Attribution Theory and Healthcare Culture: Translational Management Science Contributes a Framework to Identify the Etiology of Punitive Clinical Environments

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ATTRIBUTION THEORY AND HEALTHCARE CULTURE: TRANSLATIONAL MANAGEMENT SCIENCE CONTRIBUTES A FRAMEWORK TO IDENTIFY THE ETIOLOGY OF PUNITIVE CLINICAL ENVIRONMENTS

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ABSTRACT

The Institute of Medicine’s seminal report, To err is human: Building a safer health system, established the national patient safety framework and initiated interest in changing the traditionally punitive healthcare culture. This paper reviews a multidisciplinary literature and offers an attribution framework to explicate the organizational processes that contribute to an industry-wide culture where clinicians are routinely blamed for adverse patient events. Attribution theory is concerned with the manner in which people explain the behaviors of others or themselves by assigning causality for events. To date, attribution theory, though well established in the management literature, has yet to be translated to
healthcare. In this paper, we first describe the historical evolution of attribution theory in relation to human behavior in clinical practice and healthcare management and then discuss the work environments in contemporary healthcare organizations. Next, we demonstrate the applicability of attribution theory to healthcare by providing two adverse event exemplar cases. Then, the Healthcare Attribution Error Model is offered to demonstrate how concepts from attribution theory serve as antecedents to the employee cynicism, learned helplessness, organizational inertia, and the emerging Just Culture perspective. We conclude by suggesting attribution theory offers an important theoretical framework that warrants further conceptual development and empirical research. In the quest to produce exceptional healthcare environments where safety and quality are fundamental employee concerns, healthcare managers and clinical professionals need theoretically supported knowledge and evidence-based insights.

INTRODUCTION

The release of the Institute of Medicine’s (IOM) seminal report, To err is human: Building a safer health system (Kohn, Corrigan, & Donaldson, 2000), stimulated national interest in understanding the traditional punitive healthcare culture (Ruchlin, Subbs, & Callahan, 2004). Healthcare is a system that frequently harms (Davis et al., 2002) and routinely fails to deliver the appropriate standard of care (IOM, 2004). Recently, the World Health Organization (2008) proclaimed poor safety and suboptimal care is endemic, citing 10% of all patients are impacted by medical errors. Yet, the pressures that slowly force healthcare organizations to identify and reduce their propensity for adverse events (Berta & Baker, 2004) have been ineffective in creating cultures of safety (Page, 2004). Poorly designed systems, not the actions of well-intended clinicians, are responsible for adverse events (IOM, 2001; Reason, 2000). Attribution theory provides a cognitive rationale to explicate the organizational processes that contribute to an industry-wide culture where clinicians are frequently blamed for adverse patient events. To date, this traditional management theory has not been translated to healthcare to offer a theoretically anchored explanation for the etiology of punitive hospital cultures.

Attribution theory is concerned with the manner in which people explain the behaviors of others or themselves by assigning causality for events
(Heider, 1958). In an organizational context, attributions are rapid perceptions about situations or events. These perceptions often lead to attributing events to personal dispositions and intentions rather than to account for other plausible explanations (Jones, 1979). The causal assignment rapidly explains situations but impacts the usefulness and the accuracy of the appraisal. Inaccurate or incomplete causal associations can lead to serious organizational consequences such as employee distrust (Tucker & Edmondson, 2003). These flawed appraisals have caused healthcare safety improvement efforts to be slow and incremental (Devers, Pham, & Lui, 2004), as error reporting systems remain inadequate and poorly supported by clinicians (Edmondson, 2004; Reason, Carthey, & de Leval, 2001; Tucker, 2004). Consequently, substantial and unrealized deficits in organizational knowledge (Devers et al., 2004; Gray, 2001) about system failures (Rasmussen, 1999) are perpetuated by misplaced attributions (Reason, 2000).

**Healthcare Organizations and Theoretical Knowledge Application**

Despite calls for comprehensive system reforms, Millenson (2003) criticized the continued focus on improvement efforts that ignores the repeated reluctance of healthcare leaders to modify systems and to avoid personal attributions for failures. Dysfunctional organizational behavior has an extensive and rich history in the management literature (Argyris, 1957; March & Simon, 1993); however, there has been modest application to the behaviors present in complex healthcare organizations (Kohn et al., 2000). In healthcare, this situation parallels the “display culture” where British Naval officers ordered watertight doors on warships polished until they were no longer watertight (Reason, 1998). The polishing was not intended to cause leaky doors, but door shining provided the appearance of a well-maintained ship, therefore, a safe ship. Unfortunately, leaky doors were an unanticipated consequence, much like the distrust caused by misplaced attributions to hold clinicians “accountable” for their mistakes. Healthcare leaders continue to shine hospital cultures, but the system remains just as leaky today as in years past (Devers et al., 2004; Leape & Berwick, 2005). Continuing the analogy, the current healthcare polishing activities should be discontinued in favor of translating theoretical and empirical management science to clinical healthcare operations.

We examine attribution theory in the context of hospital work environments. Physicians, nurses, pharmacists, and others experience blame and even suffer serious consequences for mistakes due to management’s
perception of events. While this paper is not intended to be an “us versus them” examination of attribution, the discussion and the case examples emphasize the clinician perspective. In many hospital organizations, physicians are not direct employees of the organization, but the nursing and ancillary staff are directly employed. As such, clinicians are commonly subjected to misattributions when it comes to errors and adverse events that occur while delivering patient care (Page, 2004; Reason, 2000).

In this paper, we provide an overview of attribution theory. Then, we discuss attribution theory as a natural human behavior, noting its influence on healthcare managers and clinicians. To support our theoretical translation and application of attribution theory to healthcare, we then discuss two recent sentinel event cases where attribution processes led to different causal perspectives. Next, we offer the Healthcare Attribution Error Model and apply attribution theory constructs to healthcare work environments. Finally, we consider the emerging concept of Just Culture and conclude with a brief discussion about the future implications for attribution theory in healthcare. This paper contributes to the literature by demonstrating attribution theory is relevant to healthcare and by illustrating the specific organizational processes that sustain the traditionally punitive industry culture.

**ATTRIBUTION THEORY**

From psychology and sociology, attribution theory emerged in the management literature as a characteristic of organizational behavior by which individual assessments are formed. The theory explains the process whereby people seek to understand the cause of a situation (Heider, 1958), assess responsibility for the outcome (Martinko & Gardner, 1982), and appraise the personal attributes of the people involved (Weiner, 1995a). Furthermore, attribution is synonymous with explanation; placing the discussion of “why did something occur” in the context of leader–member relations (Green & Mitchell, 1979). As healthcare is delivered in a dynamic and complex environment (McDaniel & Driebe, 2001), managers may unknowingly engage in “attribution-like” behaviors to make sense of multifarious situations especially when time is limited (Kelley, 1972). In many cases, these attributions are not purposeful, nor are they intended to misrepresent; however, attributions often lead to judgments about a person or situation. This is similar to the analogy about judging a book by the appearance of its cover.

Healthcare managers, like any person, seek to explain their behaviors and the behaviors of others; attribution theory explicates how people form
judgments (Heider, 1958). These causal associations, when focused on clinician behavior, have serious organizational consequences in the healthcare industry’s approach to address performance fallibility (Edmondson, 2004). For example, increased exposure for adverse patient events and the inclination to attribute such failures to clinicians engenders an adversarial organizational safety climate in many healthcare organizations (IOM, 2001, 2004). Attribution theory provides a framework to identify mechanisms that contribute to blame subsequent to non-routine harmful patient events.

Whether cognitively assembled or formally conducted, adverse events are followed by both immediate and planned investigations to identify causality. As conclusions about event causality develop (Martinko, 1995), two attribution types emerge, internal and external (Weiner, 1985). Internal attribution is the causality factor that falls within an individual’s control, also known as dispositional attribution (Heider, 1958). External attribution defines the factors residing outside an individual’s control, also known as situational attribution (Kelley, 1967). We will refer to internal attributions as dispositional and external attributions as situational.

Both dispositional and situational attributions are described in the literature as the silent hands that guide sensemaking (Weick, 1995). Sensemaking depends on the availability of information, but more importantly, speed yields an absence of critical information. In such cases, fundamental attribution error (Ross & Nisbett, 1991) often results. Fundamental attribution error (Fig. 1) explains how perceptual tendencies, rather than situational or contextual, result in flawed conclusions (Weiner, 1995b) about event causality. To illustrate this point, we provide a real example of attributions from an operating room adverse event (Box 1).

This example provides a basic examination of factors that contribute to the complexity surrounding a sentinel event, and how easy it is for outsiders

![Fig. 1. Fundamental Attribution Error.](image-url)
to assign rash attributions to people involved in the incident. As demonstrated in this example and Fig. 1, situational and dispositional attributions depend on information availability and accuracy, time constraints and explanation urgency, and the person responsible for making the causal associations. More specifically, fundamental attribution error is probable when time constraints, often created by adverse patient events, lead to incomplete knowledge about event circumstances. These concepts will be revisited and further developed in the sections to follow.

\textit{Attribution in Healthcare}

Attribution theory is derived from a relatively parsimonious multidisciplinary literature (Heider, 1958; Kelley, 1967; Martinko, 1995). Cognitively,
humans automatically respond to explain the behavior of others by trying to construct rationales for these behaviors without much consideration of situational influences. More recently, attribution has been shown to have a biological foundation. Neuroimaging provides evidence that attribution is an organic processes that can be predictably mapped in human brains (Harris, Todorov, & Fiske, 2005) and attribution placement, self versus others, shifts with damage to the brain (e.g., strokes in the frontal region). These recent medical findings deserve additional attention as clinicians and managers could be predisposed to specific types of attributions.

Using “problemistic search” (Cyert & March, 1963, p. 120), managers scan their environments seeking rapid solutions for urgent problems such as the cause of an adverse event. This cognitive strategy seeks solutions that reflect casual schemas, or assumed patterns of behavior, usually forced by superficial inquiry and time constraints (Martinko & Gardner, 1987). The process to develop a perception is sought through an evaluation of undertaken action. Collectively, managers of organizational processes are often disinterested in isolating perfect decisions when problems are ill-defined and difficult to solve. As such, attributing situations to “others” in a perceived causation, at the conclusion of complex events, produces relatively quick, easy, and efficient solutions. This process is historically preferred and often advocated in healthcare management (Reason, 2000).

Concepts
Attribution simplifies event causality (DeJoy, 1999; Heider, 1958; Kelley, 1967; Weiner, 1986) for people processing information and making assessments about observed situations or outcomes (Weiner, 1985) as they attempt to understand their environment (Berger & Luckmann, 1967; Standing, Guilfoyle, Lin, & Love, 2006). Therefore, attribution is a cognitive instrument healthcare professionals use to make sense of the world around them and the interactions that engage them (DeJoy, 1999). When managers encounter unexpected events, circumstances are processed to construct a mental image that normalizes the event (Weick & Sutcliffe, 2001). This process of sensemaking is an inherent tendency (Weick, 1995), not necessarily reflective of objective reality (Heider, 1958).

Explained by attribution theory, the antecedents information, beliefs, and motivations lead to causal attributions (DeJoy, 1985; Weiner, 1985). These factors contribute to inferences consequential to people (Green & Mitchell, 1979) in directing or changing behavior, affect, and expectancy (DeJoy, 1999). As described in the literature, the dimensions causality, controllability, intentionality, stability, and globality represent the major attribution
concepts that provide structural and functional fitness to the theory (DeJoy, 1985; Weiner, 1985). The manifestation of specific dimensions, summarized in Table 1, contribute the description of relationships that link the human-environment-healthcare process through schematic interfaces. A thorough discussion about these dimensions is beyond the scope of this paper.

**Table 1.** Dimensions (Locus) for Attributions.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
<th>Example</th>
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<tbody>
<tr>
<td>Causality</td>
<td>The personal internality or external relationships that shapes event causation (Weiner, 1985)</td>
<td>The nurse was derelict in her performance, whereas, the pharmacist was sure unlucky in that situation</td>
</tr>
<tr>
<td>Controllability</td>
<td>The degree to which a person believes they or another entity is capable of controlling the causality of an outcome (Weiner, 1995a)</td>
<td>The physician should have given the patient more blood, whereas, the blood bank was completely out of the patient’s blood type</td>
</tr>
<tr>
<td>Intentionality</td>
<td>The perception of intention as the cause of an event (Langdrige &amp; Butt, 2004)</td>
<td>The physician euthanized the patient, whereas, the patient died during surgery as the surgeon accidently nicked the aorta</td>
</tr>
<tr>
<td>Stability</td>
<td>The context of time and situation as causative variables (Kent &amp; Martinko, 1995)</td>
<td>Personality (e.g., bedside manner) is considered a stable causation, whereas, effort (e.g., hard work) varies and is dependant on time/situation</td>
</tr>
<tr>
<td>Globality</td>
<td>The distinct cultural and social contextual variations in which events or outcomes occur (Langdrige &amp; Butt, 2004)</td>
<td>Cultures have distinctively internal or external attribution when compared against each other (e.g., Hofstede &amp; Hofstede, 2005; House, Hanges, Javidan, Dorfman, &amp; Gupta, 2004)</td>
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**Attribution Assignment for Adverse Events and Clinical Errors**

**Dispositional Attribution**

Dispositional attribution is a cognitively associated state where feelings of human fallibility manifest in practice. Decreased self-efficacy can cause clinicians to feel culpable for unfortunate situations that often do not reside within their immediate control or influence. In the organizational context related to patient safety, the term “dispositional attribution” resembles the
person approach to error causation (Palmieri, Delucia, Peterson, Ott, & Green, 2008; Reason, 1997). Internal attribution in the case of error generally results from organizational blame and punishment ensuing from investigations that attempt to unearth “people” as the root cause of an adverse event (Reason, 1997) versus objectively examining all plausible causes. That is, this approach focuses on “Who did something?” (Rasmussen, 1999) versus “Why did something happen?” (Reason, 2000). Causality is an important consideration in the assignment of attribution (Kent & Martinko, 1995; Weiner, 1995a) much like being presumed innocent until proven guilty. Similar to breakdowns in due process, appropriate causality is not always properly distributed (Runciman, Merry, & Tito, 2003), due to flawed attribution schemas. This process will become more evident with the case examples later in the paper.

Martinko and Gardner (1987) indicate attribution processes are moderated by biases and individual differences. This particular point is readily experienced by most clinicians, especially nurses (Page, 2004) working in healthcare. Blame in healthcare is derived from an attribution-like process (Reason, 1997; Sasou & Reason, 1999) as managers perceive lack of effort (Reason, 2000), inability (Vincent, 2003), incompetence (Rasmussen, 1999), and absent vigilance (Reason & Hobbs, 2003) as explanations for clinician error. As such, dispositional attributions result in disciplinary actions (Martinko & Gardner, 1987). This person-centered approach most often results from high-visibility errors; those errors manifesting as patient harm (Kohn et al., 2000; Rasmussen, 1999; Reason, 2000).

Perceived employee performance influences management attributions (Martinko & Gardner, 1987). As such, employee performance is modulated by manager attributions as evidenced by the concealment of practice mistakes. Accordingly, clinician reluctance to report errors is quite common (IOM, 2007; Kohn et al., 2000). This failure to report occurs as clinicians understand that “blaming individuals is emotionally more satisfying than targeting institutions” (Reason, 2000, p. 70), where people are seen as straightforward causative agents. Therefore, clinicians realize that admissions of fallibility or error result in reprimands instead of appreciation.

Mistakes leading to undesirable outcomes are not usually related to incompetent or substandard care (e.g., Cook & Woods, 1994), a frequently misunderstood and unappreciated fact (Page, 2004; Reason, 2000). Rather, errors often reflect a clinician’s inability to cope with gaps produced by poorly designed (Reason, 2000) and exceedingly complex systems (Woods & Cook, 2002). Martinko and Gardner (1987, p. 240) stated, “behaviors that yield adverse consequences may lead to unfavorable
inferences,” linking human error guided by flawed processes to people instead of system characteristics and influences. In addition, Bandura (1999) described the typical management role as a detrimental schema where managers deliberately remain uninformed by utilizing indirect and ambiguous practice consent. This concept is supported by Reason and colleagues (2001) as they explain how managers avoid controllable system problems. The management approval concept is similar to the attribution of stable and unstable causes (Martinko & Gardner, 1987).

When errors arise, managers usually focus on subordinate performance while subordinates, such as pharmacists and nurses, focus on environmental elements (Bernardin, 1989; Martinko & Gardner, 1987; Mitchell & Woods, 1980). For example, when a medication arrives on the nursing unit labeled with the wrong patient name, the nurse manager might instantly attribute this issue to poor pharmacist practice. However, the pharmacist might see the unreliable labeling machine and frequent understaffing in the pharmacy to be the causative agents. Martinko and Gardner (1987, p. 239) realize “the subordinate attribution process is complex and interactive.” Later, Martinko (1995, 2004) discusses how attribution can be confusing when considering the variety of manners in which the concept can flow. This flow could also be different between industries or professions.

We recognize the complex and interactive nature of attribution in our healthcare discussion. Martinko’s point is especially important because attribution theory and research matured in the organization behavior and management literature and the knowledge has not been transferred to healthcare. As such, it is critical for the consistency of attribution theory application, in both the language and in its logical flow, to provide a sensible approach for viewing management attributions. In addition, the clinician attributions related to their own practice and performance are important considerations. For example, the experienced healthcare professional may be more likely to attribute error to the less-experienced individual, but the less-experienced individual may attribute error to the external causes in the environment. This incongruence in belief structures presents an opportunity for health services researchers to study.

**Situational Attribution**

Situational attribution describes the causes of behavior credited to the direct influences of situation factors. These attributions resemble the systems approach to considering errors (Palmieri et al., 2008). In the hospital industry, clinicians tend to place blame on the environment, and even management, when issues or adverse events arise. The typical clinician,
similar to other professionals described in the literature (Martinko & Gardner, 1987), usually favor situational attributions to the organization (Page, 2004), whereas managers often blame clinician incompetency (Reason et al., 2001). Of course, not all clinicians have an adversarial relationship with management. Supportive and constructive clinical relationships with management (or when clinicians are managers) can contribute to positive work environments; yet, these institutions represent the minority in the industry (IOM, 2004; Kohn et al., 2000; Page, 2004).

Experiential knowledge influences the likelihood that clinicians will make self-serving, external attributions despite evidence of poor performance. By applying empirical evidence from sports, personal awareness derived from experience motivates individuals to improve their performance. Roesch and Amirkham (1997) reported top athletes deal better with genuine causes of poor performance and, over time, tend to improve their overall performance by making fewer self-serving external attributions. However, these athletes are not performing in punitive environments and are motivated through reward systems to improve their performance. This is an important distinction for healthcare managers to consider. Following a sincere evaluation and discussion about performance, replacing the risk of personal harm with the promise of organizational learning, clinicians ought to be able to discern where environmental and personal improvement efforts should be focused.

When managers want to understand adverse event causality, hidden system features, or latent factors (Dorner, 1996; Perrow, 1984; Reason, 2000), they must act with a purposeful focus to uncover facts and not perceptions (Reason, 1990; Dekker, 2007). Most managers realize no system can completely eliminate human error (Perrow, 1984; Rasmussen, 1990), but extending their perspective to action will lead to routine examinations of situational causes—an instrumental philosophical shift. This change is essential to reduce the tendency for dispositional blame and to increase organizational learning. Situational attributions result from a deep understanding about care delivery systems (Kohn et al., 2000) and the realization that the best clinicians make the worst mistakes (Reason, 2000). Therefore, reducing risk (Reason, 1998), increasing reliability (Flin, Burns, Mearns, Yule, & Robertson, 2006), and improving quality (Kohn et al., 2000; Reason, 2000; Smetzer & Cohen, 1998) are associated with careful situational appraisals (Weick, Sutcliffe, & Obstfeld, 1999), not immediate dispositional attributions (Rasmussen, 1990).

**Root Cause Analysis**

Situational attributions often result from deliberate assessments similar to the event specific root cause analysis (RCA). The RCA is an investigatory
mechanism adopted by healthcare organizations to uncover the situation “why” and to determine the root cause “how” for an adverse event (Battles, Kaplan, van der Schaaf, & Shea, 1998; IOM, 2007; Joint Commission Resources, 2007). Both attributions and RCAs help managers recognize the contributory factors that culminate in untoward events. However, attribution and RCA can place emphasis on vastly different outcomes. While attribution is an immediate appraisal that often assigns personal accountability (dispositional), the RCA seeks causality within system properties and processes (situational) while avoiding individual blame (Gano, 2007; Reising & Portwood, 2007).

The RCA process emphasizes the system, or situational, approach to viewing events, while management attributions usually focus on the dispositional or person approach (Palmieri et al., 2008). Time-constrained management attributions occur most frequently in healthcare since RCA is a time-consuming process, undertaken with many participants and multiple meetings to examine facts and consider possible scenarios. Indeed, the assignment of personal responsibility for adverse events often results from purposeful attributions to individuals directly linked to the event (Weiner, 1985), not necessarily the process that led to the poor outcome (Reason, 1997; Reason, 2000). Altering the “name and shame” mind-set of many healthcare managers is challenging (Runciman et al., 2003) despite their understanding about the important contributions RCA provide to process improvement efforts.

Next, we move to the exemplar cases, followed by the presentation of the Healthcare Attribution Error Model (Fig. 2).

EXEMPLAR CASES

Recognizing healthcare environment complexity, there are a number of single-event attributions (including slips, lapses, mistakes, and error) that can contribute to management attributions and to employee responses. The associated emergent system properties, cynicism, or improved employee confidence reside in organizational culture, such as organizational inertia or Just Culture. These properties might also include external influences such as the licensing boards that govern clinical practices within the organization. The examples to follow include influences external to the organization; however, the focus for this discussion is on how the organizations handled the events.

The next two cases exemplify dispositional and situational attribution responses to publically reported clinical errors that resulted in patient deaths. Both cases involve similar mistakes that resulted in patient harm;
however, the outcomes for the involved clinicians are remarkably dissimilar. The first case resulted in one death and immediate public dispositional attributions that ended with a criminal prosecution. The second case involved multiple infant deaths; the catalyst for dramatic hospital improvement as dispositional attributions were withheld, situational factors were studied, and organizational learning resulted.

Dispositional Attribution Case

Dispositional attributions in response to an adverse patient event were exemplified at a Midwestern hospital. An experienced labor and delivery nurse mistakenly administered an epidural drug to a young late-term pregnant patient through an intravenous line (Institute for Safe Medication Practices, 2006). Unfortunately, the patient died as a direct result of this fatal medication administration error. With closer analysis, however, the...
facts revealed the fatal error was only one in a cascade of events in a system plagued with “hidden” or contributory errors.

Typically observed in medication delivery systems, errors originate proximal to system level and cascade through the process distally to clinical practice (Smetzer & Cohen, 2006). In this case, causality was immediately and publically reported as an incompetent nurse derelict in her duties. Specifically, her duty to make certain the right patient, received the right dose, of the right drug, at the right time, and by the right route – the five rights of nursing medication administration – was the focus.

Management was paralyzed by the publically reported sentinel event and was unable to recognize that the nursing error resulted from interactions within a complex adaptive system with unfavorable and dormant conditions. Following the event, the state health agency cited the hospital for a number of system deficiencies. In this case, the nurse was working a double shift, the pharmacy did not secure the medication on the unit per policy, and management was not appropriately monitoring the effectiveness of the new automated medication verification system. Dispositional attributions combined with local and national media attention subjected the nurse to significant public blame, which created humiliation and hardship.

Multifaceted dispositional attributions caused the nurse to face serious punishment despite the presence of other significant contributory factors (Institute for Safe Medication Practices, 2006). In the end, purposed to protect the public from future harm, criminal prosecution was the chosen response to the event (Institute for Safe Medication Practices, 2006; State of Wisconsin, 2006). Numerous professional and quality-improvement organizations reacted with position statements objecting to this “miscarriage of justice” (Institute for Safe Medication Practices, 2006; Wisconsin Hospital Association, 2006; Wisconsin Medical Society, 2006) as the actions taken against the nurse were not in the spirit set forth by To Err is Human (Institute for Safe Medication Practices, 2006; Kohn et al., 2000; Wisconsin Medical Society, 2006). Cases such as this one are familiar to most clinical professionals (IOM, 2003) as the punitive healthcare industry is perpetuated by aggressive dispositional attributions (Kohn et al., 2000; Reason, 2000) despite continued calls for reform (IOM, 2007; Page, 2004).

Situational Attribution Case

Deliberate and methodical management consideration, when facing critical organizational failures where patients are seriously harmed, is likely to result
in strong situational attributions with minimal dispositional types (Joint Commission Resources, 2005). At a Southeastern hospital, five nurses committed the same medication error causing three infant deaths and three other infant injuries. The hospital found “human and procedural errors account for the administration of inappropriate doses of Heparin to six infants in the Methodist NICU” (Clarian Health Partners, 2006). This case differs from the previous case example, as management made a closer analysis, before immediately attributing blame to the nurses, and determined the fatal error was merely one in a cascade of events from a system plagued with contributory factors.

Actor Dennis Quaid’s experience began in 2007 when his then newborn twins encountered near death (Institute for Safe Medication Practices, 2008), as nurses mistakenly administered heparin (“blood thinner”) in an adult dose (10,000 units) instead of infant dose (100 units) to prematurely born infants in a neonatal intensive care unit (NICU). The 2006 Southeastern hospital event was similar in root cause. Both of these errors resulted from pharmacy issues and nursing issues. The pharmacy technician restocked the automated medication dispensing unit with the adult dose of heparin instead of the infant dose of heparin. The nursing issues surrounded the experiences of the five nurses who varied from routine protocols for medication verification and administration due to both situational and human factors.

A critical issue implicated in the infant deaths is the nearly indiscernible difference between the labeling (virtually identical color and lettering) on the adult and infant heparin vials (Institute for Safe Medication Practices, 2006). Important to this discussion, the literature has numerous reports about uniform heparin vial appearance contributing to patient harm (Institute for Safe Medication Practices, 2008, 2009); yet, the Food and Drug Administration and the manufacturer were unresponsive in correcting this potential sentinel event opportunity. Furthermore, multiple hospital policies, procedures, and practices were not adequate to address this problem due to operational impediments.

In this case, and even the previous example, the nurses’ actions simply continued a cascade of errors, not only the manifestation of a single but lethal error (Shalo, 2007). Hospital management recognized the event could have been prevented at a number of critical points and implemented processes and training to address these concerns. For example, pharmacy operations for refilling automated dispensing cabinets were overhauled, medication policies and procedures were reviewed and improved, and a mass re-education process for medication delivery was provided. Specifically, the “five rights” of drug administration was the focus for educational efforts,
instead of the basis for a criminal complaint (as noted in the previous example). In summary, the Southeastern hospital management attributed the event to be one where “an institutional error – one in which our procedures failed” was the causal agent (Clarian Health Partners, 2006). Management responses similar to this case facilitate the movement of punitive cultures to Just Cultures (Dekker, 2007); a concept addressed later in the paper.

HEALTHCARE ATTRIBUTION ERROR MODEL

In this section, we present the Healthcare Attribution Error Model (Fig. 2) to support the application of attribution theory to healthcare. The Healthcare Attribution Error Model is the first theoretically derived framework proposed for healthcare. Building upon the exemplar cases, we discuss learned helplessness, clinician cynicism, and organizational inertia as consequential outcomes in cultures where managers prefer dispositional attributions to explain their hospital environment. Just Culture is presented as an emerging concept as some organizations begin to focus on reducing dispositional attributions for clinical errors; preferring to focus on the system-related problems.

Although we realize attribution is not a linear process, the representation of three-dimensional concepts in a two-dimensional diagram is challenging. In this model, all clinical practices can result in attributions (positive and negative); however, we are most concerned with those clinical circumstances that result in failures (the most prevalent and damaging to the individual and the organization) and adverse events. We also recognize there are other influences within the hospital environment, including malpractice legislation, licensing boards, regulatory agencies, and patient advocacy groups, but these issues are outside the scope of this discussion.

Attribution and Employees

Learned Helplessness

One unfortunate consequence of dispositional attributions is the linkage to cultures predominately derived from fear (Kohn et al., 2000; Reason, 2000). Resulting from the drive for accountability in the delivery of healthcare, organization leaders, professional boards, and society, in general, consider clinicians involved in harming patients as being “at fault.” Attributing blame to clinicians, such as physicians and nurses, is premised on the need to protect the public from harm. Furthermore, clinician punishment for mistakes is
expected by the majority of leaders regardless of causality (Vincent, 1997). The consequence of this dispositional attribution laden culture results in clinicians hiding problems and mistakes (Lawton & Parker, 2002) to avoid reprisal and punishment (Gibson & Singh, 2003). By hiding problems, the issue of employee silence is brought to the forefront. Attribution theory provides an appropriate framework to expose this under-recognized and unappreciated relationship that clinicians often experience in the delivery of care.

Martinko and Gardner (1982) describe learned helplessness as the development of passive professionals consequential to repeated punishment for mistakes that makes success unlikely, even following organizational change. Learned helplessness is created by excessive dispositional attributions. Clinicians witness the adjudication of errors in the media, before licensing boards and courts, and within their own organizations, which often result in public chastisement and character assassination. These punitive experiences can be internalized by clinicians and lead to employee silence to avoid public humiliation for unfortunate but consequential mistakes.

The present healthcare situation broadly parallels the findings Seligman reported in his famous canine experiment. In Seligman’s research, dogs were electrically shocked under varied conditions (Haggbloom et al., 2002). First, the dogs were chained to a wall where with each shock they were unable to escape. After repeated shocks and attempts to escape these shocks, the dog chain was disconnected and the dogs were shocked again. Despite the new freedom to escape, the dogs simply remained in place (Seligman & Maier, 1967). Dispositional attributions may prompt an analogous environment where clinicians’ are apathetic to incidents over which they lack control.

Learned helplessness also illustrates perceptions regarding event controllability in considering how people feel about their ability to act (Walker, 1979). As mistakes usually manifest from perceptual (Wiegmann & Shappell, 1997), decision-making (Norman, 1988; Rasmussen, 1999), and skill-based system misalignments (Norman, 1988; Reason, 1990), the control jurisdiction is systemic in nature and not a dispositional factor. This is evident in a recent review of nursing performance where hospital nurses were found to experience high levels of stress and fatigue due to overwhelming workloads, cognitive overload, and excessive interruptions (Delucia, Ott, & Palmieri, in press). Subjected to these stressful working conditions, coupled with emergent and unexpected events, clinical professionals are likely to believe dispositional attributions they might normally perceive as false or erroneous (Gilbert, 1998). Through experiment, Gilbert, Tafarodi, and Malone (1993) demonstrated a phenomenon of “automatic believing” can occur under stressful conditions.
Cynicism

Workplace cynicism can be created when clinicians encounter dispositional attributions, but the system is really the culpable agent (Andersson & Bateman, 1997). In addition, helplessness can lead to cynicism (Dorner, 1996). Cynical knowledge is generated by management actions (Goldner, Ritti, & Ference, 1977). For example, inadequate supervision, lack of management support, and deficiencies in resource availability help to build clinician cynicism about the organization’s goals (Palmieri et al., 2008; Reason, 1998). A high level of employee cynicism depicts an organization in crisis (Reichers, Wanous, & Austin, 1997).

Cynicism is also derived from preserving and protecting organizational cultures from clinician-initiated change. When managers engage in frequent communications that focus on dispositional attributions, maladjusted workplace performance typically results (Martinko & Gardner, 1987). Managers further contribute to cynicism (Prussia, Brown, & Willis, 2003) when clinicians attempt to attribute causation for operational issues to the organizational work processes and managers repeatedly ignore these attempts (Reason, 1997; Reason et al., 2001). Managers appearing uninterested and uninvolved in work environments also engender employee cynicism (Reason & Hobbs, 2003) about management competence (Vincent, 1997) and the potentially consequential situations that remain hazardous (Reason et al., 2001). With heightened cynicism, attribution further contributes to considerable environmental stress (Rasmussen, 1999) and the stress leads to additional cynicism, as evidenced by the increasingly dissatisfied, and cynical, hospital nurses (Page, 2004; Stone et al., 2006).

Clinician involvement in operations is absolutely critical to maintain protective care delivery systems (Reason & Hobbs, 2003). When clinicians who attempt to correct known issues are ignored by management, dysfunctional artifacts are collected. Known issues often include those related to work environments. Workload pressures, such as understaffing or stressful work assignments, only exacerbate cynicism in situations where dispositional attribution processes may already flourish. For example, Tucker and Spear (2006) reported that inadequate nursing task times, multiple unplanned alterations to tasks, and frequent interruptions mid-task throughout a typical shift contribute to work overload and fatigue.

While seldom discussed in the literature, stressful situations and work overload may cause departures from policies and procedures (Page, 2004). These deviations contribute to workplace attribution and worker cynicism (Vaughn, 1999). In reviews of medical error (Morrow, North, & Wickens, 2005) and nursing performance (Delucia et al., in press), cognitive overload
and environmental factors (such as cumbersome work processes and technologies) were found to hinder clinical performance. For example, an organizational issue, such as unpaid overtime at the end of the shift, is a well-known phenomenon (Tucker & Spear, 2006). Nurses, unable to manage their heavy workload within a scheduled shift, report overtime lasting, on average, an hour per shift (Rogers, Wang, Scott, Aiken, & Dinges, 2004). Collectively, organizational characteristics can create stress and contribute to clinician cynicism. Hospital work environments are difficult for clinicians to navigate (Kohn et al., 2000; Page, 2004) and overload is no longer an exception; instead, burdensome workloads have become normalized.

Argyris and Schön (1996) acknowledge in their discussion of organizational learning that there is often a substantial disconnect between the organization and the individual. Furthermore, people frequently know what needs to be done, however they are pessimistic, and potentially cynical regarding the outcome (Cook & Yanow, 1993). Cynicism limits both clinician practice and patient advocacy, while the organization struggles to move forward, reverse course, or even to overhaul operational practices. Management avoidance of attribution bias is an important moderator to reduce the likelihood that negative emotions and expectancies will contribute to the existence of workplace cynicism (Harvey, Martinko, & Douglas, 2006).

**Attribution and Organizations**

Over time, the products of cynicism (Andersson, 1996; Harvey et al., 2006) and learned helplessness (Martinko & Gardner, 1982) can lead to the phenomena called organizational inertia (Amburgey, Kelly, & Barnett, 1993; Argyris, 1990; Kelly & Amburgey, 1991; Proehl, 2001; Rumelt, 1995). In this section, we discuss the manifestation and consequences of inertia and describe the emerging concept of the Just Culture.

**Inertia**

Healthcare organizations are inherently complex systems that adapt to change (Anderson, Crabtree, Steele, & McDaniel, 2005; Anderson & McDaniel, 2000) and exhibit dynamic network characteristics (McDaniel & Driebe, 2001) where multiple agents continuously act and react to other agents’ behavior and actions. Managers should recognize that hospitals function with a high degree of dispersed and decentralized organizational control (McDaniel & Driebe, 2001). Within an organization network, such as a hospital, multitudes of disparate decision-making actions are performed by
numerous agents (Waldrop, 1992). However, leaders may attribute group failures or system instability (Reason, 1998) to individual behavior (Bandura, 1999). Therefore, evaluating error etiology in a complex adaptive systems creates substantial, and potentially irreconcilable, situations for organizations to balance (Anderson, Issel, & McDaniel, 2003; Cilliers, 1998). This leads to the question of who (or what) is to blame for this failure?

As a manager arrives at judgment, the formal decision following evaluation of a poor outcome, conflict between the organization and the clinician is certain when people are blamed for unintended failures. These judgments manifest in cynicism directed at the organization or lead to individuals feeling helpless about their ability to contribute to the organization. Indeed, poor group performance is a noted problem for organizations when management attributions are improperly directed (Brown, 1984; Kelley, 1967). The development of clinician knowledge specific to group dynamics and interpersonal relationships serves a critical role in healthcare team performance. Studies demonstrate that clinical practice is performed best in complimentary group settings where team work is embraced (Edmondson, 2004; Leggat, 2007). Dispositional attributions can manifest as inertia and seriously disrupt group synergy, contributing to suboptimal patient care and increased clinical failures.

McElroy (1982, p. 416) suggests “leader-member conflict may be the directed result of a leader taking action based on his/her own casual analysis of the situation, a causal analysis potentially quite different from that of his/her subordinates.” Similarly, Martinko and Gardner (1987) explain how managers often blame subordinate characteristics as the cause of poor performance while subordinates fault leaders for environmental flaws leading to an inability to appropriately perform. Through repeated attribution cycles that manifest in blame, organizational effectiveness and the ability to change processes substantially diminish. This repetitive process eventually leads to an inertial state. Avoiding negative attribution cycles serves a positive role in facilitating the foundation for a Just Culture (Dekker, 2007).

**Just Culture**

Just Culture, a relatively new concept for hospitals (Dekker, 2007), is a culture where organizational norms support and encourage learning from mistakes rather than focusing on blaming and punishing those involved in error (Reason, 1997; Tucker & Edmondson, 2003). Just Culture, focused on trust (e.g., Dirks & Ferrin, 2002) and supportive management practices (e.g., Konteh, Mannion, & Davies, 2008), is an essential component for creating cultures where safety is valued and recognized as an organizational priority.
Management support is important to encourage error reporting (IOM, 2007) and to identify acceptable and unacceptable behaviors (Reason, 1990). Just Culture resides within the organization safety culture (Wiegmann, Zhang, von Thaden, Sharma, & Gibbons, 2004). From research, Tucker and Edmondson (2003, p. 67) note “To learn from failures, people need to be able to talk about them without fear of ridicule or punishment.”

Initially, healthcare focused on human error (Kohn et al., 2000) and those errors associated with perceptual limitations (Rasmussen, 1999) and employee behavior (van Vuuren, 1999). This approach, although helpful in understanding human error, did little to shift the focus from the traditional person-centered philosophy to a system perspective when addressing errors that result in adverse events (Palmieri et al., 2008). However, there has been a recent shift to scrutinize more often organizational factors, such as management practices, organization structures, and system processes (Flin et al., 2006; IOM, 2004), which impact employee performance (Singla, Kitch, Weissman, & Campbell, 2006) and cause error cascades that result in patient harm (Reason, 1997; IOM, 2004).

The Just Culture is believed to be an essential prerequisite for healthcare safety and quality (Dekker, 2007; Khatri, Halbesleben, Petroski, & Meyer, 2007). This culture is postulated to offer an atmosphere of trust and encouragement for clinicians to openly engage in safety-related information exchanges (IOM, 2007, Kohn et al., 2000; Page, 2004). The key determinant to build and sustain a Just Culture is the ability to focus on situational attributions when evaluating failures. High levels of dispositional attribution for clinical errors detract from clinician acceptance of the Just Culture as legitimate. Therefore, clinician trust and the willingness to improve error communication will remain nominal when individual clinicians are the primary causative focus for sentinel events. The model presented in Fig. 2, recognizes how the frequent use of situational attributions leads to the Just Culture. Further discussion about Just Culture is beyond the focus of this paper.

**Attribution Theory Complexity and Hospital Application**

Theory complexity relates to the application of attributional processes to practice when compared to the theoretical basis for attribution. In healthcare, the use of multiple theories to address complex trajectories of chronic illness and care systems management is prudent, perhaps even necessary to study, describe, explain, and intervene in phenomena. By
including well-defined and situational explanatory theories, such as attribution theory, healthcare professionals can better understand seemingly unique experiences by studying the common elements across situations and between environments. With adaptation and empirical testing for applicability to healthcare management, attribution theory may begin to theoretically explain commonly experienced, frequently discussed, but rarely published, clinical hardships related to system failures attributed to individuals. Attribution theory not only provides a framework to study hospital managers and clinicians, but it also is applicable to the broader healthcare industry, especially given the emergence of the Just Culture.

The complexity in attribution theory is driven by the scope and variety of potential problem solving applications. For example, attribution theory addresses mistakes and errors leading to accidents in a unique manner by seeking to understand the ascription from the management viewpoint, usually dispositional, versus the system perspective. As a result, causes that ought to be ascribed to poorly designed care delivery systems (Kohn et al., 2000) are often overlooked in favor of the belief that clinicians are carelessness or negligent (Cook & O’Connor, 2005; Helmreich & Davies, 2004; Kohn et al., 2000; Rasmussen, 1999; Reason, 2000). Therefore, attribution theory literally can be “brought to the bedside” along with the physician and nurse in order to answer important questions related to both the people and systems involved in errors. The root cause of patient care system failure precludes traditional approaches to change management as effective alternatives for process improvement. Turning to the disciplines of organizational behavior and theory, cognitive and behavioral psychology, and organizational sociology in order to learn more about attribution theory can offer an alternative approach to consider consequential phenomena.

Attribution and Healthcare Management Interventions

The purpose of this paper was to introduce attribution theory to healthcare with a conceptual framework focused on dispositional attributions by managers. Although we will not address interventions in this paper, we would like to draw your attention to previous work in Advances in Health Care Management (AHCM) that provides further context about appropriate organization and management interventions to improve clinical cultures. Most notably, in AHCM Patient Safety and Health Care Management (vol. 7), four papers address interventions and strategies to: 1) improve the likelihood for
accurate attributions of causality (Batten, Goodman, & Distefano, 2008); 2) facilitate positive changes in organizational culture that support employee performance (McAlearney, 2008); 3) assist managers and supervisors learn how to balance safety culture promotion with performance accountability (Tamuz, Russell, & Thomas, 2008); and 4) appreciate the etiology of errors in care delivery systems that lead to consequential adverse events (Palmieri et al., 2008). Finally, an important contribution by McDaniel and Driebe (2001) in AHCM (vol. 2) frames healthcare organizations as complex adaptive systems that necessitate contemporary management practices in order to improve organizational processes and system outcomes.

**CONCLUSION**

This paper has described attribution theory and demonstrated its suitability to healthcare. First, the evolution of attribution theory was described, followed by a discussion about the translation of attribution theory to healthcare. Then, concepts related to attribution theory were addressed. Next, the relevant work and contemporary knowledge that provides for the hardiness of attribution theory was evaluated to support the application as an important, but unrealized feature of the hospital work environment. This was accomplished with actual examples from adverse events that occurred in two hospitals where causes for these events were directed either to the organization and its complexity or to the practitioner and their competency. Then, the Healthcare Attribution Error Model was introduced to address dispositional and situational attribution, cynicism, learned helplessness, organizational inertia, and Just Culture. We next addressed complexity issues related to attribution theoretical translation to healthcare clinical practice and management. Finally, we suggest attribution theory provides an important theoretical framework that warrants further conceptual development and empirical research.

The IOM (2001) report, *Crossing the Quality Chasm*, nonspecifically refers to attribution by advocating the reaction to healthcare error must change since the result of clinicians simply “trying harder” will only perpetuate the current “blame and shame” environment. However, by positively changing the hospital environment improvement can be realized (Runciman et al., 2003). Achievement will be apparent not only in the creation of an environment where more satisfied patients and fewer negative events occur, but also by creating the environment for a more satisfied work force.
Attribution theory supports the organizational discussion by explaining the need to focus on causal relationships instead of individual clinicians. In most cases, leaders are drawn toward the lowest common denominator, the clinician, with the focus of blame, fault and the assignment of responsibility (Taylor, 1981). Therefore, this form of attribution results in placing causation on the shoulders of a clinician, while permitting leaders to avoid personal responsibility (Burgoyne, 1982). When repeatedly manifested, this form of attribution ultimately results in the organization being held harmless (Green & Mitchell, 1979) and clinicians growing more fearful (Kohn et al., 2000; Page, 2004; Reason, 2000).

Managers should begin to actively work with clinicians to deconstruct the punitive healthcare culture, while simultaneously building process improvements into the clinical work environment. Specifically, increased management attention to understanding the complexity of care delivery systems, to actively engage in enhancing the clinical work environment, and to seek system causes while avoiding personal attributions for human errors are essential beginning steps. Indeed, the fundamental philosophy advocated by To Err is Human (Kohn et al., 2000) strives to reduce the level of attribution directed at clinicians by promoting system solutions for critical failures. Attribution theory as applied to the hospital practitioners can unlock the many obstructed doors necessary to unearth meaningful solutions to challenging problems.

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