the bolded coefficients in Figure 12.
The best indicator is apology which accounts for 63% of the variance in provider-patient transparency. This model is just identified. Therefore, the generic model is retained as the final measurement model for medico-legal environment. Table 6 presents the parameter estimates for the medico-legal environment indicators.

Table 6. Parameter Estimates for Transparency Indicators

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apology → Transparency</td>
<td>.79</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Sympathy → Transparency</td>
<td>.62</td>
<td>.66</td>
<td>7.49*</td>
</tr>
<tr>
<td>Honesty → Transparency</td>
<td>.68</td>
<td>.87</td>
<td>7.64*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .001 level

Measurement Model for Error Reporting Transparency

Error reporting transparency is an exogenous latent variable with 4 indicators: No harm (NoHarm), minor hard (MinHarm), hospitalization (hospital), and life threatening (life). Some indicators were associated with more than one questionnaire item. Therefore, the values for these indicators were obtained by computing an average score across the items. Figure 13
illustrates the generic, single factor model for error reporting transparency with standardized regression weights. All factor loadings are statistically significant, p < .001.

Figure 13. Generic Measurement Model for Error Reporting Transparency

Goodness-of-fit statistics reveal that the generic model is not a good fit. The χ²/df ratio (37.62, p = 0.00) and RMSEA (0.37) are large, and overall, the GFI (0.88), AGFI (0.39), NFI (0.70), and TLI (0.10) are low. Therefore, the generic model is modified as shown in Figure 14.
The best indicators are no harm and minor harm which account for 57% and 58% of the variance in error reporting transparency, respectively. Goodness-of-fit statistics reveal that revised model is a good fit. The $\chi^2$/df ratio (1.62, $p = 0.20$) and RMSEA (0.05) are small, and the GFI (1.00), AGFI (0.9), NFI (0.99), and TLI (0.99) are large. Therefore, the revised error reporting transparency model with correlated error terms is retained as the final model. Table 7 presents the parameter estimates for the transparency indicators.

The error terms for hospital and life were correlated ($r = 0.51$, $p < .001$). These correlations suggest that these indicators are measuring something in common, other than an association with the latent construct. In this case, the correlation might be a result of very similar wording in the questions dealing with these indicators.
Table 7. Parameter Estimates for Transparency Indicators

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life (\rightarrow) Transparency</td>
<td>.32</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Hospital (\rightarrow) Transparency</td>
<td>.39</td>
<td>1.12</td>
<td>5.30*</td>
</tr>
<tr>
<td>MinHarm (\rightarrow) Transparency</td>
<td>.76</td>
<td>2.08</td>
<td>4.27*</td>
</tr>
<tr>
<td>NoHarm (\rightarrow) Transparency</td>
<td>.76</td>
<td>2.33</td>
<td>4.28*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .001 level

Structural Equation Modeling

In this study, two covariance structure models were designed. The first model estimated the causal relationships between perfectionism, socio-organizational climate, medico-legal environment, and transparency; whereas the second model estimated the direct influences of each socio-organizational climate indicator on transparency. Age and leadership were controlled in the first model.
Goodness of fit statistics reveal that the generic model fit could be improved: The $\chi^2$/df ratio (2.48, p = 0.000) and RMSEA (0.07) are small, however, the GFI (0.87), AGFI (0.82), NFI (0.67), and TLI (0.72) are small. In addition, several path coefficients were not statistically significant. In light of this, medico-legal environment and age are removed from the model, as was the causal pathway between age and error-reporting transparency. The bolded correlations in Figure 15 represent statistically significant causal pathways. The revised model is presented in Figure 16.
Figure 16. Revised Covariance Structure Model: Effect of Perfectionism and Socio-Organizational Climate on Error Reporting and Provider-Patient Transparency

The revised model is a better fit. The $\chi^2$/df ratio (1.97, $p = 0.000$) and RMSEA (0.06) are small, and the GFI (0.91), AGFI (0.89) are acceptable. However, the NFI (0.78), and TLI (0.85) are still small.

As shown by the bolded coefficients in Figure 16, four pathways were found to be statistically significant, namely: perfectionism and error reporting transparency ($r = -0.19$, ...
p<.05), perfectionism and provider patient transparency (r = -0.22, p <.05), socio-organizational climate and error reporting transparency (r = -0.66, p <.001), and socio-organizational climate and provider-patient transparency (r = -0.59, p <.001). These finding suggest that as perfectionism and perceptions of socio-organizational barriers increase, transparency scores decrease. This model also finds that collectively, perfectionism and socio-organizational climate account for 47% of the variance in error reporting transparency, and 46% of the variance in provider-patient transparency. It is also shown that leadership correlates significantly with transparency (r = -0.25, p <.001), suggesting that transparency decreases as leadership responsibilities increase. Table 8 presents the parameter estimates for the covariance structure model.

Table 8. Parameter Estimates for the Influence of Perfectionism and Socio-Organizational Climate on Error Reporting and Provider-Patient Transparency

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfection → ER Transp</td>
<td>-.19</td>
<td>-.18</td>
<td>-2.02**</td>
</tr>
<tr>
<td>Perfection → PP Transp</td>
<td>-.22</td>
<td>-.29</td>
<td>-2.46**</td>
</tr>
<tr>
<td>SocioOrg → ER Transp</td>
<td>-.66</td>
<td>-.39</td>
<td>-4.10*</td>
</tr>
<tr>
<td>SocioOrg → PP Transp</td>
<td>-.59</td>
<td>-.49</td>
<td>-5.89*</td>
</tr>
<tr>
<td>Leader → PP Transp</td>
<td>-.25</td>
<td>-.02</td>
<td>-3.92*</td>
</tr>
</tbody>
</table>

* Denotes statistical significance at the .001 level
** Denotes statistical significance at the .05 level

Multiple Group Analysis

Multiple group analysis was performed to test the structural equivalence of the model across gender, occupation, and medical specialty. No significant differences were found, suggesting that the propensity for transparency is similar across gender, occupation, and medical specialty (i.e. surgery vs. primary care).
Direct Influence of Socio-Organizational Climate Indicators on Transparency

The purpose of this model is merely to estimate causal pathways between various features of the socio-organizational climate and transparency. Therefore, the revised covariance structure model presented in Figure 16 is retained as the final model for estimating the causal relationship between socio-organizational climate and transparency.

Figure 17 presents a covariance structure matrix where immunity, policy, moral support, peer competition, and norms are treated as independent, observed predictors of transparency. Four path coefficients are found to be statistically significant, namely: policy and error reporting transparency ($r = -0.40, p < .001$), policy and provider-patient transparency ($r = -0.24, p < .001$), immunity and provider-patient transparency ($r = -0.19, p < .01$), and norms and provider-patient transparency ($r = -0.15, p < .05$) were statistically significant. As was found in the revised covariance model, leadership and provider-patient transparency remain statistically significantly related. Path coefficients between moral support, peer competition and both transparency outcomes were not statistically significant. Table 9 presents the parameter estimates for the relationship between transparency and the indicators for socio-organizational climate.

Table 9. Parameter Estimates for Transparency and Indicators for Socio-Organizational Climate

<table>
<thead>
<tr>
<th>Items</th>
<th>Standardized Regression Coefficients</th>
<th>Unstandardized Regression Coefficients</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunity $\rightarrow$ PP Transp</td>
<td>-.19</td>
<td>-.09</td>
<td>-2.80**</td>
</tr>
<tr>
<td>Policy $\rightarrow$ ER Transp</td>
<td>-.40</td>
<td>-.12</td>
<td>-3.71***</td>
</tr>
<tr>
<td>Policy $\rightarrow$ PP Transp</td>
<td>-.24</td>
<td>-.10</td>
<td>-3.48***</td>
</tr>
<tr>
<td>Norms $\rightarrow$ PP Transp</td>
<td>-.15</td>
<td>-.05</td>
<td>-2.25*</td>
</tr>
</tbody>
</table>

*Denotes statistical significance at the .05 level
** Denotes statistical significance at the .01 level
*** Denotes statistical significance at the .001 level
In order to compare differences in the propensities for error reporting versus provider-patient transparency, a paired t-test was conducted to compare mean scores for each set of responses. Subsequently, two repeated measures analysis of variance tests determined whether there are significant differences in the propensities for transparency among the various error reporting practices (no harm, minor harm, hospitalization, life-threatening) and provider-patient transparency practices (apology, sympathy, honesty).
The paired samples t-test revealed a significant difference between the scores for error reporting transparency (M = 3.51, SD = 0.64) and provider-patient transparency (M = 3.98, SD = 0.56), t(269) = -13.67, p < .000. This suggests that physicians are significantly more likely to display provider-patient transparency than they are to display error-reporting transparency. Table 10 summarizes the results of the t-test.

Table 10. Paired T-Test Results for Error Reporting v. Provider-Patient Transparency

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mean Difference</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERT-PPT</td>
<td>0.465</td>
<td>0.568</td>
<td>0.034</td>
<td>-0.532</td>
<td>-0.400</td>
<td>-13.670</td>
<td>269</td>
<td>0.000</td>
</tr>
</tbody>
</table>

As shown in table 11, a repeated measures ANOVA with a Greenhouse-Geisser correction determined that mean transparency scores differed statistically significantly between types of medical errors (F(2.47, 663.52) = 42.24, p < .000). Post hoc tests using the Bonferroni correction revealed that no harm errors are significantly less likely to be reported compared to minor harm (p < .000), hospitalization (p < .000), and life-threatening errors (p < .000). Post hoc tests also revealed that minor harm errors are significantly less likely to be reported compared to hospitalization (p < .005) and life threatening errors (p < .01). There was no significant difference between the propensities to report hospitalization and life-threatening errors. It is therefore concluded that physicians are less inclined to report serious errors than they are to report more serious errors. Post hoc analyses are presented in Table 12. Figure 18 presents the mean scores in the propensities for transparency among the different error types.
Table 11. Repeated Measures ANOVA for Error Types

<table>
<thead>
<tr>
<th>Source (Greenhouse-Geisser)</th>
<th>MS</th>
<th>F</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2.47</td>
<td>42.24</td>
<td>3</td>
<td>0.000</td>
</tr>
<tr>
<td>Within</td>
<td>0.52</td>
<td>663.52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 12. Post Hoc Tests for Error Types

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>MH-NH</td>
<td>0.35</td>
<td>0.05</td>
<td>0.23</td>
<td>0.47</td>
<td>0.000</td>
</tr>
<tr>
<td>HOS-NH</td>
<td>0.55</td>
<td>0.06</td>
<td>0.39</td>
<td>0.71</td>
<td>0.000</td>
</tr>
<tr>
<td>LIF-NH</td>
<td>0.55</td>
<td>0.07</td>
<td>0.37</td>
<td>0.72</td>
<td>0.000</td>
</tr>
<tr>
<td>HOS-MH</td>
<td>0.20</td>
<td>0.06</td>
<td>0.05</td>
<td>0.35</td>
<td>0.003</td>
</tr>
<tr>
<td>LIF-MH</td>
<td>0.20</td>
<td>0.06</td>
<td>0.04</td>
<td>0.36</td>
<td>0.007</td>
</tr>
</tbody>
</table>

Figure 18. Propensity for Transparency according to Error Type

As shown in Table 13, a repeated measures ANOVA determined that mean transparency scores differed statistically significantly between types of provider-patient transparency activities $(F(2, 538) = 21.64, p < .000)$. Post hoc tests using the Bonferroni correction revealed that
physicians are significantly less likely to apologize for a preventable error than they are to express sympathy for a bad outcome ($p < .000$) and to disclose the details surrounding a bad outcome ($p < .05$). Post hoc tests also revealed that physicians are significantly less likely to be honest about the details surrounding a bad outcome than they are to express sympathy for a bad outcome ($p < .001$). Post hoc analyses are presented in Table 14. Figure 19 presents the mean scores in the propensity for transparency among the different provider-patient transparency activities.

Table 13. Repeated Measures ANOVA for Provider-Patient Transparency Activities

<table>
<thead>
<tr>
<th>Source</th>
<th>MS</th>
<th>F</th>
<th>df</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>4.95</td>
<td>21.64</td>
<td>2</td>
<td>0.000</td>
</tr>
<tr>
<td>Within</td>
<td>0.23</td>
<td>538</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14. Post Hoc Tests for Provider-Patient Transparency Activities

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Lower CI</th>
<th>Upper CI</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYM-APO</td>
<td>0.27</td>
<td>0.04</td>
<td>0.17</td>
<td>0.37</td>
<td>0.000</td>
</tr>
<tr>
<td>HON-APO</td>
<td>0.11</td>
<td>0.04</td>
<td>0.01</td>
<td>0.2</td>
<td>0.026</td>
</tr>
<tr>
<td>SYM-HON</td>
<td>0.16</td>
<td>0.04</td>
<td>0.06</td>
<td>0.27</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Figure 19. Propensity for Transparency according to Provider-Patient Transparency Activity
Chapter Summary

Confirmatory factor analyses validated perfectionism, socio-organizational support, medico-legal environment, provider-patient transparency, and error reporting transparency. Structural equation modeling found that as perfectionism and perceptions of socio-organizational barriers increase, transparency scores decrease. This model also finds that perfectionism and socio-organizational climate collectively account for nearly half of the variance in both transparency outcomes. It is also shown that leadership is significantly negatively correlated with transparency suggesting that transparency decreases as leadership responsibilities increase. Multiple group analysis showed that this model was valid across gender, medical specialty, and occupation.

The results of the t-test showed that physicians are more inclined to engage in provider-patient transparency than they are to formally report medical errors. Analysis of variance tests revealed that physicians are more inclined to report serious errors compared to less serious errors. Also, physicians have stronger tendencies to express sympathy for bad outcomes than they do to apologize for a preventable error or be honest about the details surrounding bad outcomes.
CHAPTER 5: DISCUSSION

Perfectionism

Construct Validity

In this study, perfectionism consisted of four facets. The first facet related to ideals of infallibility that physicians impose on themselves; the second facet related to expectations of infallibility that are imposed on physicians by patients and the healthcare profession; the third facet related to perfectionist standards that the physician projects onto patients and colleagues; and the fourth facet related to projecting an outward image of the infallible physician.

The results of the confirmatory factor analysis revealed that self-imposed perfectionism is the best indicator, accounting for 43% of the variance in the perfectionism, followed by other-imposed (28%), image (17%), and other-directed (7%) perfectionism. This suggests that perfectionism among physicians manifests itself primarily via self-imposed expectations of infallibility. However, these findings also support Flett and Hewitt’s notion that perfectionism is a complex, multifaceted trait that includes both intrapersonal (e.g. self-directed) and interpersonal (e.g. other-imposed) dimensions.

Hypothesis Testing

Perfectionism was found to be significantly related to transparency, and as such, this research rejects the hypotheses that there is no relationship between perfectionism and transparency outcomes. Specifically, it was shown that the propensity for both types of transparency decreases as perfectionism scores increase. This suggests that perfectionism is a significant barrier to transparency. However, it should also be noted that the coefficients
describing these relationships were weak, meaning that perfectionism is not a major contributor to transparency.

Eradicating perfectionism in medicine is not going to be easy. For one thing, change efforts would need to be directed at medical education curricula and health provider organizations to ensure that current and future generations of physicians reduce their perfectionist tendencies. As such, medical education leaders should identify the student-teacher dynamics that cultivate harsh and unproductive self-criticism. In addition, it might be worthwhile to develop organizational programs that raise physicians’ awareness about perfectionism and identify how this attitude can be destructive to quality improvement efforts. It may also be useful to examine the manner in which clinical performance standards are communicated and interpreted by physicians. In the end, a transparent culture is more likely to emerge if the pursuit for perfectionism is replaced with a pursuit for excellence.

Directions for Future Research

Other definitions of perfectionism may also be used to explain physician transparency. For example, Hamachek (1978) differentiates normal perfectionism from neurotic perfectionism. Normal perfectionists set high standards for themselves yet leave room for imprecision, and thus are able to derive pleasure from even the most painstaking efforts. On the other hand, neurotic perfectionists do not tolerate any level of error and thus are never satisfied by their accomplishments. Scholars in the field of psychology have suggested that neurotic perfectionism is a maladaptive trait whereas normal perfectionism is adaptive (Parker, 1997; Rice & Preusser, 2002). Given this distinction, it might be valuable to investigate whether
maladaptive perfectionism is a barrier to transparency, and likewise, whether adaptive
perfectionism can facilitate a culture of learning and openness in healthcare.

*Socio-Organizational Climate*

**Construct Validity**

In the context of this study, “socio-organizational” refers to the perceived interpersonal
and institutional influences that impede or encourage transparency. Thus, socio-organizational
climate was operationally defined by a number of indicators, including the presence of policies
and clear reporting guidelines that encourage reporting and disclosure activities; immunity from
punishment and a damaged reputation for reporting errors; the existence of moral support
systems to help physicians cope with the emotional consequences of medical error; peer
competition among colleagues; and professional norms that encourage learning from mistakes.

The results of the confirmatory factor analysis showed that policy, immunity, and moral
support are the best indicators of socio-organizational climate. Policies alone explain 54% of the
variance in this construct, followed by immunity (40%), moral support (35%), norms (18%), and
peer competition (3%). These results suggest that the socio-organizational atmosphere is largely
determined by the nature of policies that pertain to transparency behaviors. The findings also
show that socio-organizational climate is a complex variable that includes both structural (e.g.
policies) and cultural dimensions (e.g. norms).

**Hypothesis Testing**

The relationships between socio-organizational climate and the two transparency
outcomes were statistically significant and were also considered to be strong. Therefore, this
study rejects the hypotheses that there is no relationship between socio-organizational climate
and transparency outcomes. Specifically, it was found that socio-organizational climate is a significant barrier to both provider-patient and error reporting transparency. What this suggests is that transparency barriers largely exist within institutional walls, which in turn emphasizes the importance developing patient safety programs at the organizational level.

In addition, this study also rejects the hypothesis that there are no differences in the predictive strengths of policy, immunity, norms, peer competition, and moral support. Specifically, it was found that policy had the greatest influence on both transparency outcomes; whereas immunity and norms were significantly related to provider-patient transparency only.

These results suggest that policies that encourage error reporting and provide physicians with clear reporting and disclosure guidelines can contribute significantly to both transparency outcomes. Also, alleviating physicians’ concerns about incurring a tarnished reputation, as well as upholding professional norms that encourage learning from mistakes can stimulate provider-patient transparency.

It is interesting to note that the questions pertaining to socio-organizational climate yielded more missing data compared to the other constructs. Also, an average of 29% of physician participants reported having “mixed feelings” for the questions relating to policies and immunity, which far exceeds the mixed feelings response rate for the other constructs. It is believed that both non-responses and mixed-feeling responses are largely a result of physicians’ lack of awareness about the organization’s policies and procedures for error reporting and disclosure; considering that “don’t know” was not included as a response option, physicians may have used the mixed feelings response to indicate their lack of awareness. If policies and immunity are in fact the strongest predictors of transparency – a finding that was supported in
this research – then it is reasonable to suggest that simply communicating the policies that are already in place can have a positive impact on transparency.

Peer competition did not contribute significantly to transparency. Although it might not hurt to establish an atmosphere of collegiality among physician-colleagues, peer competition does not present itself as a barrier to reporting errors or to disclosing bad outcomes to patients and families. Moral support was also found to be an insignificant barrier - a surprising finding given the extent of literature that touts moral support systems as an effective way to provide physicians with the psychological safety they need to engage in transparency (e.g. Dubovsky & Schrier, 1983). However, it should be noted that 5% of physician respondents did not answer this question, and 33% of physicians reported mixed feelings, again suggesting that physicians may simply be unaware of organizational support systems that can help them cope with error.

One peculiar finding in this research is that leadership was negatively related to provider-patient transparency though it was not related to error-reporting transparency. In other words, as physicians’ leadership responsibilities increase, the less likely they are to engage in provider-patient transparency.

**Directions for Future Research**

The finding that the socio-organizational climate contributes significantly to transparency suggests that future research endeavors should more thoroughly identify the factors that underlie a healthy work atmosphere in healthcare. The socio-organizational climate indicators used in this study undoubtedly do not represent the full range of factors that likely encourage transparency. For example, several features in the Morbidity and Mortality Conferences
(M&MC) can present themselves as barriers and facilitators of transparency, such as the frequency of M&MCs, the selection of errors discussed, whether M&MCs are routinely used in specialties other than surgery, and the levels of hostility and defensiveness that characterize M&MCs (Orlander, Barber, & Fincke, 2002; Pierlussi, Fischer, Campbell, & Landefeld, 2003; Bosk, 1979).

Recommendations and Suggestions for Organizational Change

Gallagher and Levinson (2005) outline several steps for medical professionals to enhance disclosure, including enhancing disclosure policies, training clinicians on how to disclose error, specifying disclosure content and timing, and integrating quality improvement and disclosure activities. The physician should also receive immunity pursuant to error reporting or disclosure. Nonetheless, immunity in this sense does not imply a freedom from accountability. It means upholding the tenant of innocence until proven guilty rather than placing the physician in the “position of being guilty until he/she can prove himself/herself innocent” (California Medicine, 1969).

Nonetheless, staff resistance to organizational change is a barrier to be overcome in the pursuit for a transparent culture (Audet, Raju, Jacobs, Schick, & Aviles, 2008). Given that change represents the death of the status quo (Bozak, 2004) and the loss of familiar routine (Applebaum & Wohl, 2000), a consistent finding about organizational change in healthcare is that it does not come easily (Ingersoll, Fisher, Ross, Soja, & Kidd, 2001; Schoolfield & Orduna, 1994). Considering the anxiety surrounding the issue of transparency in healthcare, incremental change might be more readily embraced than radical transformation. In light of this, an
alternative to creating new structures for achieving transparency is to update those that have already been established.

One such example is found at Northwestern Memorial Hospital in Chicago where the Patient Safety M&MC was initiated to encourage open, interdisciplinary discussion of patient safety problems and to “promote systems-based thinking among clinicians” (Szekendi, Barnard, & Creamer, 2010, p. 6). Although the M&MC has a reputation for perpetuating a culture of shame and blame (Goldberg et al., 2002), it also presents healthcare leaders with a golden opportunity to gradually institutionalize transparency throughout the organization. The idea here is that changing the tone of the M&MC by establishing a non-threatening and non-judgmental atmosphere can cause ripple effects that are felt throughout the entire organization.

The finding that moral support has no effect on transparency might be explained by physicians’ reluctance to make use of support services, and for this reason organizations are not reaping the benefits, at least in terms of disclosure activity. A number of reasons would explain why physicians consciously avoid counseling, including a lack of emotional self-awareness, a fear of dealing with emotions, and perhaps most importantly – the fear and reluctance to acknowledge their involvement in a medical error. However, a well-designed MM&C that is guided by the mutually supportive principles of learning and forgiveness, and which is led by morally courageous physicians who are willing to openly share their mistakes with their peers - could potentially change all of this. According to Pierliussi and colleagues’ (2003), adverse outcomes and errors are frequently discussed at M&MCs; however, teachers often fail to recognize failure as error per se, and moreover, refrain from using explicit language that acknowledges their personal involvement with the error. This I-It relationship with medical error
- which on the one hand may serve to protect the physician’s self-esteem - also prevents the physician from taking full responsibility for the mistake, and from experiencing the healing and transformation that forgiveness brings.

McIntyre and Popper (1983) put forth a new paradigm for professional ethics in medicine, namely, one that is guided by the willingness to admit and even search for error. Unfortunately, this paradigm would still be considered “new” today, even though it was conceived nearly two decades ago. This professional ethos is eloquently summarized in the following statement:

These standards of objective truth and criticism may teach him to try again and to think again; to challenge his own conclusions, and to use his imagination in trying to find whether and where his own conclusions are at fault. They may teach him to apply the method of trial and error in every field, especially in science; and thus they may teach him how to learn from his mistakes, and how to search for them. These standards may help him to discover how little he knows and how much there is he does now know. They may help him to grow in knowledge, and also to realize that he is growing. They may help him to become aware of the fact that he owes his growth to other people’s criticism and that reasonableness is readiness to listen to criticism. (McIntyre & Popper, 1978, p.1919)

Medico-Legal Environment

Construct Validity

In the context of this study, “medico-legal” refers to the perceived societal influences that impede or encourage transparency. Thus, medico-legal environment was operationally defined by three indicators, namely: The degree of faith in malpractice laws to protect physicians from unfair accusations and frivolous lawsuits; the perception that patients and families are litigious; and the degree of organizational anxiety about medical malpractice.
The results of the confirmatory factor analysis showed that the best indicator is malpractice risk as it accounts for 60% of the variance in medico-legal environment, followed by patient litigiousness (33%) and litigious protection (12%).

Hypothesis Testing

This research finds that medico-legal environment is not a significant predictor of either transparency outcome. This was a somewhat surprising finding given the extent of literature about the harmful effects of a litigious society on disclosure practices, especially as it relates to provider-patient transparency. At the same time, this finding further validates the notion that poor transparency is an issue that should be addressed primarily within healthcare institutions.

The absence of a significant relationship between medico-legal environment and transparency is partly explained by Gallagher and colleagues (2007) who suggest that top-down regulation is not suitable for enhancing disclosure activity. The first problem is that enforcing disclosure is a “formidable challenge” and that monitoring the frequency and quality of reports would require substantial resources as well as a comprehensive error reporting system, which has yet to emerge. Another shortcoming with regulatory oversight is that it would necessarily apply “cookbook” rules to situations which should be considered unique, and therefore dealt with on a case-by-case basis. The reality is that disclosure conversations are not amenable to such rules as there is no single way to effectively disclose bad outcomes.

Directions for Future Research

Not all aspects of the medico-legal environment were addressed in this research. For instance, some research finds that quasi-regulatory bodies, such as the JCAHO, exert considerable influences on health provider organizations to adopt a variety of patient safety goals
(Devers, Pham, & Liu, 2004). As such, one line of inquiry would be to ask physicians about their degree of understanding and compliance with mandates set forth by these entities.

Other patient safety groups with considerable influence on healthcare organizations are the Centers for Medicare and Medicaid Services, the Institute for Healthcare Improvement, the Association for Healthcare Research and Quality, the Leapfrog Group, the National Quality Forum, the National Foundation for Patient Safety, and the National Association for Healthcare Quality. Given that healthcare is seeing a burgeoning of organizations and programs that are dedicated to improving patient safety, it would be interesting to ask physicians and other health professionals about the effectiveness of these initiatives, and to determine whether their perceptions influence transparency practices.

*Transparency Outcomes*

**Construct Validity**

Provider-patient transparency consisted of three indicators: Apologizing for preventable errors, expressing sympathy for bad outcomes, and disclosing the full details surrounding bad outcomes. Confirmatory factor analysis revealed that apology was the best indicator as it accounted for 63% of the variance in provider-patient transparency, followed by honesty (46%), and sympathy (38%).

Error reporting transparency included four indicators that measured the propensity to report no harm errors, minor harm errors, errors requiring hospital admission or extending patient stay, and life-threatening errors resulting in a successful life-saving intervention. Confirmatory factor analysis revealed that no harm and minor harm were the best indicators as
they accounted for 57% and 58% of the variance in error-reporting transparency respectively, followed by hospitalization (15%), and life-threatening (11%).

The results of this research validate the notion that error reporting transparency and provider-patient transparency are theoretically distinct variables. Although this might seem like a complicated approach to measuring transparency, the advantage of working with separate variables is that it allows us to identify the unique effects of certain predictors. For example, in this research it was found that norms, immunity, and leadership were significant predictors of provider-patient transparency only.

Furthermore, the results of this research have important implications for the development of transparency assessments. The finding that all indicators put forth in this study contributed significantly to each variable’s construct validity is evidence that transparency is a multifaceted variable that consists of a wide range of behaviors. However, the poorest performers are the indicators that measured the propensity to report serious errors. In other words, as the severity of the error increases, the indicator’s contribution to construct validity decreases. Because the physicians in this sample were more likely to admit to not reporting no harm and minor harm errors compared to not reporting hospitalization and life-threatening errors (see Appendix E), the serious error questions were not as reliable. Stated differently, the questions about serious errors were not as effective at discriminating between respondents who are very transparent from those who are very non-transparent compared to the questions about less serious errors.

At the same time, the PTQ asked different questions for no harm and minor harm errors versus hospitalization and life-threatening errors. Although all four indicators were associated with the question “In the event of a medical error that (severity of harm), my routine practice is
to report the error to…”, the no harm and minor harm errors were also associated with the question “There are past instances of medical errors which resulted in (severity of harm) which I did not report”. This question was not posed with regard to hospitalization and life-threatening errors. Because these types of errors occur less often and thus do not describe the experience of every physician, presenting physicians with this statement would have produced misleading results. For example, if a physician-respondent never committed an error that resulted in a life-saving intervention, and subsequently disagreed with the statement “There are past instances of medical errors which resulted in (severity of harm) that I did not report”, then that response could be interpreted in two ways: 1) the physician is transparent, or 2) the physician never encountered this type of error. All this is to say that differences in the questions underlying each indicator might explain why reliability was compromised in the serious error questions.

Aside from highlighting the sheer complexity of developing a transparency instrument, this suggests that future assessments should either attempt to measure serious errors more reliably, or consider limiting the assessment by excluding questions that gauge the propensity to report serious errors. In addition, to further develop and refine these variables, new indicators should be integrated into their respective measurement models. For instance, it may be worthwhile to compare the propensities to report and disclose medication errors, treatment errors, diagnosis errors, error of commission, and errors of omission. Undoubtedly, more research is needed to fully understand the etiological factors underlying transparency behaviors.
Hypothesis Testing

*Error reporting versus provider-patient transparency*

This research finds that the mean score for error reporting transparency differed significantly from the mean score for provider-patient transparency. Therefore, the hypothesis that there is no difference in the propensities for both types of transparency is rejected. Specifically, it was found that the means for error reporting transparency were significantly lower than the means for provider-patient transparency.

As was hypothesized, both types of transparency practices present similar psychological obstacles, however, error reporting transparency involves more practical barriers. In order to engage in error reporting, the physician has to go through a formal process which involves completing forms and making a number of complex decisions - from deciding whether the adverse outcome was a mistake versus a natural consequence of the illness, to deciding how and who to report to. On the other hand, depending on the severity of the outcome, provider-patient transparency can be as simple and straightforward as having a conversation.

Blendon and colleagues (2002) found that the issue most frequently identified by physicians as being problematic was the cost of medical malpractice and lawsuits, and furthermore, found that physicians did not identify medical errors as being one of the most pressing problems in healthcare. These findings explain the discrepancy found in this research between error reporting and provider-patient transparency. These findings also suggest that unlike medical malpractice, the lack of urgency among physicians for reducing the incidence of medical errors might be a result of a lack of incentives/disincentives. And as we all well know, an effective reward system is often what dictates levels of human motivation.
An alternative explanation emerges from a study which found that 70% of physicians agreed that their main responsibility is to the individual patient rather than to society, whereas only 17% disagreed with this notion (Beach, Meredith, Halpern, Wells, & Ford, 2005). Given that provider-patient transparency emphasizes the well-being of individual patients via a healthy doctor-patient relationship, whereas error reporting transparency promotes the greater good by reducing errors for everyone, we can infer that the stronger inclination to engage in provider-patient transparency stems from physicians’ stronger sense of loyalty for individual patients.

Comparing error reporting transparency responses

This research finds that the mean scores for no harm, minor harm, hospital, and life threatening errors will be significantly different from each other, and therefore rejects the hypothesis that no differences exist in the propensity for transparency between different types of errors. Specifically, it was found that physicians are more inclined to report no harm errors compared to minor harm, hospitalization, and life-threatening errors; and that physicians are more inclined to report minor harm errors compared to hospitalization and serious errors. A competing explanation is that it is easier to admit the failure to report less serious errors than it is to admit not reporting serious errors. By the same token, less serious errors are usually less noticeable, which suggests that if the physician is the only witness to the error, then they might feel less compelled to report it as there is no third party that will hold them accountable. Thus, the present study finds a curvilinear relationship between error severity and error reporting transparency which is depicted in Figure 20.
Comparing provider-patient transparency responses

This research finds that the mean scores for apology, sympathy, and honesty are significantly different from each other and thus rejects the hypothesis that no differences exist in the propensity to engage in different types of provider-patient transparency practices. Specifically, it was found that physicians are less inclined to apologize than they are to express sympathy and honesty, and that they are less inclined to be honest than sympathetic.

An obvious explanation for these differences is that the apology questions asked the physician about saying “I’m sorry” for a preventable medical error, which would therefore involve an admission of guilt; whereas the sympathy and honesty questions pertained to bad outcomes in general (i.e. preventable and non-preventable) and thus may not cast the physician in a negative light.

Similar reasoning might also explain the observed difference between sympathy and honesty. The questions about sympathy simply asked physicians whether they would express
sympathy for a bad outcome; whereas the honesty questions asked physicians whether they would disclose the full details surrounding bad outcomes. Hence, if physicians feel that disclosing high levels of clinical detail gives patients the ammunition to file a malpractice claim, then it is not surprising to observe a greater inclination to express sympathy than to display honesty.

**Directions for Future Research**

With regard to provider-patient transparency, this study measured the propensity to engage in provider-patient transparency behaviors. However, there are other ways to measure this form of transparency. Sweet and Bernat (1997) found that physicians’ willingness to disclose errors to patients decreased as the severity of the error increased. Gallagher and colleagues (2003) reported that most physicians opposed disclosing near misses (i.e. no harm errors) because they felt that this would diminish patient trust and increase patient anxiety. The findings from both studies collectively suggest a curvilinear relationship between error severity and provider-patient transparency, such that physicians are less inclined to disclose non serious and very serious errors, and more inclined to errors that are moderately serious. This theoretical relationship (illustrated in Figure 21) is slightly different than the curvilinear trend that was reported in the present study with respect to the propensity to formally report errors. The primary difference is that error reporting transparency plateaus towards the higher end of the error severity scale (see Figure 20), whereas provider-patient transparency levels tend to fall as the error becomes more severe.
In light of these findings, it might be worthwhile to test the validity of both models as this could provide clues about the cognitive psychology that underlies error reporting and disclosure, and consequently, allow patient safety experts to design disclosure programs more effectively. It might also be of interest to determine if the same trends would be observed across transparency behaviors (e.g. apology, sympathy, and honesty), namely, whether physicians use different behavioral responses depending on the severity of the error or bad outcome.

A longitudinal design may also be applied to this research in order to test the effectiveness or transparency training programs at the organizational and/or departmental levels. Here, Fishbein and Ajzen’s theory of reasoned action could be used to model how intentions to report errors (as measured by the construct “Error Reporting Transparency” in Figure 22) predict their actual reporting behaviors (as measured by “Number of Error Reports”). According to this model, several causal pathways would be investigated. First, the model would measure the direct, indirect, and lagged effects of the training program on physicians’ intentions to report
medical errors. Second, it would measure the effects of physicians’ intentions to report on their actual reporting behaviors. Finally, this model can also capture any testing threats that occur as a result of repeatedly assessing of physicians’ intentions to report. Lastly, it is expected that the number of error reports will increase between the pretest and posttest #1 because the training program will have encouraged physicians to report errors; however, if the program is indeed effective, the number of error reports is expected to decrease between posttest #1 and posttest #2 given that in this time frame, physicians will have learned from their mistakes which in turn would prevent the recurrence of error.

![Figure 22. Longitudinal Design for Effectiveness of Transparency Training Program](image)

**Limitations**

There are several limitations in this study. First, data was collected from only one hospital system in the state of Florida. As such, it is possible that both institution-specific differences in physicians’ propensities for transparency and state-specific differences in medico-legal climates would influence the results. Therefore, these factors limit the generalizability of the findings to other settings. Future research should therefore address this limitation by cross-
validating the covariance model across several hospitals in that represent the various geographic regions in the country. Future research should also attempt to validate the model on other healthcare workers such as nurses, patient care technicians, allied health professionals, and hospital administrators as these populations may yield different findings about the predictors of transparency.

Another suggestion for future research is to test the model on a larger sample. Although there is much disagreement about appropriate sample size for confirmatory factor analysis and structural equation modeling, the general consensus is that larger samples yield better quality results. Also, it is recommended to include a wider range of indicators for medico-legal barriers and provider-patient transparency seeing that these models were just identified.

Another limitation is that the questionnaire was based on self-reported data, thus, it is not known whether the reported levels of transparency are accurate. It should be noted that the PTQ was an anonymous questionnaire, and that physicians were assured that their identities could not be revealed by reviewing responses. Nonetheless, physicians’ responses may have been influenced by social desirability. This in turn may have produced overestimated or underestimated causal relationships between the transparency predictors and outcomes.

Additionally, the majority of physician-respondents were meeting attendees, which may have compromised internal and external validity. Some of the meetings were voluntary, and therefore the physicians who attended them may be different from those who did not attend in a way that is relevant to this research. For instance, attendees may have stronger tendencies for organizational citizenship, which may in turn indicate that they are more transparent than physicians who do not attend meetings.
Also, several limitations which are inherent in structural equation modeling (SEM) should be mentioned. First, the correlations generated through SEM can only describe relationships, and therefore no causal inferences can be made. In addition, model fit could be sample specific and as such, not be generalizable to physicians in other settings.

Lastly, single source bias may also have affected the results. Single source bias emerges as an issue when both independent and dependent variables are measured using the same source, as was done in this study. Therefore, there is a possibility that the observed relationships between the study variables were inflated.

Conclusions

Implications for Practice

The covariance structure model was replicated across medical specialty (i.e. surgery and primary care), gender, and occupation (i.e. staff and resident). This lends greater support to the model as it suggests that the relationships therein specified generalize across certain groups of physicians. The practical implication of this finding is that changes in policies, immunity practices, and professional norms could enhance transparency among physicians, regardless of gender, specialty, or occupation.

The major finding in this research is that perfectionism and socio-organizational climate collectively explain about half of the variance in each transparency outcome. However, socio-organizational climate was a considerably stronger predictor compared to perfectionism. In a sense, the findings of this research are heartening because they propose rather simple solutions (e.g. organizational policy redesign) for a complex problem. This does not imply that addressing
policies and norms will solve the entire transparency problem; however, it does suggest that a few small changes can yield noteworthy improvements in outcomes related to patient safety and malpractice risk management. Thus, the findings emphasize the responsibility of patient safety leaders and risk managers to ensure that both the structural and cultural barriers to transparency are removed. As Edmund Pellegrino (2004) puts it:

"Systems cannot make the professionals within them virtuous, but they can make it possible for virtuous professionals to be virtuous. Correspondingly, a defective system can discourage even the conscientious individual or reduce his or her aspirations to nothing higher than the level of the average." (p.84)

This study’s emphasis on socio-organizational climate also points out that transparency would be best achieved via bottom-up, grassroots change efforts. One way to instigate this type of change is to create incentive structures that will endow physicians with enough courage to speak up about their mistakes, in spite of the constraints that are imposed by the self and others. Although on the surface rewarding error disclosure seems inappropriate (as we do not want to reinforce the notion that errors are good), we would not expect such incentive systems to be implemented by regulatory bodies through financial or accreditation inducements. Instead, we could use the Morbidity & Mortality Conferences as a setting where physicians are rewarded with admiration and respect - in other words, intangible rewards - for willingly and openly sharing their personal experiences with medical error and for renouncing their identification with the “infallible doctor”. This is not to suggest that accountability for error should be overlooked; rather, it should not be inconceivable to thank physicians, like David Hilfiker for instance, for offering a public confession, all the while applying corrective measures to prevent the error from being repeated.
There is a lot of misunderstanding about what it means to apologize and be forgiven. When it comes to dealing with medical mistakes, error reporting transparency is only half the battle. A physician who formally reports a medical error and even relays the experience to colleagues has yet to complete their journey to forgiveness, that is, by engaging in provider-patient transparency. “Cheap grace”, a term that medical ethicist Nancy Berlinger often uses in the context of dealing with medical error, overlooks the role of the injured party as an agent of forgiveness, or assumes that forgiveness should occur reflexively, namely, in the absence of apology, accountability, or compensation (Berlinger, 2003). She points out that various members of the healthcare system, including chaplains and social workers, pressure patients to forgive their healthcare providers by reminding them that “good people are forgiving”. However, when the relational aspect of pardoning someone is overlooked, both the physician and the patient are denied the opportunity to feel the restorative power of forgiveness.

Implications for Theory and Public Affairs

The findings herein provide support for Chin and Benne’s (1983) normative-re-educative strategy by showing that norms and values (i.e. in the form of professional norms, post-disclosure immunity, and transparency policies) are important drivers of organizational change. This study also demonstrated the influence of both individual (e.g. perfectionism) and group level factors (e.g. socio-organizational climate) on organizational change. Therefore, Chin and Benne’s theory may inform organizational leaders in healthcare and other industries that successful change hinges upon the ability to identify the structural and cultural barriers that manifest themselves at the individual and group levels.
Although the concepts of error and quality of care have been the sustained focus in healthcare for the last decade, the fields represented in public affairs are no more immune to quality chasms. Moreover, errors in public affairs are no less egregious than errors in medicine. In social work, systemic errors in the adoption process can cause children to be placed in the wrong homes. In criminal justice, faulty sentencing guidelines can result in prison overcrowding and elevated crime rates. In governance and public administration, the failure to engage in evidence-based decision-making causes public funds to be misused and wasted.

It is of the utmost importance that we advance our conceptual and operational understandings of what constitutes “error” in each respective field. Recently, healthcare provider organizations have been under constant scrutiny to ensure that quality standards are met. Since the IOM announced a decade ago that as many as 98,000 deaths are a result of medical errors, which also coincided with the World Health Organization’s (2000) report which ranked the US healthcare system as the 37th in the world, healthcare has seen a burgeoning of institutions that are dedicated to improving patient safety and healthcare quality. JCAHO, for instance, has acquired much clout as far as accreditation is concerned as a recent study reported JCAHO as the primary driver of patient safety initiatives in healthcare organizations (Devers, Pham, & Liu, 2004). In addition, a number of toolkits and benchmarking instruments have been put forth by the Leapfrog Group and the National Quality Forum to support organizational efforts to enhance healthcare quality. Lastly, today’s healthcare consumers can be much more selective about choosing their providers thanks to a number of organizations that publish up-to-date hospital performance reports (e.g. www.hospitalcompare.hhs.gov, www.leapfroggroup.org).
This then begs the question, “Why is healthcare held to a different standard?” This is not to suggest that the quality of healthcare services is superior to the quality of services provided by any other public affairs institution. Rather, healthcare experienced a turning point when several alarming reports unveiled to the public that healthcare quality in the US is substandard. The response to this public scrutiny was to put measures in place that would increase accountability. Consequently, healthcare has become increasingly *practical* about closing its quality chasm, and in this sense can proffer two important lessons to other industries about embracing change: Be proactive, and be pragmatic.

Recent national disasters including 9/11, hurricane Katrina, and the financial crisis have inarguably heightened the public’s expectations of accountability and transparency in the conduct of public affairs; so, what is *not* lacking is a wake-up call about the gravity of our current state of affairs. Now is the time for thoughtful, studious action. One of the main findings in this research is that small changes can produce big results – a key principle of quality improvement. For example, Festinger and Pratt (2002) found that a small change in New York State’s family court procedures shortened the duration of time between the termination of parental rights and adoption finalizations, and more importantly, increased the number of child adoptions. The change in question: Permitting an adoption to be filed while the termination of parental rights is still pending. And as was suggested by this research, sometimes, small changes can lead to very positive results.

In addition, the finding that socio-organizational climate is a major determinant of transparency can inform change efforts in public affairs institutions by emphasizing the value of grassroots change and participative democracy. Public sector entities should be encouraged to
develop innovative yet simple solutions such as those put forth by Festinger and Pratt, so that the idea of change becomes less daunting and the excuse that “it’s too complicated” is laid to rest. Although the notion of error can invoke feelings of guilt and ineptitude, we need only realize that dealing with error in any field is merely a willingness to recognize the difference between what is and what ought to be.

Chapter Summary

In support of Chin and Benne’s normative re-educative strategy, perfectionism and socio-organizational support were significant predictors of error reporting and provider-patient transparency, which points out that paying attention to these two factors can allow patient safety advocates and malpractice risk managers to achieve their respective goals. Nonetheless, socio-organizational climate had the strongest influence on transparency, as perfectionism was considered a weaker predictor. This suggests that change efforts would need to be directed at medical education curricula and health provider organizations to ensure that current and future generations of physicians reduce their perfectionist tendencies. Also, a number of institutional changes are recommended, such as communicating transparency policies and disclosure guidelines to physicians, upholding professional norms that encourage learning from mistakes, and reassuring physicians that reporting and disclosure activities will not jeopardize their reputation.
APPENDIX A:
UCF INSTITUTIONAL REVIEW BOARD APPROVAL LETTER
Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA0000381, IRB00001138

To: Bianca Perez

Date: January 07, 2011

Dear Researcher:

On 1/7/2011, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Psychological and Social Determinants of Transparency in Healthcare
Investigator: Bianca Perez
IRB Number: SBE-10-073-2
Funding Agency: n/a
Grant Title: n/a
Research ID: n/a

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Joseph Biehlitzki, DVM, UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Maratosi on 01/07/2011 11:23:29 AM EST

IRB Coordinator
APPENDIX B:
FLORIDA HOSPITAL INSTITUTIONAL REVIEW BOARD LETTERS
February 17, 2011

Esan Perez, MS
FH Celebration
4000 Central Florida Blvd
Orlando FL 32826

Dear Ms. Perez:

FH A 2775-4360
Title: Psychological and Social Determinants of Transparency in Healthcare
Document approved: IRB Application dated 3/31/11; Protocol dated 2/14/11; UCF IRB approval letter: Letter of
Invitation dated 2/17/11; Survey dated 1/25/11

Florida Hospital IRB Expedited Initial Approval Date: 02/17/11
FH IRB Expiration Date: 6/21/14/12
Informed Consent Waived based on: 21 CFR 56.109(c)(1)

Meeting Date for FH IRB Notification: 03/08/11

NOTE: This study may not be initiated without approval of the Florida Hospital Office of Research Administration.

The Florida Hospital IRB granted expedited approval to the study noted above, based on categories approved in 21
CFR 56.110 and 45 CFR 46.110. Unless the informed consent requirement was waived, you are required to use the IRB
approved informed consent. The Florida Hospital IRB has approved the above noted informed consent authorization
for use. * Note: should the informed consent be revised, it must be approved by the IRB prior to use and will
supersede the above noted approved consent authorization.

Prior to the expiration date noted above, the IRB must be made aware of the status of your project(s). All progress
reports will be required. (21 CFR 56.109(f)) If this project has not been completed, you may request renewal approval.
It is your responsibility to remain in compliance with all applicable state and federal regulations governing research as
well as adhering to the Florida Hospital IRB Handbook for the Protection of Human Research Subjects.

You are reminded that a change in the study requires resubmission and approval of the IRB prior to initiation of the
change in the study or informed consent.

It is the responsibility of the principal investigator to report to the Chair of the Institutional Review Board within 10
days, and in writing, any related unanticipated problems involving risks to subjects or others, such as adverse reactions to
biological products, radio-isotopes or to medical devices.

Florida Hospital Institutional Review Board complies with federal and state regulations and GCP guidelines.

Failure of the principal investigator or members of his/her research team to abide by the Florida Hospital IRB Handbook for the
Protection of Human Research Subjects or failure to abide by FDA/OHRP regulations governing the research may result in
suspension and/or termination of this study.

Florida Hospital Institutional Review Board has the authority to review all documentation and the informed consent
process for studies approved through the Florida Hospital IRB.

Laura Otton, CIP, CIR
IRB Administrator
IRB Member
Florida Hospital IRB
APPENDIX C:
LETTER OF INVITE
Dear Physician,

The University of Central Florida has partnered with Florida Hospital to conduct a research study designed to learn more about physicians’ attitudes about their profession and their health care organization.

We would like to invite you to take part in this study. Participation in the study is voluntary. About 10 minutes of your time is required to complete the attached questionnaire.

Your responses are entirely anonymous; your name will not be on the questionnaire.

You do not have to take part in this study or you can stop the questionnaire at any time without fear of repercussions.

If you have questions concerning this study or the questionnaire, contact the study physician, Dr. Stephen Knych at 407-303-4029.

If you have problems, concerns, suggestions or questions about your rights as a research participant, please contact the Florida Hospital Institutional Review Board at (407) 303-5581. The purpose of the IRB is to protect the rights and welfare of people who take part in research studies.

If you are interested in obtaining a copy of the results, please communicate with the Principal Investigator via e-mail (biancaperez@knights.ucf.edu) or by phone (561-862-8064).

Thank you very much for your comments and participation in this research effort.

Sincerely,

Bianca Perez, MS
Principal Investigator

Stephen A. Knych, MD, MBA
Co-investigator
APPENDIX D:
QUESTIONNAIRE
Please circle your answer

SA = Strongly Agree       A = Agree       MF = Mixed Feelings       D = Disagree       SD = Strongly Disagree

1. Patients have unusually high expectations of me.
   SA  A  MF  D  SD

2. The error reporting policy in my organization offers confidentiality to those who report errors.
   SA  A  MF  D  SD

3. I am usually concerned that my failures will disappoint patients or colleagues.
   SA  A  MF  D  SD

4. Malpractice legislation in Florida protects me against wrongful accusations and frivolous lawsuits.
   SA  A  MF  D  SD

5. My routine practice is to provide patients and families with complete explanations for bad outcomes.
   SA  A  MF  D  SD

6. My organization encourages error reporting.
   SA  A  MF  D  SD

7. Criticism about my performance as a clinician usually makes me feel defensive.
   SA  A  MF  D  SD

8. My routine practice is to apologize to patients and families in the event of a preventable medical error.
   SA  A  MF  D  SD

9. My organization provides clear guidelines on how to disclose bad outcomes to patients and families.
   SA  A  MF  D  SD

10. Mistakes and failures in healthcare usually cause me to feel shame.
    SA  A  MF  D  SD
11. In the event of a medical error that results in an injury that is easily treated and has no lasting effects, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.

SA A MF D SD

12. Malpractice litigation is a common occurrence in my organization.

SA A MF D SD

13. In my organization, the reputation of professionals who report or disclose medical errors is likely to be compromised.

SA A MF D SD

14. Healthcare has unusually high expectations of me.

SA A MF D SD

15. My routine practice is to express sympathy to patients and families in the event of a bad outcome.

SA A MF D SD

16. The error reporting system in my organization is usually non-punitive.

SA A MF D SD

17. There are past instances of bad outcomes for which I did not provide complete explanations to patients and families.

SA A MF D SD

18. I have a tendency to strive for excessively high standards in healthcare.

SA A MF D SD

19. There are past instances of preventable medical errors that did no harm which I did not formally report.

SA A MF D SD

20. Patients and families are often inclined to initiate malpractice litigation.

SA A MF D SD

21. My organization usually offers moral or emotional support to clinicians in the aftermath of a bad outcome.

SA A MF D SD
22. There are past instances of preventable medical errors for which I did not apologize to patients and families.

SA A MF D SD

23. I am usually willing to admit when I am wrong in healthcare situations.

SA A MF D SD

24. My organization encourages the disclosure of bad outcomes.

SA A MF D SD

25. There are past instances of preventable medical errors that resulted in injury that is easily treated and has no lasting effects which I did not formally report.

SA A MF D SD

26. My patients often disappoint me.

SA A MF D SD

27. My organization provides clear guidelines on how to report errors.

SA A MF D SD

28. In the event of a medical error that results in no harm, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.

SA A MF D SD

29. My professional culture usually encourages learning from mistakes.

SA A MF D SD

30. There are past instances of bad outcomes for which I did not express sympathy to patients and families.

SA A MF D SD

31. In my organization, reporting an error may lead to job loss or prevent career advancement.

SA A MF D SD

32. In the event of a medical error that causes hospital admission or prolongs patient stay, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.

SA A MF D SD
33. I usually expect patients to take optimal care of their health.

SA A MF D SD

34. My organization usually worries about medical malpractice.

SA A MF D SD

35. In my organization, clinical staff members are usually very competitive with one another.

SA A MF D SD

36. I usually fear that patients and families will initiate a malpractice lawsuit against me and/or my organization.

SA A MF D SD

37. In the event of a medical error that results in a successful life-saving intervention, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.

SA A MF D SD

Please checkmark your answer or fill in the blank

What is your gender?

☐ Male
☐ Female

What is your marital status?

☐ Single
☐ Married
☐ Divorced/Separated
☐ Widowed
☐ Other _____________________

What is your ethnicity?

☐ Caucasian
☐ African American
☐ Hispanic
☐ Asian
☐ American Indian
☐ Other: _____________________
What is your current occupation?

☐ Staff or Attending Physician
☐ Resident Physician
☐ Other (please describe) __________________________

How much of your time is currently spent on direct patient care?

☐ 100%
☐ 75%
☐ 50%
☐ 25%
☐ 10%

What is your age? ______

What is your medical specialty? ______________________

Since board certification, how many years have you been working in your current occupation? ________

THANK YOU FOR YOUR PARTICIPATION
APPENDIX E:
PTQ RESPONSE PERCENTAGES REPORT
## Error Reporting Transparency

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Agree %</th>
<th>Mixed Feelings %</th>
<th>Disagree %</th>
<th>Missing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are past instances of preventable medical errors that did <strong>no harm</strong> which I did not formally report.</td>
<td>44.5</td>
<td>14.8</td>
<td>39.6</td>
<td>1.1</td>
</tr>
<tr>
<td>In the event of a medical error that results in <strong>no harm</strong>, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.</td>
<td>53</td>
<td>24.4</td>
<td>20</td>
<td>2.6</td>
</tr>
<tr>
<td>In the event of a medical error that results in an injury that is <strong>easily treated and has no lasting effects</strong>, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.</td>
<td>61.1</td>
<td>22.2</td>
<td>15.6</td>
<td>1.1</td>
</tr>
<tr>
<td>There are past instances of preventable medical errors that resulted in injury that is <strong>easily treated and has no lasting effects</strong> which I did not formally report.</td>
<td>22.6</td>
<td>15.2</td>
<td>61.1</td>
<td>1.1</td>
</tr>
<tr>
<td>In the event of a medical error that causes hospital admission or prolongs patient stay, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.</td>
<td>68.9</td>
<td>18.9</td>
<td>9.2</td>
<td>3</td>
</tr>
<tr>
<td>In the event of a medical error that results in a <strong>successful life-saving intervention</strong>, my routine practice is to report the error to at least one of the following entities: internal or external reporting agency, supervisor, manager, physician chief, department leader, or health care executive.</td>
<td>66.7</td>
<td>18.1</td>
<td>10.7</td>
<td>4.4</td>
</tr>
</tbody>
</table>

## Provider-Patient Transparency

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Agree %</th>
<th>Mixed Feelings %</th>
<th>Disagree %</th>
<th>Missing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>My routine practice is to apologize to patients and families in the event of a preventable medical error.</td>
<td>83.4</td>
<td>13</td>
<td>3.7</td>
<td>0</td>
</tr>
<tr>
<td>There are past instances of preventable medical errors for which I did not apologize to patients and families.</td>
<td>20.3</td>
<td>11.5</td>
<td>67</td>
<td>1.1</td>
</tr>
<tr>
<td>My routine practice is to express sympathy to patients and families in the event of a bad outcome.</td>
<td>92.6</td>
<td>5.6</td>
<td>1.5</td>
<td>0.4</td>
</tr>
<tr>
<td>There are past instances of bad outcomes for which I did not express sympathy to patients and families.</td>
<td>13</td>
<td>8.1</td>
<td>77.8</td>
<td>1.1</td>
</tr>
<tr>
<td>My routine practice is to provide patients and families with complete explanations for bad outcomes.</td>
<td>87.4</td>
<td>8.5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>There are past instances of bad outcomes for which I did not provide complete explanations to patients and families.</td>
<td>18.5</td>
<td>11.1</td>
<td>69.3</td>
<td>1.1</td>
</tr>
</tbody>
</table>
### Medico-Legal Environment

<table>
<thead>
<tr>
<th>Agree %</th>
<th>Mixed Feelings %</th>
<th>Disagree %</th>
<th>Missing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>20.4</td>
<td>70.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Malpractice legislation in Florida protects me against wrongful accusations and frivolous lawsuits.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.3</td>
<td>32.2</td>
<td>27.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Patients and families are often inclined to initiate malpractice litigation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31.8</td>
<td>22.6</td>
<td>45.2</td>
<td>0.4</td>
</tr>
<tr>
<td>I usually fear that patients and families will initiate a malpractice lawsuit against me and/or my organization.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.9</td>
<td>16.3</td>
<td>58.5</td>
<td>3.3</td>
</tr>
<tr>
<td>Malpractice litigation is a common occurrence in my organization.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70.3</td>
<td>15.9</td>
<td>12.6</td>
<td>1.1</td>
</tr>
<tr>
<td>My organization usually worries about medical malpractice.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Socio-Organizational Climate

<table>
<thead>
<tr>
<th>Agree %</th>
<th>Mixed Feelings %</th>
<th>Disagree %</th>
<th>Missing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.8</td>
<td>28.1</td>
<td>8.2</td>
<td>4.8</td>
</tr>
<tr>
<td>The error reporting policy in my organization offers confidentiality to those who report errors.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.3</td>
<td>25.6</td>
<td>58.6</td>
<td>2.6</td>
</tr>
<tr>
<td>In my organization, the reputation of professionals who report or disclose medical errors is likely to be compromised.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49.6</td>
<td>34.8</td>
<td>10.3</td>
<td>5.2</td>
</tr>
<tr>
<td>The error reporting system in my organization is usually non-punitive.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.8</td>
<td>25.2</td>
<td>57.4</td>
<td>5.6</td>
</tr>
<tr>
<td>In my organization, reporting an error may lead to job loss or prevent career advancement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>26.3</td>
<td>42.2</td>
<td>1.5</td>
</tr>
<tr>
<td>In my organization, clinical staff members are usually very competitive with one another.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35.1</td>
<td>33</td>
<td>27</td>
<td>4.8</td>
</tr>
<tr>
<td>My organization usually offers moral or emotional support to clinicians in the aftermath of a bad outcome.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>69.2</td>
<td>21.1</td>
<td>8.6</td>
<td>1.1</td>
</tr>
<tr>
<td>My organization encourages error reporting.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32.9</td>
<td>35.2</td>
<td>29.6</td>
<td>2.2</td>
</tr>
<tr>
<td>My organization provides clear guidelines on how to disclose bad outcomes to patients and families.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55.5</td>
<td>30.7</td>
<td>10.4</td>
<td>3.3</td>
</tr>
<tr>
<td>My organization encourages the disclosure of bad outcomes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>30.7</td>
<td>24.8</td>
<td>4.4</td>
</tr>
<tr>
<td>My organization provides clear guidelines on how to report errors.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Perfectionism

<table>
<thead>
<tr>
<th>Agree %</th>
<th>Mixed Feelings %</th>
<th>Disagree %</th>
<th>Missing %</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.7</td>
<td>38.9</td>
<td>24.5</td>
<td>0</td>
</tr>
<tr>
<td>Criticism about my performance as a clinician usually makes me feel defensive.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91.1</td>
<td>5.2</td>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>I have a tendency to strive for excessively high standards in healthcare.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59.3</td>
<td>22.6</td>
<td>18.2</td>
<td>0</td>
</tr>
<tr>
<td>Patients have unusually high expectations of me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61.5</td>
<td>18.9</td>
<td>18.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Healthcare has unusually high expectations of me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.6</td>
<td>21.5</td>
<td>64.8</td>
<td>1.1</td>
</tr>
<tr>
<td>My patients often disappoint me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64.1</td>
<td>20</td>
<td>15.6</td>
<td>0.4</td>
</tr>
<tr>
<td>I usually expect patients to take optimal care of their health.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71.5</td>
<td>13.3</td>
<td>15.2</td>
<td>0</td>
</tr>
<tr>
<td>I am usually concerned that my failures will disappoint patients or colleagues.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>32.6</td>
<td>24</td>
<td>0.4</td>
</tr>
<tr>
<td>Mistakes and failures in healthcare usually cause me to feel shame.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89.6</td>
<td>6.7</td>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>I am usually willing to admit when I am wrong in healthcare situations.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84.9</td>
<td>8.9</td>
<td>6.3</td>
<td>0</td>
</tr>
<tr>
<td>My professional culture usually encourages learning from mistakes.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*To simplify reporting, the term “agree” signifies the consolidation of “agree” and “strongly agree” responses. Likewise, “disagree” signifies the consolidation of “disagree” and “strongly disagree” responses.*
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