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THE INTERSECTION OF MULTIPLE FOCAL CLIMATES:

SAFETY CLIMATE AND SERVICE CLIMATE IN A HEALTHCARE CONTEXT

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ABSTRACT

The current study examines the impact of multiple focal climates operating simultaneously in a single organization. More specifically, the study focuses on two specific climates that are especially relevant to the Healthcare Industry; safety climate and service climate. The relationships between safety and service climate and safety and service outcomes, respectively, were examined in a healthcare context. In addition, competing theoretical arguments were presented to predict the effect of the interaction between service and safety climate on overall patient satisfaction and patient safety outcomes. These hypotheses were empirically examined using a sample of 32 nursing units from two hospitals. Contrary to predictions, conventional significance failed to support the direct relationships between service and safety climate and service and safety related outcomes, respectively. However, safety climate was found to moderate the relationship between service climate and overall patient satisfaction. The form of the interaction revealed that service climate has a strong positive relationship with patient satisfaction when safety climate is low and a weaker positive relationship with patient satisfaction when safety climate is high. In other words, safety climate serves to constrain the effectiveness of service climate in improving patient satisfaction. These findings support the goal conflict explanation of the intersection between service and safety climates. Implications are discussed and post hoc analyses are used to help explain some of the null findings.

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Chapter 1

The Intersection of Safety Climate and Service Climate in a Healthcare Context

Organizational climate is defined as "the shared perceptions of the employees concerning the practices, procedures, and the kinds of behaviors that get rewarded, supported and expected in a setting" (Schneider, 1990, p. 384). More specifically, Pritchard and Karasick (1973) define organizational climate as "a relatively enduring quality of an organization's internal environment distinguishing it from other organizations: (a) which results from the behavior and policies of members of the organization, (b) which is perceived by members of the organization, (c) which serves as a basis for interpreting the situation, and (d) acts as a source of pressure for directing activity" (p. 126). Traditionally, climate research has focused on molar organizational climate which consists of a focus on the broader organizational goals and the shared perceptions resulting from organizational policies, procedures and practices that are consistent with these goals (Batlis, 1980; Kiewitz, Hochwarter, Ferris, & Castro, 2002; Zultowski, Arvey, & Dewhirst, 1978). Thus, climate can be conceptualized as the result of an organization's intentional effort to direct employee actions and behaviors towards promoting the organization's goals.

Although much of the traditional climate research has focused on organizational level climate, some more recent literature has argued for and examined climate from a workgroup level perspective (Vogus & Sutcliffe, 2007; Zohar & Luria, 2004, 2005). Studying climate at the work unit level of analysis is important because although policies and procedures are determined by top level managers to define strategic, organizational level goals and provide concrete guidelines for actions aimed at attaining these goals, practices refer to the implementation of these policies and procedures at the work unit level. More specifically, work unit managers and supervisors carry

out these organizational procedures and pursue organizational goals by executing action directives with their subordinates. Supervisory discretion plays a major role in this policy implementation which allows for between group variation within the boundaries identified by organizational level policies (Zohar & Luria, 2005). Zohar and Luria (2005) argue that "between-groups differences relating to different ways of implementing company policies and procedures are, therefore, to be expected in a single organization, creating a potential for distinct organization-level and group-level climate perceptions" (p.617).

In addition to the level of analysis, another important distinction in the climate literature relates to the specificity of the climate's focus. While some climate researchers continue to focus on molar climate (Carr, Schmidt, Ford, & DeShon, 2003; Dickson, Resick, & Hanges, 2006; Schulte, Ostroff, & Kinicki, 2006), recent literature has been expanded to include more specific climate constructs, or focal climates, such as service and safety climate (e.g., Naveh, Katz-Navon, & Stern, 2005; Schneider & Bowen, 1985; Schneider, White, & Paul, 1998). The primary distinction between molar and focal climates is that focal climates pertain to a narrower picture of the work environment compared to molar climates which focus on general work environment variables. More specifically, focal climates allow organizations to focus on more specific goals as opposed to molar climates which emphasize broader organizational goals (Carr et al., 2003). In focal climate research the criterion of interest tends to match the specificity of the specific climate being studied (e.g., customer satisfaction and accidents) whereas with general molar climates the criterion tends to be more general (e.g., general job attitudes and work performance). The focal climate literature suggests that specific climates are related to specific outcomes. For example, service climate has been consistently found to relate to positive customer perceptions (Gracia, Cifre & Grau, 2010; Schneider, Parkington, & Buxton, 1980; Schneider, White et al., 1998) and safety climate has been found to predict workplace accidents and safe behavior (Naveh et al., 2005; Zohar, 2000).

Although there has been an increasing focus on specific focal climates as predictors of specific organizational outcomes (e.g., Schneider & Bowen, 1985; Schneider, White et al., 1998; Zohar, 1980, 2000), there has been a lack of research and theory regarding the impact of the intersection between multiple focal climates operating simultaneously (Kuenzi & Schminke, 2009). Schneider, Paul & White (1998) is one exception. In a conceptual piece, these authors argue that organizations can endanger themselves by placing too much emphasis on a single organizational goal at the expense of others and that multiple climates are required for an organization's long term success. Arguments are presented for using employee perceptions of climate as an indicator of the organization's or work unit's focus on a particular goal because climate is an indicator of where employees' energies and abilities are focused. Ultimately the authors argue that the successful cultivation of multiple climates is essential for organizational success. Although this study provides unique insights and arguments about the impact of multiple focal climates, it is conceptual in nature and does not empirically test the authors' predictions. This illustrates a need for empirical examination and understanding of the impact of multiple climates operating simultaneously.

The current study will attempt to address this need by examining the impact of the intersection between two focal climates that are especially relevant to the Healthcare Industry; service climate and safety climate. Goal theory has been used to explain group performance (Bray, 2004; Weldon & Weingart, 1993; Whitney, 1994), and is used here to understand the relationship between service climate and safety climate and specific measures of work performance. More specifically, the presence of focal climates in a workgroup suggests that the group is committed to specific goals corresponding to those climates (Schneider, Paul et al., 1998) and, thus, group members are more likely to engage in behaviors that will lead to the attainment of those goals (Zohar, 2000). As shown in the literature, a focal climate is more likely to be perceived when there are policies, procedures and practices communicating those goals, as

well as incentives for behaviors consistent with the goals (Schneider, Paul et al., 1998) – all of which have been shown to be linked to goal commitment (Locke & Latham, 2002).

The current study also presents competing theoretical arguments and an empirical examination to understand the intersection of safety and service climates. This study will make important theoretical, empirical and practical contributions to the climate and healthcare literatures. Theoretically, this study is one of the first to merge two independently studied focal climates in order to understand group performance (personal communication with Benjamin Schneider). Climate researchers have traditionally examined molar climate (Carr et al., 2003) or a single specific focal climate (Schneider, White et al., 1998) but this study looks at two focal climates together and provides competing theoretical arguments for how and why these two climates impact performance. Empirically, this study will be the first to examine the intersection between safety and service goals in healthcare and will replicate the safety climate-patient safety outcome and the service climate-patient satisfaction relationships specifically in a healthcare setting. Practically, this study will provide insight into how a focus on these two important healthcare goals combines to impact patient care and service delivery in a healthcare context.

Chapter 2

Climate in the Context of Healthcare

Healthcare as an industry accounts for the fastest growing sector of the U.S. economy (DeVol & Koepp, 2003) making it an industry whose performance not only impacts the American population but also the country's economic system. The primary goals of the Healthcare Industry are to deliver medical care that is safe, effective, patient centered, timely, efficient and equitable (Institute of Medicine, 2001). In order to effectively achieve these goals it is important that hospitals place a strong emphasis on safety performance and service performance. Unfortunately,

there is a great deal of recent evidence regarding the alarming numbers of preventable medical errors occurring in U.S. hospitals annually (Davis, 2004; Kalb, 2010; Kohn, Corrigan, & Donaldson, 1999) as well as evidence that the Healthcare Industry has undergone a dramatic shift towards a focus on service without an industry-wide understanding of how to deliver quality service (Fottler, Dickson, Ford, Bradley, & Johnson, 2006; Kenagy, Berwick, & Shore, 1999). As a result, it is important for healthcare organizations to gain a clearer understanding of what impacts work unit performance in terms of both patient safety and service delivery. The current study examines the combined impact of these two foci which are both essential for excellence in the Healthcare Industry.

Healthcare is defined as "efforts made to maintain or restore health especially by trained and licensed professionals" (Merriam Webster Dictionary). Therefore, by definition, healthcare is about the delivery of effective medical care by medical professionals. Preventable errors and mistakes pose a serious threat to patient safety and patient outcomes (Grober & Bohnen, 2005; Leape, 2002). As a result, healthcare organizations are prioritizing safety related goals by emphasizing the importance of patient-safety behaviors, initiatives and attitudes among their employees. At the same time, due to the increased competitiveness of the service industry, the goals of healthcare have been shifting towards a combined focus on medical care delivery and service delivery (Fottler et al., 2006). Although healthcare organizations' primary goals are to deliver safe and effective medical care, these organizations are not immune to the pressures of the competitive service market. In order to remain viable and competitive, healthcare organizations are turning towards service related goals as a way to strategically separate themselves from the competition (Fottler et al., 2006).

Previous research on climate in healthcare settings has focused on either a climate for safety (e.g., Hofmann & Mark, 2006) or a climate for service (Drach-Zahavy, 2010) but this is one of the first studies to examine the intersection of the two. Multiple climates necessarily exist

in successful organizations (Schneider, Paul et al., 1998), which presents a strong case for the importance of studying the impact of multiple climates simultaneously. It remains unclear what potential benefits or difficulties arise with the focus on multiple climates for both organizations and work units. The current study will examine this gap in the literature by studying the simultaneous impact of two focal climates that are particularly important in the Healthcare Industry; service climate and safety climate. Though individually these two types of climates have been shown to have a positive impact on unit level outcomes in terms of patient safety outcomes and patient satisfaction respectively, the combined impact of the two on work unit performance is currently unclear. It is argued that individually, these climates will positively impact business unit performance (i.e., patient safety outcomes and patient satisfaction) but when combined the impact on unit level outcomes may be more complex (see Figure 1 for a Conceptual Model).

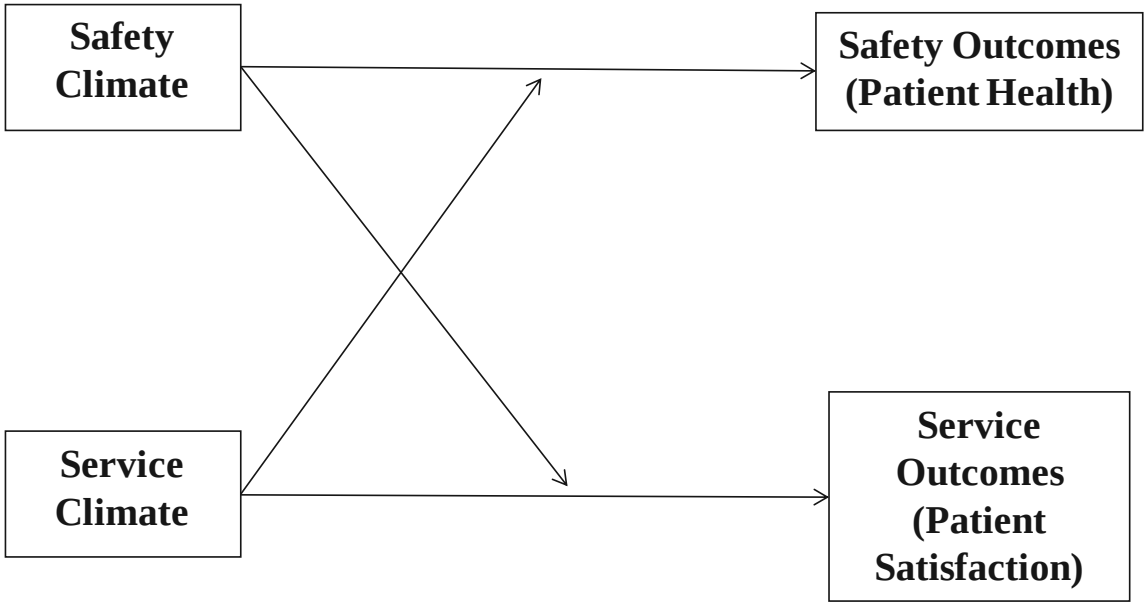

Figure 1. Conceptual model of unit-level direct and interactive relationships

Chapter 3

Safety Climate

Conceptual development

Given the alarming numbers of preventable hospital related errors and deaths in the U.S. annually, patient safety and the prevention of medical errors have garnered a great deal of public attention recently (Davis, 2004). The Institute of Medicine released a report that made public the impact of preventable medical errors, specifically reporting upwards of 98,000 preventable hospital related deaths in the United States annually (Kohn et al., 1999). Furthermore, the Center for Disease Control recently released a report indicating that hospital associated infections are the number six cause of death in the United States (Klevens et al., 2007). Based on these reports, medical errors were revealed to pose an overwhelming threat to patient safety which has led policy makers, caregivers, healthcare administrators and researchers to place a high priority on safety goals in the realm of healthcare.

In general, research on safety in organizations focuses on the safety of employees and other organizational stakeholders such as customers (Zohar, 2000). In healthcare, the organization's customers are the patients and patient safety refers to the prevention of adverse outcomes or injuries resulting from the delivery of healthcare. Adverse outcomes in healthcare can include medical errors (e.g., administering a wrong drug or dosage), accidents (e.g., a patient falls from their bed because the bedside railing was not pulled up properly) or failure to deliver necessary medical care (e.g., a healthcare worker misses a serious problem or diagnosis and the patient fails to receive the necessary care; Leape, 2002). Because of the high costs involved in the case of medical errors in terms of both human lives and the expense to healthcare organizations, the Healthcare Industry is increasing its focus on the prevention of medical errors. There are many formal safety prevention mechanisms that healthcare organizations put in place to

increase the safety performance of the organization such as the Institute for Healthcare Improvement's 100,000 Lives Campaign, hand hygiene programs, Crew Resource Management from the Aviation industry and other efforts to comply with The Joint Commission's safety regulations. However, recently researchers have begun to suggest that informal aspects of healthcare organizations may also impact safety performance (Katz-Navon, Naveh, & Stern, 2005; Kohn et al., 1999). Safety climate is one informal organizational characteristic that has been demonstrated to be important in understanding an organization's safety performance (Hofmann & Stetzer, 1998; Zohar, 2000).

Safety climate is defined as the product of the shared values, attitudes and patterns of behavior that determine the observable degree of effort with which employees direct their actions and attention towards improving organizational safety (Cooper, 2000). In other words, a high safety climate suggests that a group places high priority on goals related to improving safety and, thus, are likely to engage in behaviors aimed at achieving those goals (Zohar, 2000). Consistent with the ideas about general organizational climate (Schneider, 1990), the premise behind safety climate is that individuals interpret the environment in which they work and these interpretations and perceptions subsequently impact individual behavior through attitudes, norms and perceptions of behavior-outcome contingencies related to safety practice.

In light of the recently reported safety concerns in healthcare (Davis, 2004; Klevens et al., 2007; Kohn et al., 1999) nurses are expected to engage in a multitude of regulatory safety behaviors (IHI, CMMS, JCAHO, etc…), safety behaviors dictated by the particular employing organization, patient safety related work unit and service line policies and procedures, and other discretionary behaviors that may increase overall patient safety (e.g., regular hand washing, double checking, fall prevention measures, etc…). Maintaining a constant focus on patient safety is likely to be physically effortful (i.e., constant hand washing, repositioning of patients to prevent bed sores, regularly checking on multiple patients in different rooms) and psychologically

effortful (i.e., having to complete constant checking and double checking, maintaining awareness of safety hazards, worrying about patients falling from their beds, meticulous focus on safety protocols), thus giving employees the motivation to maintain this focus is essential. Nurses who work in nursing units with particularly high safety climates will develop shared perceptions about the high value placed on safety related behaviors in their unit (Hofmann, Morgeson, & Gerras, 2003) and will be motivated to maintain a strong focus and vigilance on patient safety goals despite fatigue and distraction.

Empirical evidence

Safety climate has primarily been examined in industrial settings (Katz-Navon et al., 2005) and has been found to be negatively related to unsafe behaviors and actual accidents in these types of settings (Hofmann & Morgeson, 1999; Hofmann & Stetzer, 1998; Neal & Griffin, 2006; Wallace, Popp, & Mondore, 2006; Zohar, 2000). Although not studied as frequently, the impact of safety climate on nurse injuries and incidents in a healthcare setting has also been well established (Chowdhury & Endres, 2010; Clarke, Rockett, Sloane, & Aiken, 2002; Gershon et al., 2000; Grosch, Gershon, Murphy, & DeJoy, 1999). Historically, studies on safety climate have concentrated predominantly on the impact of safety climate on the safety of organizational members (Hofmann & Morgeson, 1999; Hofmann & Stetzer, 1996; Zacharatos, Barling, & Iverson, 2005; Zohar, 2000). However, given the recent and increasing focus on the importance of patient safety in the Healthcare Industry, researchers have begun to examine the impact of safety climate on customers (i.e., patients) in healthcare organizations (Katz-Navon et al., 2005; Naveh et al., 2005; Vogus & Sutcliffe, 2007).

In the context of healthcare, safety climate can be defined as the product of shared values, attitudes and patterns of behavior that determine the degree to which employees direct their actions and attention towards minimizing patient harm (Vogus & Sutcliffe, 2007). Although the impact of safety climate in industrial settings is well established (e.g, Hofmann & Morgeson,

1999; Hofmann & Stetzer, 1996; Zohar, 2000), it is not directly generalizable to a healthcare setting for several important reasons. The Healthcare Industry has several unique characteristics that differentiate it in important ways from industrial settings. First, in healthcare the emphasis on safety is not only important for the safety of the organization's employees but also for the safety of the patients. Second, the delivery of healthcare involves a high degree of task complexity since each patient and each situation is unique. In healthcare, safety is determined in part by strict safety regulations and guidelines but also by appropriate patient care which requires constant decision making because of the uniqueness of each situation (Gittel, 2002). Third, in healthcare, safety behaviors are not only determined by organizational climates but also by the healthcare professions themselves. In other words, healthcare professionals are subject to influences not only from their organizations and work units but also from their professional groups. As a result of these distinctions, it is important to study the impact of safety climate specifically in a healthcare setting.

There is an emerging body of research examining the impact of safety climate specifically in a healthcare context. A review of the literature on linkages between organizational variables with medical errors as outcomes concluded that "there is little evidence for asserting the importance of any individual, group, or structural variable in error prevention or enhanced patient safety at the present time" (Hoff, Jameson, Hannan, & Flink, 2004) because only a few of the articles reviewed provided enough methodological detail and discussion of findings to demonstrate systematic relationships between organizational and dependent variables. However, some more recent literature has been slightly more conclusive and reveals that safety climate negatively predicts medical errors (Hofmann & Mark, 2006; Naveh et al., 2005; Singer, Lin, Falwell, Gaba & Baker, 2008) and incident severity (Kline, Willness & Ghali, 2007) in a healthcare context.

The mechanism through which safety climate is believed to reduce medical errors and other adverse patient outcomes is through employee behaviors. In other words, cognitions, perceptions and beliefs about the importance of safety to the organization leads employees to engage in more safety related behaviors, which in turn reduces the amount of errors resulting from unsafe behaviors (Hofmann & Morgeson, 1999; Vogus & Sutcliffe, 2007). Goal theory (Locke & Latham, 2002) can help to explain why safety climate leads to safety behaviors, which in turn reduces errors resulting from unsafe behaviors. Goal theory posits that when there are clear goals and rewards for reaching those goals (such as praise or financial incentives), then people are more committed to reaching those goals. The relationship between goal setting and goal performance is strongest when goal commitment is high and goal commitment is facilitated by goal importance. Goal importance is maximized when a public commitment is made to the goal (Hollenbeck, Williams, & Klein, 1989) and when incentives are linked to goal attainment (Locke & Latham, 2002). Safety climate is, in essence, a product of the unit manager's or unit members' prioritization of safety related goals. A high safety climate is created in a work unit when the manager makes clear to unit employees the types of behaviors that are rewarded, supported and expected in that unit. More specifically, a high unit level safety climate creates safety goals for employees that are clear and are rewarded. Thus, a high safety climate will facilitate high safety goal importance which will motivate employees to engage in behaviors to reach safety goals, in other words, they will be committed to safety goals. As a result, safety climate perceptions will lead to an increased frequency of safety related behaviors within organizational subunits (Neal & Griffin, 2006; Zohar, 2000), thus, decreasing the number of safety errors committed in that unit (Hofmann & Morgeson, 1999; Vogus & Sutcliffe, 2007).

Although portions of this theoretical explanation are at the individual level of analysis, it has been argued that group level safety climate informs group members of desired safety related behaviors (Vogus & Sutcliffe, 2007). More specifically, safety climate is enacted collectively

within nursing units (Zohar & Luria, 2005). Climate can be likened to a specific form of social norm within a group because climate provides group members with a clear set of desired group behaviors. Social norms are sets of prescribed behaviors and attitudes that are considered acceptable and desirable in a specific social unit (Sherif, 1936). Individuals belonging to that social group are motivated to conform to social norms of the group because violation of social norms leads to negative consequences such as negative reactions from their group members (Blake & Davis, 1964; Janowitz, 1975; Schachter, 1951). These group norms have a strong influence on the behaviors of individuals within those groups because of the consequences associated with deviation from the normative behaviors and attitudes. Although organizational policies and procedures remain constant across work units within the same organization, social norms vary between groups within organizations. Furthermore, empirical evidence supports the idea that units within the same hospital demonstrate variation in safety climate, attitudes and outcomes (Mitchell & Shortell, 1997; Sexton, Thomas, & Helmreich, 2000). Individuals who work in groups with a high safety climate should have a stronger motivation to engage in safety behaviors and, thus, the work unit should engage in more safety behaviors collectively (Zohar, 2000). These safety related behaviors will, in turn, decrease the number of medical errors and, thus, adverse patient outcomes at the work unit level.

Hypothesis 1. Safety climate is negatively related to adverse patient safety outcomes at the unit level.

Chapter 4

Service Climate

Conceptual development

Healthcare as an industry is becoming more and more competitive with approximately one third of hospitals losing money in recent years because financial survival is extremely difficult in today's market (American Hospital Association, 2005). Providing high quality medical care is essential in order for hospitals to remain viable and competitive but service is quickly becoming the focus as a characteristic that helps to distinguish hospitals from their competitors (Doucette, 2003; Mayer & Cates, 1999). In fact, Berry and Bendapudi (2007) argue that healthcare is one of the most personal and important service consumers can buy. Although historically healthcare organizations' primary goals were to deliver safe and effective medical care and avoid viewing the patient as a customer (Petrini, 1989), it has become clear that customers also expect hospitals to treat them as a customer and, thus, deliver high quality service (Rapert & Wren, 1998). In the context of healthcare, high quality customer service includes the use of empathy, excellent communication, creating a shared sense of responsibility with patients and the development of common goals related to each patients' unique medical situation (Epstein et al., 2005; Mead & Bower, 2000).

From a marketing perspective, customer satisfaction is what drives customer loyalty (Lovelock & Wirtz, 2004) and helps organizations gain new customers through word of mouth (Berry, 1995). Customer loyalty is important for service organizations because it typically costs about five times as much to gain a new customer as it does to retain a current one (Rust & Zahorik, 1993). From a legal perspective, maintaining a satisfied patient base is important because dissatisfied patients are more likely to initiate malpractice suits against healthcare organizations. Research has repeatedly demonstrated that patients who have had unpleasant

interpersonal experiences and who are dissatisfied with their healthcare experience are most likely to pursue malpractice litigation (Hickson et al., 2002; May & Stengel, 1990; Penchansky & Macnee, 1994; Studdert, Mello, & Brennan, 2004). From a financial perspective, recent research has demonstrated that unit level customer oriented behaviors are related to organization level profitability by improving revenues without increasing costs (Grizzle, Zablah, Brown, Mowen, Lee, 2009). These streams of research combined with the idea that gaining new customers is significantly more costly than retaining existing customers (Mittal & Lassar, 1998) helps to explain how patient satisfaction and loyalty can be invaluable to healthcare organizations' financial success. As a result, healthcare organizations are making customer perceptions of service quality a priority (Doucette, 2003). Service climate is one variable that has been identified as a primary antecedent for excellent service delivery and positive customer perceptions and reactions (Schneider, White et al., 1998).

Service climate is defined as employees' shared perceptions of service related policies, practices, and procedures that are rewarded and supported by management (Schneider & Bowen, 1985). It is typically proposed that a high service climate facilitates the delivery of high quality service which, subsequently, improves customer perceptions of the service quality (Gracia et al., 2010; Schneider, White et al., 1998). In fact, service climate has been demonstrated to result in positive customer perceptions, in particular, customer satisfaction (Schneider, 1973; Schneider & Bowen, 1985; Schneider et al., 1980; Schneider, Salvaggio, & Subirats, 2002; Schneider, White et al., 1998). The mechanism through which service climate is proposed to lead to positive customer perceptions is that when service employees believe that service goals are a priority for the organization, they are motivated to expend their energy and resources delivering excellent service (Schneider & Bowen, 1985) and this, in turn, improves customer reactions (Schneider, White et al., 1998). Recent research has taken this relationship one step further by demonstrating

that these customer oriented behaviors, at the unit level, can improve organizational profitability (Grizzle et al., 2009).

Service employees are considered boundary spanners between external customers and the organization (Schneider et al., 1980). It has been noted that service employees are often as close, if not closer, psychologically and physically to the customer as they are to their fellow employees (Parkington & Schneider, 1979). As a result, it is assumed that service employees are able to accurately identify service related practices and procedures that impact customer evaluations of service effectiveness and that they are aware of the impact that they have on the quality of the customer's experience (Schneider et al., 1980). This assumption may hold true in traditional service industries that have had a long time focus on service as a primary goal of the organization. However, as stated previously, the focus on service delivery as a primary organizational goal is relatively recent for most healthcare organizations (Fottler et al., 2006). Other service industries have been using service as a way to remain competitive for years and healthcare is only finally starting to emulate these established service industries, despite being considered one of the most important services consumers can buy (Berry & Bendapudi, 2007). In healthcare a primary problem is that the delivery of quality service is expected but is never formally part of the training that healthcare employees receive (Kenagy et al., 1999; Mayer, Cates, Mastorovich, & Royalty, 1998).

Empirical Evidence

Service climate is believed to improve customer satisfaction through its impact on employee service behaviors (Schneider, Ehrhart, Mayer, Saltz, & Niles-Jolly, 2005). More specifically, service climate creates shared perceptions and beliefs about the importance of service to the organization and leads employees in that organization to engage in behaviors directed at providing high quality service to customers. Goal theory predicts that when goal importance is high goal commitment will also be high which in turn leads to enhanced goal

performance (Locke & Latham, 2002). A high service climate can be established in a work unit when management makes it publicly clear that service related behaviors are rewarded, supported and desired from unit employees (i.e., establish goal importance; Liao & Chuang, 2007; Schneider, Chung & Yusko, 1993). Consistent with the use of this theory to illustrate safety climate-safety outcomes relationships, in the context of service behaviors, when supervisors and managers publicly prioritize service related goals and reward subordinates for service related behaviors unit employees will perceive a high goal importance (Hollenbeck et al., 1989; Locke & Latham, 2002) and will be committed to service goals. When employees are strongly committed to service goals they will be motivated to engage in behaviors directed at service goal attainment (Locke & Latham, 2002). Thus, group-level service climate perceptions should increase the frequency of service related behaviors within organizational subunits resulting in higher patient satisfaction (Gracia et al., 2010).

Consistent with the rationale for studying safety climate at the work unit level of analysis, service climate is likely to operate in much the same way in a healthcare organization. More specifically, service orientation is determined by shared perceptions of the unit manager's commitment to service goals and, subsequently, service climate informs work unit members of the group's desired service behaviors (Zohar & Luria, 2005). In line with the argument presented above, service climate can function much like a group norm in that it prescribes desired behaviors for group members (see Drach-Zahavy, 2010). Individuals are motivated to comply with group norms and engage in the prescribed behaviors because of the consequences associated with violation of those norms (Blake & Davis, 1964; Janowitz, 1975; Schachter, 1951). In addition, although organizational policies are constant across groups within the same organization, social norms and group climate will vary between groups within the same organization. Thus, the group's service climate influences individual motivation to engage in service related behaviors which increases the frequency of service related behaviors within the group (Neal & Griffin,

2006; Zohar, 2000). More frequent positive service related behaviors, in turn, leads to increased customer satisfaction (Schneider et al., 2005; Steinke, 2008). Thus, it is hypothesized that in a healthcare setting service climate will be positively related to patient satisfaction at the nursing unit level.

Hypothesis 2. Service climate is positively related to patient satisfaction at the unit level.

Chapter 5

The Intersection of Safety and Service Climate: Competing Arguments

The current study examines the intersection between safety climate and service climate in a healthcare setting. The goals associated with both of these focal climates are important for any successful healthcare organization in today's competitive market. As noted previously, the Healthcare Industry is undergoing a dramatic shift towards an industry that is wrought with competition. Expectations are placed on nurses to simultaneously maintain a focus on patient safety goals and service goals while carrying out the myriad of core job tasks that are expected of them (e.g., updating and maintaining patient records, delivering medications on a time schedule to multiple patients, coordinating patient admits and discharges, communicating with patient family members, etc…). Although safety climate and service climate may independently have positive direct effects on organizational outcomes, the simultaneous impact of both climates is unclear. When combined they may interact in such a way that compromises or enhances performance or they may combine additively in a way that creates overall excellence in a work unit. This study poses competing theoretical arguments and empirically test these arguments.

Multiple goals: Engagement and facilitation

The simplest and perhaps most parsimonious explanation of the intersection between service climate and safety climate is that they combine to induce performance excellence in both service and safety related outcomes. The successful prioritization of two of the primary goals of healthcare, safety and service, within a work unit may create a climate of overall performance excellence in the unit. Ideas from the employee engagement and high performing organizations literature are useful in understanding this argument. As noted previously, successful organizations have multiple focal goals and successfully cultivate multiple climates (Schneider, Paul et al., 1998). In this way management is able to successfully encourage employee commitment to management's most important goals. Work units are most effective when they create climates that emphasize the achievement of multiple priorities (Schneider, Gunnarson, & Niles-Jolly, 1994). More specifically, nursing units whose managers are able to successfully facilitate both a high safety climate and a high service climate have succeeded at prioritizing two of the unit's most important goals. As a result, healthcare providers in units where both safety and service goals are a priority will feel a strong sense of job engagement because their work will feel important and meaningful to them.

Employee engagement refers to an individual's involvement in, satisfaction with and enthusiasm for work (Harter, Schmidt, & Hayes, 2002). Some primary antecedents of employee engagement are job characteristics as defined by Hackman and Oldham's (1980) job characteristics theory (Saks, 2006). The job characteristics theory outlines five core job characteristics that provide individuals with more motivation to dedicate more personal resources to their jobs and to be more engaged in their job (Kahn, 1992). These characteristics include skill, variety, task identity, task significance, autonomy and feedback. In a healthcare setting, a simultaneous priority on safety and service (i.e., high safety and service climate) will provide healthcare workers with jobs that encourage them to use their care giving and interpersonal skills.

This will allow employees to engage in a variety of tasks related to safety and service, and such tasks will be perceived as significant and meaningful since they are aimed at the primary tenets of healthcare. Simultaneously high safety and service climates within a work unit will provide unit employees with jobs that have positive job characteristics and with a sense of meaning and importance and they will know what is expected of them, thus, will enhance employee engagement.

In sum, employee engagement will be encouraged by the presence of a simultaneously high safety and service climate and this engagement will promote positive outcomes for the employee and performance excellence in multiple aspects of unit level performance. Therefore, a simultaneously high service and safety climate will induce performance excellence in both service and safety related unit level outcomes leading to the highest levels of customer satisfaction and lowest levels of negative patient safety outcomes. Conversely, when either or both service and safety climate are low, employees will not experience the feeling of engagement or pride in their work and will feel less concern for patients overall which will lead to lower levels of customer satisfaction and higher levels of negative patient safety outcomes.

Several authors have recently argued that both service and safety climates can serve as a work related resource for employees (Chowdhury & Endres, 2010; Drach-Zahavy, 2010; Salanova, Agut & Peiro, 2005). Safety climate is proposed to act as a resource because it provides employees with an improved sense of control over their work. Management's support for workplace safety demonstrates to unit employees that management is committed to a proactive safety approach (Edmondson, 1996), thus, encouraging employees to take initiative regarding safety concerns. This increased sense of control over their work can provide employees with the emotional resources necessary to excel in their work environment (Chowdhury & Endres, 2010). Service climate has also been posited to serve as an energy resource for employees because it can help boost personal resources such as work engagement

(Salanova et al., 2005), which can lead employees to provide even better service, and subsequently lead to the obtainment of other valued resources (e.g., personal sense of value, sense of pride, continued employment, recognition and rewards from management). Therefore, a high service climate can boost employees' personal motivational resources which can help in the attainment of additional personal, work related and material resources (Chowdhury & Endres, 2010). Thus, when safety climate is high employees will have additional resources available to focus on unit level goals related to service quality and vice versa. In other words, when safety climate is high the effectiveness of service climate in enhancing patient satisfaction will be facilitated (i.e., a strong positive relationship) and when safety climate is low the effectiveness of service climate in improving patient satisfaction will be constrained (i.e., a weaker positive relationship). Similarly, when service climate is high the effectiveness of safety climate in reducing negative safety outcomes will be facilitated (i.e., a strong negative relationship) and when service climate is low the effectiveness of safety climate in reducing negative safety outcomes will be constrained (i.e., a weaker negative relationship).

Thus, it is hypothesized that the positive relationship between service climate and patient satisfaction will be stronger when safety climate is high than when safety climate is low (see Figure 2). Furthermore, it is hypothesized that the negative relationship between safety climate and negative patient safety outcomes will be stronger when service climate is high than when service climate is low (see Figure 2).

Hypothesis 3(a). The positive relationship between service climate and patient satisfaction will be stronger when safety climate is high than when safety climate is low.

Hypothesis 3(b). The negative relationship between safety climate and patient safety outcomes will be stronger when service climate is high than when service climate is low.

Multiple goals: Goal conflict

Another potential explanation for the intersection between service and safety climate is that a focus on both of these goals simultaneously leads to goal conflict for employees and ultimately has a less positive impact on performance. According to Schmidt and DeShon (2007), "multiple goals and conflicting priorities are a way of life in the modern workplace" (p.928). As a result, employees constantly have to decide how to balance the demands placed on their limited time, resources and attention. Some of the earliest papers that examine and discuss goal conflict suggest that when there are multiple goals whose relative importance is unclear, subordinates are left to subjectively determine each goal's priority. As a result, employees will typically focus on those goals that are most consistent with their own priorities and are most likely to be used by superiors to evaluate them (Phelen, 1960; Frank, 1958). Although empirical evidence on conflicting goals is sparse, it is clear that intra-individual goal conflict can be problematic for performance (Cheng, Luckett & Mahama, 2007; Kernan & Lord, 1990; Locke, Smith, Erez, Chah & Schaffer, 1994; Slocum, Cron, & Brown, 2002).

Goal conflict is defined as the degree to which employees feel their multiple goals are incompatible with one another (Locke et al., 1994) because of the nature of the goals or the overwhelming demands placed on employees' time or attention by these multiple goals. Goal conflict has been found to negatively impact performance directly (Lee, Bobko, Earley & Locke, 1991; Locke et al., 1994) and through its negative impact on goal commitment (Slocum et al., 2002). Goal setting theory and research have established that specific, difficult goals lead to higher task performance provided that there is commitment to those goals (Locke & Latham, 1990). It is proposed that when employees are given multiple goals with limited resources and time, that they will experience goal conflict which will decrease the commitment to one or both of those goals, thus, negatively impacting goal performance (Kernan & Lord, 1990; Slocum et al., 2002).

Although empirical studies on the impact of goal conflict are limited, there is some research supporting the negative impact that goal conflict can have on task performance. In several laboratory studies when participants were presented with two goals and asked to improve their performance on one of the goal related tasks, performance on the other goal related task suffered (Erez, Gopher & Arazi, 1990; Schmidt, Kleinbeck & Brockmann, 1984). These studies did not explicitly measure conflict but results imply that goal conflict was present in the simultaneous performance of two goal related tasks. In an effort to more clearly demonstrate the negative impact of goal conflict on performance, Locke et al., (1994) performed a series of studies (one laboratory and one field study) that revealed a negative relationship between goal conflict and at least one dimension of performance.

It is argued that by nature, safety and customer service goals are not always compatible in a hospital setting, thus, may create goal conflict when expected from employees simultaneously. Safety regulations often require exhaustive, impersonal procedures that are repetitive and time consuming while good customer service requires a hospital experience that is personal and with minimal wait times. To comply with safety regulations nurses are required to wash their hands every time they enter and leave a patient's room and they may be required to check, double check and sometimes triple check patients' identification, medication doses, conditions and procedures which may require them to ask patients repetitive questions on multiple occasions. These behaviors can serve to prolong wait times, delay treatment, delay pain relief and may create a sense of depersonalization for patients when they are asked the same questions by the same person repeatedly. From a customer service perspective, patients want their hospital experience to feel personalized (Surprenant & Solomon, 1987) and to have minimal wait times; both of which conflict with many of the safety precautions that would occur in a unit that prioritizes safety for patients. Furthermore, engaging in either safety related behaviors or service related behaviors (Drach-Zahavy, 2010) on their own can be exhausting and depleting for employees,

thus, having an additional important goals to attain may result in neither being achieved entirely. Based on the potentially incompatible nature of safety and service goals, it is proposed that goal conflict may arise when both goals are expected to be prioritized by employees.

The findings from the goal conflict literature combined with the notion that service and safety related goals are often incompatible suggest that a strong emphasis on both set of goals simultaneously (i.e., a simultaneously strong service and safety climate) may hinder performance in one domain or the other. In other words, it is proposed that a high safety climate will constrain the effectiveness of service climate in improving patient satisfaction and, similarly, a high service climate will constrain the effectiveness of safety climate in reducing negative patient safety outcomes. Thus, it is hypothesized that when safety climate is high the positive relationship between service climate and patient satisfaction will be weaker than when safety climate is low (see Figure 2). Furthermore, when service climate is high the negative relationship between safety climate and negative patient safety outcomes will be weaker than when service climate is low (see Figure 2).

Hypothesis 4(a). The positive relationship between service climate and patient satisfaction will be stronger when safety climate is low than when safety climate is high.

Hypothesis 4(b). The negative relationship between safety climate and patient safety outcomes will be stronger when service climate is low than when service climate is high.

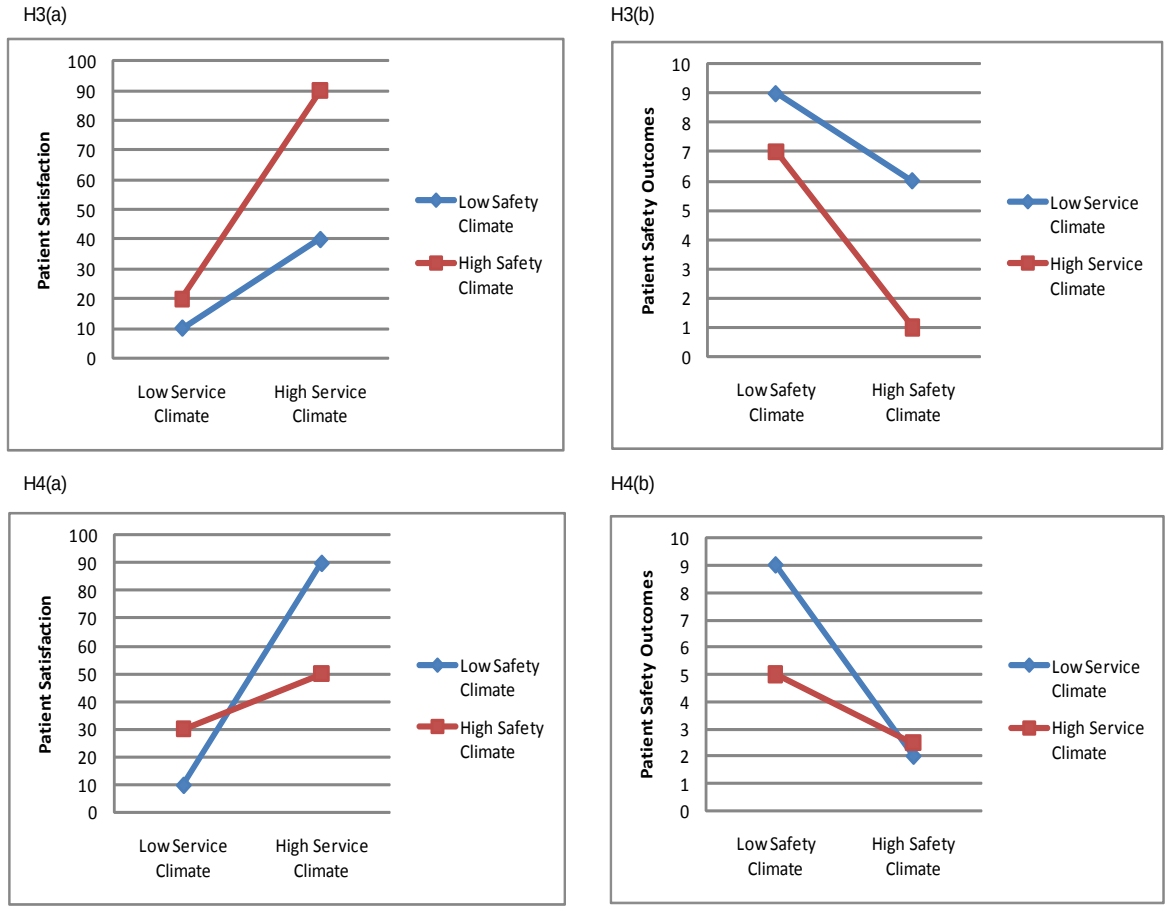

Figure 2. Proposed forms of interaction between service and safety climate on patient satisfaction and patient safety outcomes (H3 and H4).

Chapter 6

Methods

Context

Data for this study was collected from two unaffiliated hospitals. The first hospital (henceforth referred to as "Hospital 1") is a mid-size, non-profit hospital in the Midwestern region of the United States. The hospital is a 690 bed private, not for profit hospital and employs

approximately 5,266 people across all departments in the organization, 1,746 of which are nurses. This hospital averages approximately 141,000 patient days (i.e., the total number of days of care rendered by the hospital) annually. The second hospital (henceforth referred to as "Hospital 2") is also a mid-size, non-profit hospital but is located in the Northeastern region of the United States. The hospital is a 484 bed academic hospital and employs approximately 8,800 people across all departments, 1,909 of which are nurses. This hospital averages approximately 149,000 patient days annually.

Participants and procedure

Nurses who primarily work as direct patient care givers in inpatient units were chosen as the participants of interest for this study because these nurses serve as the primary boundary spanners between healthcare organizations and patients. Whereas, physicians, social workers, respiratory therapists and other ancillary hospital staff may only spend several minutes with each patient and may have many patients to attend to daily, inpatient nurses are typically assigned to the same small number of patients on each shift and spend the bulk of that time interacting with and attending to those patients. Thus, the climate perceptions of direct patient care nurses are most likely to impact both patient safety and patient satisfaction outcomes. Additionally, inpatient care nurses typically work in one unit with a defined manager and group of coworkers, therefore, they are likely to have established unit level climate perceptions.

Participants in this study consisted of nurses from the two hospitals (Hospital 1: n = 97, 17 units, Hospital 2: n = 91, 15 units) who primarily work as direct patient caregivers in the hospitals' nursing units. The mean age of these nurses was 38 years (sd = 11.86) and their average level of nursing experience was 9.87 years (sd = 10.21). Ninety three percent of the nurses were female and 94.1% of the nurses were Caucasian, with the remaining nurses being Black (1.6%), Hispanic (1.1%), Asian (1.1%), and other ethnicities (1.6%). Although this sample is not particularly demographically diverse, we do know that the Registered Nurse population is

predominantly white and female (www.hrsa.gov). These nurses were all members of teams responsible for providing medical treatment in this hospital across a variety of hospital service lines (e.g., telemetry, medical-surgical, neurological, cardiology, intensive care, pediatrics). Our study obtained results from 32 of the total possible 38 nursing units, giving this study a unit level response rate of about 84%; this is the unit of analysis for the current study since the predictors (i.e., climate) and outcomes of interest (i.e., performance) were both at the unit level. There were a total of 188 individual nurse responses out of a possible 3,655 giving an individual level response rate of only 5.14%, and by unit, the individual level response rates ranged from 5% to 31%. It is important to note that this response rate may not be unusually low considering the observed decline in survey response rates especially in samples of healthcare workers (Hill, Fahrney, Wheeless, & Carson, 2006).

Prior to data collection the Nursing Research Coordinator at each hospital presented this study to nursing unit managers at a monthly managers meeting. The presentation provided a brief description of the study and emphasized the hospital's support and interest in the study. All potential participants were sent an email from the Nursing Research Coordinator at their respective hospital regarding the study. In an effort to increase response rates an identical reminder email was sent two weeks after the initial email. The email included a brief explanation of the study and a link to the on-line survey. Participants were asked to complete the on-line survey (both hospitals requested on-line surveys to avoid any potential privacy issues) which included questions about the independent variables of interest along with demographic and control variables. An implied informed consent form appeared at the beginning of the on-line survey in addition to a brief explanation of the study and instructions on how to complete the survey. Participants were instructed that by choosing to complete the survey they would be implying their consent to participate in the study. Given the potentially sensitive nature of some of the survey items it was important to assure participants that their anonymity would be

protected in order to reduce social desirability biases in their responses. In order to assure participants that their confidentiality would be protected, no names or identification numbers were collected in the survey. In addition, participants were informed that data would only be analyzed at the unit level of analysis and that individual level data would only be available to the primary researchers. Participants were not required to complete the survey at work allowing them to complete the survey where they were most comfortable. Furthermore, it was made clear that their on-line responses would be protected by a 128 bit encryption which is typically the same used in confidential on-line transactions such as banking or shopping.

Measures

Demographics

Participants were asked to indicate their gender, age, ethnicity, career tenure, organization tenure and work unit tenure. In addition, participants were asked to indicate their current work unit by placing a check mark next to the appropriate unit name.

Safety climate

Safety climate was assessed with a subscale of a more extensive safety climate measure adapted to refer to the work unit (see Katz-Navon et al., 2005). *Priority of Safety* (here on out referred to as "safety climate") refers to the priority assigned to safety in the work unit and was assessed with a seven item scale adapted from Zohar (2000). This scale functions as a global safety climate measure because it is defined and operationalized in a way that is consistent with the definition of safety climate. More specifically, it refers to employee perceptions that behaviors and actions directed at prioritizing safety are encouraged and rewarded in their unit. A sample item (rated on a scale of 1, "not at all true in my unit," to 5, "very true in my unit") is "In my unit in order to get the work done, one must ignore some safety aspects." The full set of items is available in the Appendix. The safety climate scale was extremely negatively skewed because the range was restricted to the upper end of the scale. This makes sense given hospitals' high

safety norms in general. Both natural log and square root transformations were conducted but neither transformation impacted normality nor results. As a result, the safety climate scale was analyzed with no transformation.

Service climate

Service climate was measured with the Global Service Climate scale (Schneider, White et al., 1998) adapted to refer to the work unit (see Schneider et al., 2005). The *Global Service Climate* scale consists of eight items and provides a summary measure of the unit's overall climate for service. The items include a collection of behavioral features or activities of the unit focusing on service quality. A sample item (rated on a scale of 1, "poor," to 5, "excellent") is, "How would you rate the job knowledge and skills of employees in your work unit to deliver superior quality work and service?" The full set of items is available in the Appendix.

Adverse safety outcomes

Adverse safety outcomes were measured using the hospitals' archival data gathered from the managers of each nursing unit and from the Infection Control Department's database of hospital acquired infections. An adverse safety outcome is defined as any error in the performance of a procedure or test, in the delivery of treatment, in the administration of a drug or as the administration of inappropriate care that resulted in harm to a patient (Katz-Navon et al., 2005; Kohn et al., 1999; Leape, 2002). The specific types of errors that were included in the study are patient falls and hospital acquired infections. Although safety errors can refer to many different things in a hospital setting, these particular errors were included in this study because they are the errors most likely errors to be directly impacted by direct patient care nurses, the participants in this study. Nurses are the healthcare providers who spend the most time with patients, monitor their health and mental status and clean and change dressings and potential infection sites, thus, are most directly impacting falls and infection rates. Furthermore, these are two safety errors that are carefully tracked by the two particular hospitals in this study making

them optimal for data analysis. Patient falls are collected by each nursing unit manager and tracked through the hospitals' Safety Departments. Hospital acquired infections are collected separately through the organizations' Infection Control Departments' tracking system. In these particular hospitals this data is exclusively collected at the nursing unit level of analysis. For patient falls, data was collected for the two months after the time of survey collection and for hospital acquired infections data was collected for three months after the time of survey collection[1]. Upon completion of survey data collection Hospital 2 decided that they were unable to share their hospital acquired infection data for the purpose of this study and Hospital 1 only had this data available for 9 of their 17 units. As a result, the analyses will focus on patient falls as the primary safety outcome since it is likely that the sample size for hospital acquired infection rate (N = 9) will be too small to detect effects. However, analyses will be conducted with this outcome in an exploratory way.

Patient satisfaction

Patient satisfaction data was obtained from an archival database that houses patient satisfaction data information at the nursing unit level of analysis. Both organizations targeted in this study employ the same large surveying firm to conduct regular measures of patient satisfaction. All patients who were admitted to these hospitals as inpatients (i.e., stayed on a nursing unit for a period of time) were sent customer satisfaction questionnaires from the large surveying firm approximately 2-3 weeks after they were discharged from the hospital. These

[1] It was originally planned to collect both patient safety measures for 3 months after the time of survey collection but only 2 months of patient falls data was made available to the author at one of the hospitals: to keep patient falls consistent across sites we focused on 2 months for all units. Additionally, since 3 months of hospital acquired infections was available at one of the hospitals and no hospital acquired infections data was available at the other hospital we decided to utilize all 3 months of the data given the low base rate for this outcome.

surveys refer specifically to the unit that the patient was admitted to during their hospital stay. In this study we use the data collected for 1 month after the time of survey collection[2].

Control Variables

For all analyses a dummy code for the hospital site was included as a control variable to account for systematic differences between the two hospitals that may impact results. For the hypotheses including patient safety outcome measures two additional control variables were included because they have been demonstrated to be related to safety and patient safety outcomes. These controls include unit size (number of beds) and the percentage of nurses with at least a Bachelor of Science in Nursing (BSN) degree (Aiken, Clarke, Cheung, & al., 2003). For the hypotheses including patient satisfaction outcome measures additional control variables included unit size (number of beds) because smaller units may provide the opportunity for closer and more intimate relationships between nurses and patients, which can lead to higher service climates and higher patient satisfaction (Dietz, Pugh, & Wiley, 2004) and the frequency of interactions with patients because with more frequent employee and patient contact, patients have more frequent opportunities to experience positive service behaviors and will be more satisfied as a result (Brown & Mitchell, 1993; Dietz et al., 2004; Mayer, Ehrhart & Schneider, 2009). Unit managers provided the information for these controls on a separate survey form, with the exception of frequency of interactions with patients which was included in the staff nurse survey.

[2] It was originally planned to collect this data for 3 months after the time of survey collection but only 1 month was made available to the author at one of the hospitals; to keep patient satisfaction consistent across sites we focused on 1 month for all respondents.

Chapter 7

Results

Descriptive analyses

Means, standard deviations, reliabilities and intercorrelations can be found in Table 1. To examine whether any of the substantive variables differed by hospital site, mean comparisons of all variables by hospital were conducted using independent samples *t*-tests. Hospital site was used as the grouping variable in all cases. All other substantive demographics, controls, independent and dependent variables were entered individually as test variables. There were no significant mean differences by hospital in terms of service climate, safety climate, patient falls, gender, race, age, total number of beds or total time as a nurse (in months). However, there were significant differences by hospital site in terms of average minutes per hour nurses spend interacting with patients [*M* (Hospital 1) = 24.39, *SD* = 12.60, *M* (Hospital 2) = 33.72, *SD* = 13.30; $t = -4.89$, $p < .01$.], Overall Patient Satisfaction [*M* (Hospital 1) = 87.07, *SD* = 3.69, *M* (Hospital 2) = 82.33, *SD* = 5.17; $t = 2.43$, $p < .05$] and percentage of nurses with a BSN degree [*M* (Hospital 1) = .72, *SD* = .25, *M* (Hospital 2) = .52, *SD* = .12; $t = 1.92$, $p < .10$]. Because this data was collected from two distinct hospital sites and because there appear to be some important systematic differences between the two hospital sites, a dummy code was created for each hospital and was included as a control variable in all analyses.

Aggregation statistics

All data was analyzed at the work unit level of analysis. The dependent variables (safety outcomes and patient satisfaction) were only collected and available at the work unit level of analysis. Independent variable (safety and service climate) data was collected at the individual level of analysis. Individual staff nurses answered questions referring specifically to their work unit, and the data was aggregated to the work unit level (James, Demaree, & Wolf, 1982) by

calculating mean scores for each unit on each climate dimension. In order to justify the aggregation of data, various indicators of within unit homogeneity were calculated for each climate measure in each unit. Within-group agreement (r_{wg}) and intraclass correlations (ICC[1]) were calculated for safety climate and service climate. Intraclass correlations (ICC) are a measure of interrater reliability (James, 1982). According to Bliese (2000), ICC (1) indicates the within-group versus between-group variability, and ICC (2) indicates an estimate for the reliability of the group means. ICCs contrast within group variance with between group variance to index the extent to which team membership contributes to individual responses. The average score ICC is typically used in multi-level research and estimates the reliability of mean ratings provided by multiple judges. For this data, since each target was rated by a different set of judges, the average score ICCs were calculated using a one-way random effects ANOVA (LeBreton & Senter, 2008). The average ICC value for service climate was .79 and the average ICC value for safety climate was .86[3]. All values were significant ($p < .001$) and high enough to support the use of average measures as unit level indicators. In addition, James et al's (1982) index of within-group agreement (r_{wg}) was calculated for each of the teams. The r_{wg} compares within group variance with the expected variance and is a measure of agreement or interchangeability among raters. The r_{wg} value for safety climate was .88 and for service climate was .79, both also high enough to support aggregation. Since aggregation was supported, unit level indices of the safety and service climate subscales were formed by averaging individual level indices of these measures.

[3] The average score ICC measure was used in this study given LeBreton and Senter's (2008) suggestion that average score ICCs be used to estimate the reliability of mean ratings provided by multiple judges. However, ICC(1) and ICC(2) scores were calculated as well. For safety climate ICC(1) was .27 and ICC(2) was .69 and for service climate ICC(1) was .09 and ICC(2) was.36. Similar to Liao and Chuang (2007), despite the ICC(1)s and ICC(2)s being relatively low, I decided to proceed with analyses given the acceptable average score ICC measures and $r_{wg\,s}$ and recognizing that these analyses will be a conservative test of the proposed relationships.

Test of hypotheses

The sample size for this study's climate variables was fairly small (N = 32), with even smaller numbers of units having all dependent variables available. In addition, only 23 out of the 38 unit managers responded to the request for control variables (61%). The sample size varied greatly from analysis to analysis given that units were required to have complete responses for control variables, dependent variables and independent variables in order to be included in the particular analysis. This often yielded very small and varying sample sizes. To avoid making overly conservative Type I errors, all analyses will be examined using a significance level of $p < .10$ (Aguinis, 1995) and effect sizes will be discussed regardless of significance.

Bivariate correlation and hierarchical regression analysis were used to test hypotheses 1 which stated that unit level safety climate would be negatively related to adverse safety outcomes. The bivariate correlation revealed that safety climate was not significantly related to patient falls ($n(28)$, $r = .05$, $p > .10$) nor hospital acquired infections ($n(9)$, $r = -.43$, $p > .10$). For the regression analyses, adverse safety outcomes were each entered as the dependent variable. In the first step of the equations the control variables (Hospital, number of beds and percentage of nurses with BSN degrees) were entered and in the second step safety climate was entered. Hypothesis 1 was not supported for patient falls ($n(15)$, $\Delta R^2 = .00$, $p > .10$; see Table 2) nor for hospital acquired infections ($n(6)$, $\Delta R^2 = .04$, $p > .10$; see Table 3).

To test Hypothesis 2, which stated that service climate would be positively related to patient satisfaction, bivariate correlation and regression analysis were conducted. The bivariate correlation between service climate and patient satisfaction was not significant ($n(21)$, $r = .17$, $p > .10$). For the regression analysis, patient satisfaction was entered as the dependent variable. The control variables (hospital, number of beds and average number of minutes per hour nurses spend interacting with patients) were entered in the first step of the equation followed by service climate in the second step. Service climate did not explain a significant amount of variance in patient

satisfaction above and beyond that explained by the control variables ($n(12)$, $\Delta R^2 = .00$, $p > .10$; see Table 4), therefore, Hypothesis 2 was not supported.

To test Hypotheses 3 and 4 a series of moderated hierarchical regression analysis were conducted. Following Aiken and West (1991), for all moderated regression analyses in this study, the continuous independent variables were first centered to minimize issues associated with multicollinearity, and then the interaction terms were computed. Patient satisfaction and patient safety outcomes (patient falls and hospital acquired infections separately) were each entered as the dependent variables in the regression. Control variables were entered in the first step of the regression followed by safety climate and service climate and in the final step of the equation the interaction term of safety climate and service climate was entered. Results for the impact of the interaction on patient satisfaction (Hypothesis 3a and 4a) revealed a significant interaction ($p < .10$) term and a moderately large effect size ($n(12)$, $\Delta R^2 = .23$, $p < .10$; See Table 5). The nature of the interaction effect was graphed to determine if Hypothesis 3a or 4a (see Figure 2) was supported, using approaches outlined by Aiken and West (1991). The nature of the interaction supports hypothesis 4a (see Figure 3) which stated that the positive relationship between service climate and patient satisfaction would be stronger when safety climate is low compared to when service climate is high. Based on the form of the interaction it is clear that a high safety climate inhibits the effectiveness of service climate on patient satisfaction but when safety climate is low service climate impacts patients satisfaction in a strong and positive way. For the interactions with patient safety outcomes (Hypothesis 3b and 4b) the interaction between service climate and safety climate did not explain a significant amount of variance in patient falls ($n(15)$, $\Delta R^2 = .03$, $p > .10$; see Table 6) nor hospital acquired infections ($n(6)$, $\Delta R^2 = .05$, $p > .10$; see Table 7) beyond control variables. The implications of this will be discussed further in the Discussion section.

Table 1. Means, Standard Deviations, Reliabilities and Intercorrelations

Variable	M	SD	1	2	3	4	5	6	7	8
1. Hospital	.	.	.							
2. Number of Beds	31.47	13.03	0.27	.						
3. Percent BSNs (# BSNs/# Total Nurses)	0.64	0.23	-.44†	0.12	.					
4. Average patient min/hour	29.26	7.99	.61**	-.10	-.38	.				
5. Safety Climate (mean)	4.5	0.46	-0.16	-0.24	-.13	-.11	.88			
6. Service Climate (mean)	3.74	0.45	-0.13	-0.28	-.14	.00	.67**	.83		
7. Patient Falls (number of falls per 1000 patient days)	5.69	4.69	-.16	-.18	.00	-.06	.05	.19	.	
8. Hospital Acquired Infections (rates per 1000 patient days)	9.39	6.12	.	-.55	.62	-.03	-.43	-.18	-.63†	.
9. Overall Patient Satisfaction (on a 100 pt scale)	85.49	4.7	-.49*	-.28	.26	-.10	.18	.17	-.16	.79*

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 2. The Impact of Safety Climate on Patient Falls

	Patient Falls					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					0.12	0.12
Hospital	-3.60	3.84	-12.05	4.86		
# Beds	-0.03	0.11	-0.27	0.22		
%BSNs	-3.45	7.34	-19.60	12.70		
Step 2					0.00	0.12
Safety Climate (mean)	-0.95	6.69	-15.67	13.77		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 3. The Impact of Safety Climate on Hospital Acquired Infections

	Hospital Acquired Infections					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					0.61	0.61
# Beds	-0.21	0.16	-0.72	0.30		
% BSNs	13.08	11.76	-24.34	50.49		
Step 2					0.04	0.66
Safety Climate (mean)	-6.57	10.82	-41.00	27.86		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 4. The Impact of Service Climate on Overall Patient Satisfaction

	Overall Patient Satisfaction					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					0.15	0.15
Hospital	0.05	2.52	-5.75	5.85		
# Beds	-0.07	0.08	-0.25	0.11		
Ptt min/hr	-0.08	0.17	-0.48	0.31		
Step 2					0.00	0.15
Service Climate (mean)	0.26	1.97	-4.29	4.80		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 5. The Impact of the Interaction between Service and Safety Climate on Overall Patient Satisfaction

	Overall Patient Satisfaction					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					.15	.15
Hospital	-.94	2.05	-5.95	4.08		
# Beds	-.09	.06	-0.23	0.06		
Ptt min/hour	.02	.13	-0.30	0.34		
Step 2					.29	.44
Service Climate (mean)	4.26†	2.10	-0.88	9.40		
Safety Climate (mean)	-8.92†	3.91	-18.47	0.64		
Step 3					.23†	.67†
Service Climate x Safety Climate	-12.95†	6.39	-28.59	2.68		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 6. The Impact of the Interaction between Service and Safety Climate on Patient Falls

	Patient Falls					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					0.12	0.12
Hospital	-3.57	4.64	-14.07	6.92		
# Beds	-0.05	0.14	-0.36	0.26		
% BSNs	-5.84	8.90	-25.98	14.31		
Step 2					0.01	0.13
Service Climate (mean)	2.44	6.08	-11.31	16.19		
Safety Climate (mean)	-4.89	11.47	-30.82	21.05		
Step 3					0.03	0.15
Service Climate x Safety Climate	-9.70	18.37	-51.25	31.85		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

Table 7. The Impact of the Interaction between Service and Safety Climate on Hospital Acquired Infections

	Hospital Acquired Infections					
	b	se	95% CI LB	95% CI UB	ΔR^2	R^2
Step 1					0.61	0.61
# Beds	-0.48	0.64	-8.65	7.69		
% BSNs	6.35	23.43	-291.32	304.02		
Step 2					0.06	0.67
Service Climate (mean)	7.69	17.69	-217.07	232.44		
Safety Climate (mean)	-2.78	26.07	-333.98	328.42		
Step 3					0.05	0.72
Service Climate x Safety Climate	-68.71	168.90	-2214.85	2077.42		

Note: b denotes the unstandardized coefficient during the final regression step.

† $p < .10$. * $p < .05$. ** $p < .01$.

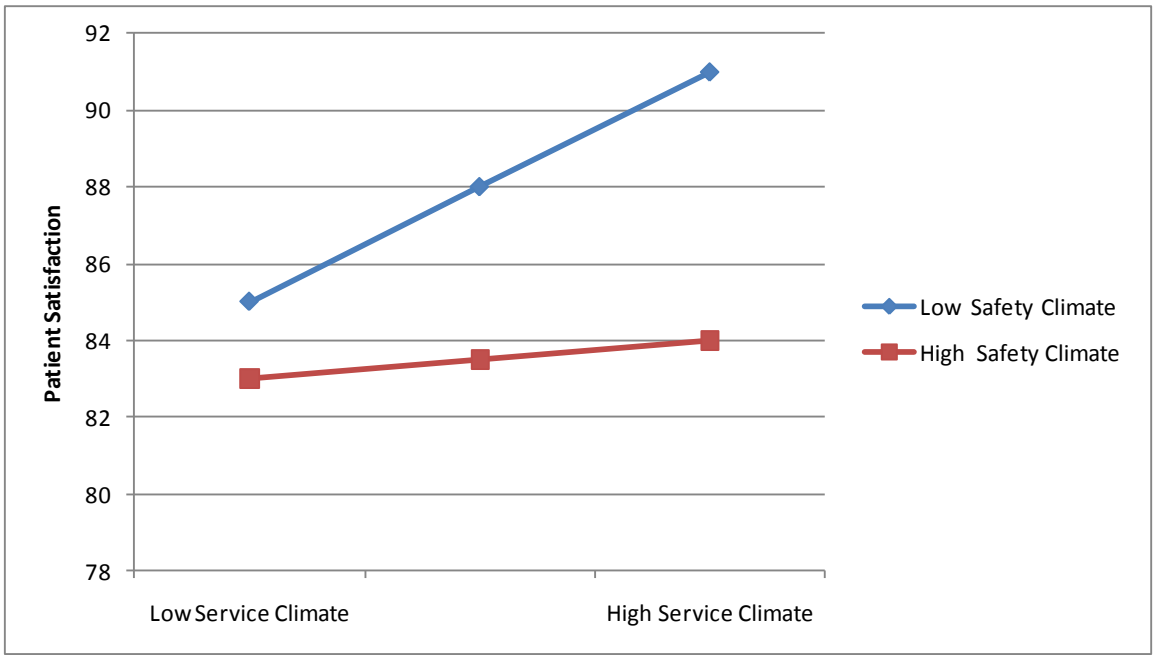

Figure 3. Graphed interaction from the results of the moderation regression analysis of service and safety climate on overall patient satisfaction

Chapter 8

Discussion

The purpose of the present study was to examine the simultaneous impact of service and safety climate in a hospital setting. Although results failed to replicate direct relationships between safety and service climates and safety and service outcomes, respectively, an interesting interactive effect was found. The form of the interaction revealed that a high safety climate constrains the positive impact of service climate on patient satisfaction. In other words, when safety climate is high the positive relationship between service climate and patient satisfaction is weaker than when safety climate is low. These findings are consistent with the goal conflict literature which suggests that when multiple and conflicting goals are present, performance in at least one domain suffers (Cheng et al., 2007; Kernan & Lord, 1990; Locke et al., 1994; Slocum., 2002). In contrast to the goal conflict idea, however, service and safety climate did not interact to predict patient safety outcomes (patient falls nor hospital acquired infection rates), although this was likely due to methodological issues. This was one of the first known studies to examine the simultaneous impact of multiple focal climates operating simultaneously in a single organization. Multiple focal climates are a reality in today's organizations (Schneider, Paul et al., 1998) and based on the findings of this study it is clear that focal climate research should begin to reflect this organizational reality.

Interpretation of results

Unfortunately many of the proposed hypotheses were not supported. This may have been due to methodological issues, namely, sample size and low power to detect effects. However, prior research has also shown conflicting results for the direct effects proposed, and thus we hoped our interactive approach would shed light on these issues. The following will attempt to

offer some explanations, both technical and speculative, regarding the failure of this data to support the hypotheses.

Hypothesis 1 predicted that safety climate would be negatively related to safety outcomes. This hypothesis was not supported. However, the bivariate relationship between safety climate and hospital acquired infection rate was fairly strong and in the predicted direction ($n(9)$, $r = -.43$, $p > .10$) but likely not significant due to the small sample size. Furthermore, even when controls were taken into account in the regression analysis safety climate still explained 4% of the variance in hospital acquired infection rates. Although this finding was not statistically significant I argue that it is practically important given the extremely small sample size and the fact that controls were taken into account. Additionally, given the seriousness and potential harmfulness of hospital acquired infections I argue that even small effect sizes are practically important. The lack of conventional statistical support found here is not atypical given the overall failure in the literature to find any one individual, group or structural variable that consistently and reliably predicts medical errors (Hoff et al., 2004). In fact, Hartmann and colleagues (2009) note that evidence regarding the relationship between hospital characteristics and safety outcomes is sparse and conflicting at best. In addition, the majority of existing research on safety climate finds that safety climate consistently predicts safety related outcomes for organizational employees (Hofmann & Morgeson, 1999; Hofmann & Stetzer, 1996; Zacharatos et al., 2005; Zohar, 2000) rather than for organizational customers (i.e., hospital patients). Perhaps safety climate as it is currently studied is best conceptualized and studied as a climate that emphasizes safety for organizational members rather than organizational customers. When thinking about the safety of organizational customers it may be important to develop new scales and measures that take additional factors into account such as the responsibility of the organizational customer in contributing to their own safety outcomes (i.e., patients in a hospital can undoubtedly contribute to their own falls).

Another explanation for the lack of relationship between safety climate and safety outcomes is the missing behavioral link in the current study's model. The mechanism through which safety climate is believed to impact adverse patient outcomes is through employee behaviors. In other words, perceptions about the importance of safety to the organization leads employees to engage in more safety related behaviors, which in turn reduces the amount of errors resulting from unsafe behaviors (Hofmann & Morgeson, 1999; Vogus & Sutcliffe, 2007). The current study attempts to draw linkages directly from safety climate to adverse patient outcomes, skipping the employee behavior step believed to be the mechanism behind this causal relationship. It is possible that safety climate is simply too distal a predictor to find a strong direct relationship to adverse patient outcomes. It is important for future climate research to include climate related behaviors in their models and studies in an effort to accurately and completely represent the appropriate causal flow related to organizational climates.

Hypothesis 2, which stated that service climate would be related to overall patient satisfaction, was also not supported by this data. As mentioned above, it is possible that the time lag between service climate data collection and overall patient satisfaction (1 month) was not long enough to support the causal relationship predicted here. Conversely, this time lag may have been too long to support this causal relationship since satisfaction is often an immediate, contagion effect from good customer service experiences (Pugh, 2001) and may not necessarily stay strong over time. Furthermore, the data collected for this study focused on service climate from nurses' perspectives but did not incorporate the other individuals in the healthcare setting that interact with patients and likely contribute to their overall experience and, thus, overall satisfaction levels (e.g., physicians, technicians, physician's assistants, phlebotomists). Thus, future research should consider the larger work unit.

In addition, consistent with the reasoning above it may be that service climate is too distal a predictor to reveal a significant direct relationship with customer satisfaction. The mechanism

through which service climate is proposed to lead to positive customer perceptions is through its impact on employee service behaviors (Schneider et al., 2005). In other words, service climate creates shared perceptions and beliefs about the importance of service to the organization and leads employees in that organization to engage in behaviors directed at providing high quality service to customers. Some recent empirical research has supported this causal chain in a healthcare setting (Steinke, 2008). It is important for future research on service climate in a healthcare setting to include service behaviors in their models and research.

Hypotheses 3 and 4 presented competing arguments and predictions for the impact of the interaction between service and safety climate on overall patient satisfaction and patient safety outcomes. Service and safety climate did not interact to predict patient safety outcomes but this was likely due to methodological issues. More specifically, for both patient safety outcomes, sample sizes were extremely small which may have made it difficult to detect any moderating effects. In addition, the low base rates for both outcomes combined with the short time frames are also likely to have made it difficult to detect any effects. Though neither hypothesis was supported entirely, a significant interaction ($p < .10$) explaining 23% of the variance in patient satisfaction was found supporting hypothesis 4a. The results of a simple slopes analysis revealed that the relationship between service climate and patient satisfaction is positive and strong (though only approaching significance) when safety climate is low ($b = 14.07$, $se = 6.10$, $t = 2.31$, $p = .15$) but positive and much weaker when safety climate is high ($b = .57$, $se = 3.9$, $t = .15$, $p = .90$). These results demonstrate that service climate is important in determining patient satisfaction but that safety climate serves to constrain this relationship.

Interestingly, patient satisfaction is only relatively high when service climate is high and safety climate is low. In all other conditions, patient satisfaction is relatively low. This is consistent with the goal conflict explanation which predicts that when both safety climate and service climate are extremely high, nurses become unable to adequately focus on either goal

(Cheng et al., 2007; Locke et al., 1994; Slocum et al., 2002). In other words, service related behaviors suffer because nurses are overloaded with extreme expectations from both a safety and customer service related perspective. In addition, behaviors associated with these two goals are often incompatible with one another. As noted previously, expected safety related behaviors may require nurses to check and double check patient identification information, medication doses, patient conditions and may require nurses to repeat the same questions multiple times. From a customer service perspective these behaviors can serve to prolong wait times, delay treatment and pain relief and create a depersonalized experience (e.g., when questions are asked multiple times). Thus, future research should assess whether these mechanisms – decreased efficiency, lack of personalization - explain the moderating effect shown here. Overall, this finding reveals that healthcare's attempt to create the safest and most customer friendly experience for patients may actually be at the cost of their customers' satisfaction.

Post hoc analyses

In addition to the explanations offered above, it is possible that the lack of relationships between safety and service climate and any dependent variable is due to an unhypothesized moderating effect. In fact, Mayer et al., (2009) note that service climate is not necessarily equally effective in every service context and emphasize the importance of examining potential moderators of this relationship. Their study demonstrates several important boundary conditions of the relationship between service climate and customer satisfaction and encourage future research to continue to search for conditions under which service climate is more or less important in determining customer satisfaction. Although initially included as a control variable in the current study, frequency of customer contact has been found to be a consistent moderator of the relationship between service climate and customer satisfaction. The form of the moderation typically reveals that the positive relationship between service climate and customer satisfaction is stronger under conditions where there is a higher frequency of customer contact

(Dietz et al., 2004; Mayer et al., 2009). This moderating effect was examined as a post hoc analysis in the current study but did not significantly moderate the relationship between service climate and patient satisfaction ($n(12)$, $\Delta R^2 = .05$, $p > .10$).

Another potential unhypothesized moderating effect is climate strength, or the within group variability in climate perceptions. Schneider et al (2002) argue that a strong climate will lead to the most consistency in employee perceptions regarding what behaviors are acceptable (whether positive or negative) and will subsequently lead to consistency in climate related behaviors and, thus, consistency in customer perceptions. Therefore, it is expected that climate strength will moderate the relationship between climate level and customer outcomes (overall patient satisfaction and safety related outcomes) such that when climate strength is strong the relationship between climate level and customer outcomes will be stronger in the predicted direction than when climate strength is weak. Given the recent research on the importance of both climate level (high or low average group score) as well as climate strength (within group variability in climate perceptions; Schneider et al., 2002), a series of post hoc regressions was run to determine if climate strength moderates the relationship between safety and service climate level and safety or service related outcomes respectively.

In order to determine if safety climate strength moderates the relationship between safety climate level and safety outcomes, patient falls and hospital acquired infections were each regressed on the appropriate control variables (hospital site, number of beds and percentage of nurses with a BSN degree) followed by safety climate level (mean) and safety climate strength (the standard deviation of safety climate within each unit) and finally the interaction between safety climate level and strength. The interaction term did not have a significant effect on patient falls or hospital acquired infection rates.

Next, in order to determine if service climate strength moderates the relationship between service climate level and patient satisfaction, patient satisfaction was regressed on the controls

(hospital site, number of beds and average minute per hour spent interacting with patients) followed by service climate level (mean) and service climate strength (standard deviation) and finally the interaction between service climate level and strength. Results showed a non-significant effect for the interaction on overall patient satisfaction ($n(10)$, $\Delta R^2 = .22$, $p = .20$). However, given that the interaction between service climate level and strength did explain 22% of the variance in overall patient satisfaction, I graphed the form of the interaction. The form of the interaction does not follow traditional thinking on the impact of service climate strength but, rather, suggests that when service climate strength is low the relationship between service climate level and overall patient satisfaction is strong and positive but when service climate strength is high the relationship between service climate level and patient satisfaction is positive but much weaker. While this may help to explain the lack of direct relationship between service climate level and patient satisfaction, the form of the interaction seems somewhat counterintuitive based on climate strength research and theory. Given the small sample size, these results should be taken with caution. However, one explanation consistent with the finding may be that patients are more satisfied with teams that demonstrate less consistency in their service climate because it suggests there is some variability in the behaviors of the team members. It seems that under conditions of more variability in service climate perceptions (but overall high levels of climate) and, in theory, more variability in climate related behaviors, patients were more satisfied with their overall care. It may be that in order for patients to feel an overall sense of satisfaction with their care they expect to encounter a variety of service related behaviors on the part of their nurses.

Practical implications

Based on some secondary findings in this study, it is clear that context plays an important role when examining customer satisfaction. One interesting practical finding is that some of the mean differences found between the two hospital sites correspond with some basic differences

between these two hospitals. As noted previously Hospital 1 is a private hospital, whereas, Hospital 2 is an academic hospital. At Hospital 2 (academic), although nurses spent a higher average number of minutes per hour with patients than at Hospital 1 (private), overall patient satisfaction was lower than at Hospital 1. This is interesting given that the number of minutes nurses spend on average per hour interacting with patients was included as a control variable in all analyses using overall patient satisfaction at the dependent variable because, presumably, with more frequent employee and patient contact, patients have more ample opportunities to have positive experiences interacting with nurses and will be more satisfied as a result (Brown & Mitchell, 1993; Dietz et al., 2004; Mayer et al., 2009). However, it is possible that in an academic hospital priorities when interacting with patients may center on teaching students and resident physicians the technical aspects of administering care instead of so heavily on pleasing the customer. Furthermore, patients may be overall less satisfied with a healthcare experience when they are the subject of a teaching opportunity for a student or resident physician as this may make them feel like their care is secondary to the teaching opportunity.

It is also important to consider the generalizability of the findings from this study to contexts outside of healthcare given that the healthcare context is a very distinct and unique type of service environment. More specifically, in a healthcare environment service climate may play a more important role in predicting patient satisfaction when safety climate is low because patients may not be aware or informed about what is good safety behavior and safety precautions (e.g., repeating questions and double and triple checking patient identity) may not be obviously linked to safety performance from a patient's perspective. However, patients can tell if a healthcare provider is acting polite and treating them like an individual. In more traditional service environments (e.g., retail stores and restaurants) where the tasks are relatively simple, customers can tell if employees are performing safety precautions (e.g., warning customers that a plate is hot, putting up "wet floor" signs, putting a lid on a hot cup of coffee) as well as whether

employees are delivering good customer service or not. Thus, in these more traditional customer service environments the interaction between safety climate and service climate may tell a different story than that in a healthcare context.

Limitations

It is important to note several things about this study and the data for this study to help understand the lack of findings and the number of counterintuitive findings revealed in the results. The data collection for this study was extremely challenging and wrought with difficulties for several reasons. First, at both hospitals it was noted that nurses are presented with a barrage of both required and optional surveys on a regular basis. This, combined with declining response rates in healthcare workers (Hill et al., 2006), resulted in extremely low response rates at the individual level. In an effort to increase response rates, the Nursing Research Coordinator at each hospital discussed the study with nursing unit managers during a monthly managers meeting to demonstrate the hospital's support and interest in the study. In addition, potential participants were each contacted twice (two weeks apart) via email in an effort to boost response rates. Despite these efforts, response rates remained low and given that data were aggregated to the unit level of analysis it is impossible to know if the responses to the study's substantive variables were truly representative of each overall unit's perceptions. Additionally, the low individual and unit level response rates combined with the fact that control data was only available for 61% of units and outcome data was only available for a limited number of units (patient satisfaction for 55%, patient falls for 74% and infection rates for 24%) meant that the majority of the units did not have all pieces of data required for any given analysis. This resulted in sample sizes that varied from analysis to analysis and were more often than not, very small, resulting in low power (Cohen, 1992; Schmidt, 1996). In an effort to remedy this limitation, however, the discussion and post hoc analyses focused on examining effect sizes above and beyond traditional significance testing.

There were also several issues encountered during data collection that contributed, in part, to the small sample sizes. First, as noted above, staff nurses and nurse managers in both hospitals may be somewhat "oversurveyed" in general and may have been reluctant to participate in any additional survey that was not required as part of their job. Second, although these surveys were supported by administration at both hospitals, they were not necessarily directly supported by nursing unit managers or directors, thus, nurses were asked to complete these surveys on their own time and were not given extra break time to participate. Furthermore, given the sensitive nature of some of the survey items, nurses may have been hesitant to complete the surveys while at work, despite confidentiality assurances. Third, archival outcome data collection was disappointing. Neither of the hospitals had structured methods for collecting or archiving patient safety data and, as a result, this data was often only available for a limited number of units during a limited time period. In addition, after the completion of survey data collection hospital 2 decided that they were unable to share infection rate data for the purpose of this study so infection rate data was only available for hospital 1. Patient satisfaction data was also only available to the researcher for the one month following survey completion at both hospitals, so the integrity of this variable as an outcome variable in the proposed causal flow is questionable. When effect sizes were examined above and beyond traditional significance testing there were some interesting findings and some opportunities for interesting post hoc reporting.

Future directions

It is important for future studies to include focal climate related behaviors into their models and research since they are a more proximal predictor of focal climate related outcomes. The current study did not assess service related or safety related behaviors as a mediating link between focal climate and outcomes which may partially explain the lack of relationships found between the focal climates and the related outcome variables. Many recent studies have begun to incorporate focal climate related behaviors into their models as well as their research studies (e.g.,

Drach-Zahavy, 2010; Gracia et al., 2010; Grizzle et al., 2009). It is important for future climate research to continue to include climate related behaviors in their models in an effort to provide a comprehensive picture of the focal climate – organizational outcomes relationships.

In addition, given the assertion that multiple focal climates necessarily exist in successful organizations (Schneider et al., 1998), future research should focus on the benefits and difficulties of multiple focal climates operating simultaneously within a single organization. It is clear from the results of this study that focal climates do not necessarily operate in a "more of each is better" fashion. In this study when both service and safety climate were high, patient satisfaction was lower than when service climate was high and safety climate was low. Clearly there are some more complex dynamics operating amongst these particular focal climates in this particular setting. It is especially important for future research to focus on the simultaneous impact of multiple focal climates whose goals may at times be in conflict with each other, like service and safety climates in a healthcare setting. Based on a thorough review of the currently available research there are few, if any, studies that have attempted to examine the impact of multiple focal climates operating simultaneously in a single organization (Kuenzi & Schminke, 2009).

Future research should also focus on the antecedents and outcomes of service climate in a healthcare setting especially considering healthcare's goals have recently been shifting towards high quality service delivery in addition to high quality medical care delivery (Fottler et al., 2006). In fact, Berry and Bendapudi (2007) emphasize that healthcare is a rapidly growing industry in the service sector that is ripe with opportunities for important service research contributions. The authors consider healthcare to be one of the most personal and most important services customers will ever purchase, yet, acknowledge the dearth of research on service in a healthcare setting. Climate research can help to answer this call for research by examining the antecedents, dynamics and outcomes of service climate in a healthcare setting.

Finally, it is important for future research to attempt to find more consistent predictors of safety outcomes in health care. In light of the alarming number of preventable medical errors and hospital related deaths annually (Davis, 2004; Klevens et al., 2007; Kohn et al., 1999), it is important to find ways to improve safety related outcomes in healthcare. As noted earlier, a review of the literature on the linkages between organizational factors and medical errors found that no variable consistently led to error reduction or enhanced patient safety (Hoff et al., 2004). Researchers must continue to search for consistent predictors of preventable errors and patient safety outcomes in an effort to improve patient safety in healthcare. It may be that some of the inconsistencies in findings are a result of unexamined moderators of these relationships, so careful attention should also be paid to the conditions under which these relationships may or may not exist.

References

Aguinis, H. (1995). Statistical power problems with moderated multiple regression in management research. *Journal of Management, 21*(6), 1141-1158.

Aiken, L. H., Clarke, S. P., Cheung, R. B., et al., (2003). Educational levels of hospital nurses and surgical patient mortality. *Journal of the American Medical Association, 290*, 1617-1623.

Aiken, L. S. and S. G. West (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA; Sage.

Batlis, N. C. (1980). The effect of organizational climate on job satisfaction, anxiety, and propensity to leave. *The Journal of Psychology, 104*, 233-240.

Berry, L. (1995). Relationship marketing of services: Growing interest emerging perspectives. *Journal of the Academy of Marketing Science, 23*, 236-245.

Berry, L.L. & Bendapudi, N. (2007). Healthcare: A fertile field for service research. Journal of Service Research, 10, 111-122.

Blake, J., & Davis, K. (1964). Norms, values, and sanctions. In R. E. L. Faris (Ed.), *Handbook of modern sociology.* (pp. 456-484). Chicago, IL: Rand McNally.

Bliese, P.D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K.J. Klein & S.W. Kozlowski (Eds.), *Multilevel Theory, Research, and Methods in Organizations* (pp. 349-381). San Francisco, CA: Jossey-Bass, Inc.

Bray, S. (2004). Collective efficacy, group goals, and group performance of a muscular endurance task. *Small Group Research, 35*, 230-238.

Brown, K. A., & Mitchell, T. R. (1993). Organizational obstacles: Links with financial performance, customer satisfaction and job satisfaction n a service environment. *Human Relations, 46*, 725-757.

Carr, J. Z., Schmidt, A. M., Ford, K., & DeShon, R. P. (2003). Climate perceptions matter: A meta-analytic path analysis relating molar climate, cognitive and affective states, and individual level work outcomes. *Journal of Applied Psychology, 88*(4), 605-619.

Cheng, M.M., Luckett, P.F., & Mahama, H. (2007). Effect of perceived conflict among multiple performance goals and goal difficulty on task performance. *Accounting and Finance, 47*, 221-242.

Chowdhury, S.K. & Endres, M.L. (2010). The impact of client variability on nurses' occupational strain and injury: Cross-level moderation by safety climate. *Academy of Management Journal, 53*, 182-198.

Clarke, S. P., Rockett, J. L., Sloane, D. M., & Aiken, L. H. (2002). Organizational climate, staffing, and safety equipment as predictors of needlestick injuries and near-misses in hospital nurses. *American Journal of Infection Control, 30*, 207-216.

Cohen, J. (1992). A Power Primer. *Psychological Bulletin, 112*, 155-159.

Cooper, M. D. (2000). Towards a model of safety culture. *Safety Science, 36*, 111-136.

Davis, P. (2004, July 27). Fatal medical errors said to be more widespread. *Wall Street Journal*.

DeVol, R. C., & Koepp, R. (2003). *America's health care economy*: Milken Institute.

Dickson, D., Resick, C. J., & Hanges, P. J. (2006). When organizational climate is unambiguous, it is also strong. *Journal of Applied Psychology, 91*, 351-364.

Dietz, J., Pugh, S. D., & Wiley, J. W. (2004). Service climate effects on customer attitudes: An examination of boundary conditions. *Academy of Management Journal, 47*(1), 81-92.

Doucette, J. N. (2003). Serving up uncommon service. *Nursing Management, November*, 26-30.

Drach-Zahavy, A. (2010). How does service workers' behavior affect their health? Service climate as a moderator in the service behavior-health relationships. *Journal of Occupational Health Psychology, 15*, 105-119.

Edmondson, A.C. (1996). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *The Journal of Applied Behavioral Science, 32*, 5-29.

Epstein, R.M., Franks, P., Fiscella, K., Shields, C.G., Meldrum, S.C., Kravitz, R.L., et al. (2005). Measuring patient-centered communication in patient-physician consultations: Theoretical and practical issues. *Social Science and Medicine, 61*, 1516-1528.

Erez, M., Gopher, D., & Arazi, N. (1990). Effects of self-set goals and monetary rewards on dual task performance. *Organizational Behaviors and Human Decision Processes, 47*, 247-269.

Fottler, M. D., Dickson, D., Ford, R. C., Bradley, K., & Johnson, L. (2006). Comparing hospital staff and patient perceptions of customer service: A pilot study utilizing survey and focus group data. *Health Services Management Research, 19*(1), 52-66.

Frank, A.G. (1958). Goal ambiguity and conflicting standards: Approach to the study of organizations. *Human Organization, 17*, 8-13.

Gershon, R. R., Karkarashian, C. D., Grosch, J. W., Murphy, L. R., Escamilla-Cejudo, A., Flanagan, P. A., et al. (2000). Hospital safety climate and its relationship with safe work proactices and workplace exposure incidents. *American Journal of Infection Control, 28*, 211-221.

Gittel, J. H. (2002). Coordinating mechanisms in care provider groups: Relational coordination as a mediator and input uncertainty as a moderator of performance effects. *Management Science, 48*, 1408-1427.

Gracia, E., Cifre, E., & Grau, R. (2010). Service quality: The key role of service climate and service behavior of boundary employee units. *Group and Organization Management, 35*, 276-298.

Grizzle, J.W., Zablah, A.R., Brown, T.J., Mowen, J.C., & Lee, J.M. (2009). Employee customer orientation in context: How the environment moderates the influence of customer orientation on performance outcomes. *Journal of Applied Psychology, 94,* 1227-1242.

Grober, E. D., & Bohnen, J. M. (2005). Defining medical error. *Canadian Journal of Surgery, 48*(1), 39-44.

Grosch, J. W., Gershon, R. R., Murphy, L. R., & DeJoy, D. M. (1999). Safety climate dimensions associated with occupational exposure to blood-borne pathogens in nurses. *American Journal of Industrial Medicine, Supplement 1*(122-124).

Hackman, J. R., & Oldham, G. R. (1980). *Work Redesign*. Reading, MA: Addison-Wesley.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology, 87,* 268-279.

Hartmann, C.W., Meterko, M., Rosen, A.K., Zhao, S., Singer, S. & Gaba, D.M. (2009). Relationship of hospital organizational culture to the patient safety climate in the veterans health administration. *Medical Care Research and Review, 66*, 320-338.

Hickson, G. B., Clayton, E. W., Githens, P. B., & Sloane, F. A. (1992). Factors that prompted families to file medical malpractice claims following perinatal injuries. *Journal of the American Medical Association, 267,* 1359-1363.

Hickson, G. B., Federspiel, C. F., Pichert, J. W., Miller, C. S., Gaule-Jaeger, J., & Bost, P. (2002). Patient complaints and malpractice risk. *Journal of the American Medical Association, 287*(22), 2951-2957.

Hill, C.A., Fahrney, K., Wheeless, S.C., & Carson, C.P. (2006). Survey resonse inducements for registered nurses. *Western Journal of Nursing Research, 28*, 322-334.

Hoff, T., Jameson, L., Hannan, E., & Flink, E. (2004). A review of the literature examining linkages between organizational factors, medical errors, and patient safety. *Medical Care Research and Review, 61*, 3-37.

Hofmann, D. A., & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other nurse and patient outcomes. *Personnel Psychology, 59*(4), 847-869.

Hofmann, D. A., & Morgeson, F. P. (1999). Safety-related behavior as a social exchange: The role of perceived organizational support and leader-member exchange. *Journal of Applied Psychology, 84*, 286-296.

Hofmann, D. A., Morgeson, F. P., & Gerras, S. J. (2003). Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: Safety climate as an exemplar. *Journal of Applied Psychology, 88*(1), 170-178.

Hofmann, D. A., & Stetzer, A. (1996). A cross-level investigation of factors influencing unsafe behaviors and accidents. *Personnel Psychology, 41*, 307-339.

Hofmann, D. A., & Stetzer, A. (1998). The role of safety climate and communication in accident interpretation: Implications for learning from negative events. *Academy of Management Journal, 41*, 644-657.

Hollenbeck, J., Williams, C., & Klein, H. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology, 74*, 18-23.

James, L. R. (1982). Aggregation bias in estimates of perceptual agreement. *Journal of Applied Psychology, 67*, 219-229.

James, L. R., Demaree, R. G., & Wolf, G. (1982). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology, 69*, 85-98.

Janowitz, M. (1975). Sociological theory and social control. *American Journal of Sociology, 81*, 82-108.

Kahn, W. A. (1992). To be full there: Psychological presence at work. *Human Relations, 45*(321-349).

Kalb, C. (2010). Do No Harm. *Newsweek,* September 27.

Katz-Navon, T., Naveh, E., & Stern, Z. (2005). Safety climate in health care organizations: A multidimensional approach. *Academy of Management Journal, 48*(6), 1075-1089.

Kenagy, J. W., Berwick, D. M., & Shore, M. F. (1999). Service quality in health care. *Journal of the American Medical Association, 281*(7), 661-665.

Kernan, M.C. & Lord, R.G. (1990). Effects of valence, expectancies, and goal-performance discrepancies in single and multiple goal environments. *Journal of Applied Psychology, 75,* 194-203.

Kiewitz, C., Hochwarter, W. A., Ferris, G. R., & Castro, S. L. (2002). The role of psychological climate in neutralizing the effect of organizational politics on work outcomes. *Journal of Applied Social Psychology, 6*(1189-1207).

Klevens, R. M., Edwards, J. R., Richards, C. L., Horan, T. C., Gaynes, R. P., Pollock, D. A., et al. (2007). Estimating health care-associated infections and deaths in U.S. hospitals, 2002. *Public Health Reports*.

Kline, R.B. (2004). B*eyond significance testing: Reforming data analysis methods in behavioral research.* Washington, D.C.: American Psychological Association.

Kline, T. J., Willness, C., & Ghali, W. A. (2007). *Determinants of adverse events in hospitals:The potential role of patient safety culture.* Paper presented at the Society for Indusrial and Organizational Psychology, New York, N.Y.

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (1999). *To err is human: Building a safer health system*. Washington, D.C.: Institute of Medicine, National Academy Press.

Kuenzi, M. & Schminke (2009). Assembling fragments into a lens: A review, critique, and proposed research agenda for the organizational work climate literature. *Journal of Management, 35*, 634-717.

Leape, L. L. (2002). Reporting of adverse events. *New England Journal of Medicine, 347*, 1633-1638.

LeBreton, J.M. & Senter, J.L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*, 815-852.

Lee, C., Bobko, P., Earley, P.C., & Locke, E.A. (1991). An empirical analysis of a goal setting questionnaire. *Journal of Organizational Behavior, 12*, 467-482.

Liao, H. & Chuang, A. (2007). Transforming service employees and climate: A multilevel, multisource examination of transformational leadership in building long-term service relationships. *Journal of Applied Psychology, 92*, 1006-1019.

Locke, E.A., & Latham, G.P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*, 705-717.

Locke, E.A., Smith, K.G., Erez, M., Chah, D.O., & Schaffer, A. (1994). The effects of intra-individual goal conflict on performance. *Journal of Management, 20*, 67-91.

Lovelock, C., & Wirtz, J. (2004). *Services marketing: People, technology, strategy* (5th ed.). Upper Saddle River, NJ: Prentice-Hall.

May, M. L., & Stengel, D. B. (1990). Who sues their doctors? How patients handle medical grievances. *Law and Society Review, 24*(1), 105-120.

Mayer, D.M., Ehrhart, M.G., & Schneider, B. (2009). Service attribute boundary conditions of the service climate-customer satisfaction link. A*cademy of Management Journal, 52*, 1034-1050.

Mayer, T., Cates, R., Mastorovich, M. J., & Royalty, D. (1998). Emergency department patient satisfaction: Customer service training improves patient satisfaction and ratings of physician and nurse skill. *Journal of Healthcare Management, 43*(5), 427-438.

Mayer, T., & Cates, R. J. (1999). Service excellence in health care. *Journal of the American Medical Association, 282*(13), 1281-1283.

Mead, N., & Bower, P. (2000). Patient-centeredness: A conceptual framework and review of the empirical literature. *Social Science and Medicine, 51*, 1087-1110.

Mitchell, P. H., & Shortell, S. M. (1997). Adverse outcomes and variations in organization of care delivery. *Medical Care, 35*, 19-32.

Mittal, B., & Lassar, W. (1998). Why do customer's switch? The dynamics of satisfaction versus loyalty. *Journal of Services Marketing, 12*, 177-191.

Naveh, E., Katz-Navon, T., & Stern, Z. (2005). Treatment errors in healthcare: A safety climate approach. *Management Science, 51*, 948-960.

Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents at the individual and group levels. *Journal of Applied Psychology, 91*(4), 946-953.

Parkington, J. J., & Schneider, B. (1979). Some correlates of experienced job stress: A boundary role study. *Academy of Management Journal, 22*, 270-281.

Penchansky, R., & Macnee, C. (1994). Initiation of medical malpractices suits: A conceptualization and test. *Medical Care, 32*(8), 813-831.

Petrini, C. (1989). Training for service quality. *Training and Development Journal, 43*, 20-27.

Phelen, J.L. (1960). Authority and flexibility in Spanish imperial bureaucracy. *Administrative Science Quarterly, 5*, 47-65.

Pritchard, R. D., & Karasick, B. W. (1973). The effects of organiational climate on managerial job performace and job satisfaction. *Organizational Behavior and Human Performance, 9*, 126-146.

Pugh, S.D. (2001). Service with a smile: Emotional contagion in the service encounter. *Academy of Management Journal, 44*, 1018-1027.

Rapert, M., & Wren, B. (1998). Service as a competitive opportunity. *Journal of Services Marketing, 12*(Mar), 223-235.

Rust, R., & Zahorik, A. (1993). Customer satisfaction, customer retention and market share. *Journal of Retailing, 69*, 193-215.

Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology, 21*, 600-619.

Salanova, M., Agut, S., & Peiro, J.M. (2005). Linking organizational resources and work engagement to employee performance and customer loyalty: The mediation of service climate. *Journal of Applied Psychology, 90*, 1217-1227.

Schachter, S. (1951). Deviation, rejection, and communication. *Journal of Abnormal and Social Psychology, 46*, 190-207.

Schmidt, A.M., & DeShon, R.P. (2007). What to do? The effects of discrepancies, incentives, and time on dynamic goal prioritization. *Journal of Applied Psychology, 92*, 928-941.

Schmidt, F.L. (1996). Statistical significance testing and cumulative knowledge in psychology: Implications for training of researchers. *Psychological Methods, 1*, 115-129.

Schmidt, K.H., Kleinbeck, U., & Brockman, W. (1984). Motivational control of motor performance by goal setting in a dual-task situation. *Psychological Research, 46*, 129-141.

Schneider, B. (1973). The perception of organizational climate: The customer's view. *Journal of Applied Psychology, 57*(3), 248-256.

Schneider, B. (1990). The climate for service: An application of the climate construct. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 383-412). San Francisco: Jossey-Bass.

Schneider, B., & Bowen, D. E. (1985). Employee and customer perceptions of service in banks: Replication and extension. *Journal of Applied Psychology, 70*(3), 423-433.

Schneider, B., Chung, B. & Yusko, K. (1993). Service climate for service quality. *Current Directions in Psychological Science, 2*, 197-200.

Schneider, B., Ehrhart, M. G., Mayer, D. M., Saltz, J. L., & Niles-Jolly, K. (2005). Understanding organization-customer links in service settings. *Academy of Management Journal, 48*(6), 1017-1032.

Schneider, B., Gunnarson, S. K., & Niles-Jolly, K. (1994). Creating the climate and culture of success. *Organizational Dyamics, 23*, 17-29.

Schneider, B., Parkington, J. J., & Buxton, V. M. (1980). Employee and customer perceptions of service in banks. *Administrative Science Quarterly, 25*, 252-267.

Schneider, B., Paul, M. C., & White, S. S. (1998). Too much of a good thing: A multiple-constituency perspective on service organization effectiveness. *Journal of Service Research, 1*(1), 93-102.

Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: A new direction for climate research. *Journal of Applied Psychology, 87*(2), 220-229.

Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Test of a causal model. *Journal of Applied Psychology, 83*(2), 150-163.

Schulte, M., Ostroff, C., & Kinicki, A. J. (2006). Organizational climate systems and psychological climate perceptions: A cross-level study of climate-satisfaction relations. *Journal of Occupational and Organizational Psychology, 79*, 654-671.

Sexton, J. B., Thomas, E. J., & Helmreich, R. L. (2000). Error, stress, and teamwork in medicine and aviation: Cross sectional surveys. *British Medical Journal, 320*(745-749).

Sherif, M. (1936). *The psychology of social norms*. New York, NY: Harper.

Singer, S., Lin, S., Falwell, A., Gaba, D. & Baker, L. (2008). Relationship of safety climate and safety performance in hospitals. *Health Services Research, 44,* 399-421.

Slocum, J.W., Cron, W.L., & Brown, S.P. (2002). The effect of goal conflict on performance. The Journal of Leadership and Organizational Studies, 9, 77-88.

Steinke, C. (2008). Examining the role of service climate in healthcare: An empirical study of emergency departments. *International Journal of Service Industry Management, 19*, 188-209.

Studdert, D. M., Mello, M. M., & Brennan, T. A. (2004). Medical malpractice. *The New England Journal of Medicine, 350*(3), 283-292.

Surprenant, C.F. & Solomon, M.R. (1987). Predictability and personalization in the service encounter. *Journal of Marketing, 51,* 86-96.

Vogus, T. J., & Sutcliffe, K. M. (2007). The safety organization scale: Development and validation of a behavioral measure of safety culture in hospital nursing units. *Medical Care, 45*(1), 46-54.

Wallace, J. C., Popp, E., & Mondore, S. (2006). Safety climate as a mediator between foundation climates and occupational accidents: A group-level investigation. *Journal of Applied Psychology, 91*(3), 681-688.

Weldon, E., & Weingart, L. R. (1993). Group goals and group performance. *British Journal of Social Pschology, 32*(307-334).

Whitney, K. (1994). Improving group task performance: The role of group goals and group efficacy. *Human Performance, 7*(55-78).

Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High performance work systems and occupational safety. *Journal of Applied Psychology, 90*, 77-93.

Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology, 65*, 96-102.

Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology, 85*, 587-596.

Zohar, D., & Luria, G. (2004). Climate as a social-cognitive construction of supervisory safety practices: Scripts as proxy of behavior patterns. *Journal of Applied Psychology, 89*(322-333).

Zohar, D., & Luria, G. (2005). A multilevel model of safety climate: Cross-level relationships between organization and group=level climates. *Journal of Applied Psychology, 90*(4), 616-628.

Zultowski, W. H., Arvey, R. D., & Dewhirst, H. D. (1978). Moderating effects of organizational climate on relationships between goal-setting attributes and employee satisfaction. *Journal of Vocational Behavior, 12*, 217-227.

Appendix

Safety and Service Climate Items

Safety Climate

Responses will range from 1, "not at all true in my unit," to 5, "very true in my unit." All the priority items are reverse scored.

"In my unit…"

1. in order to get the work done, one must ignore some safety aspects.
2. whenever pressure builds up, the preference is to do the job as fast as possible, even if that means compromising on safety.
3. human resources shortage undermines safety standards.
4. safety rules and procedures are ignored.
5. safety rules and procedures are nothing more than a cover-up for lawsuits.
6. ignoring safety is acceptable.
7. it doesn't matter how the work is done as long as there are no accidents.

(*Priority of Safety* subscale; Katz-Navon et al., 2005; Zohar, 2000)

Service Climate

Responses will range from 1, "poor," to 5, "excellent."

1. How would you rate the job knowledge and skills of employees in your work unit to deliver superior quality work and service?
2. How would you rate efforts to measure and track the quality of the work and service in your work unit?
3. How would you rate the recognition and rewards employees receive for the delivery of superior work and service?
4. How would you rate the overall quality of service provided by your work unit?
5. How would you rate the leadership shown by management in your work unit in supporting the service quality effort?
6. How would you rate the effectiveness of our communications efforts to both employees and customers?
7. How would you rate the tools, technology, and other resources provided to employees to support the delivery of superior quality work and service?

(*Global Service Climate* subscale*;* Schneider, White et al., 1998; Schneider et al., 2005)

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MS, Industrial/Organizational Psychology. May 2006
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Master's Thesis Topic: Incivility and Work Stress: The Moderating Role of Racial Identity.
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Pomona College, Claremont, CA.
BA, Psychology. May 2001

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AWARDS

- Graduate Student Fellowship – The Pennsylvania State University

WORK EXPERIENCE

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- Trained in DMAIC and LEAN principles and certified as a Six Sigma Black Belt
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RESEARCH EXPERIENCE

Project Team Member – Development Dimensions International Sep. 2005-May 2006

- Developing a competency database to be used for selection batteries in a variety of professions

Project Team Lead – Pennsylvania State Police Sep. 2004 – Aug. 2005

- Leading a project team in conducting job analyses for various positions in the Liquor Enforcement Division

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- Emotions in the workplace, work family conflict, interpersonal conflict in the workplace

Project Team Member – Pennsylvania State Police Sep. 2003 – August 2004

- Member of a project team conducting a job analysis for the State Trooper position

PUBLICATIONS

Kern, J.H. & Grandey, A.A. (2009). Customer Incivility as a Social Stressor: The Role of Race and Racial Identity for Service Employees. Journal of Occupational Health Psychology, 14(1), 46-57.

Grandey, A.A., **Kern, J.H**. & Frone, M.R. (2007) Verbal Abuse from Outsiders versus Insiders: Comparing Frequency, Impact on. Emotional Exhaustion, and the Role of Emotional Labor. Journal of Occupational Health Psychology, 12(1), 63-79. **[Winner of the JOHP Best Paper for 2006-2007]**

CONFERENCE PRESENTATIONS

Kern, J. & Grandey, A. (May, 2006). Does Racial Identity Buffer or Exacerbate the Relationship of Workplace Mistreatment with Anger and Burnout? Paper presented at a symposium for the 21st annual meeting of the Society of Industrial and Organizational Psychology. Dallas, TX.

Kern, J. (April, 2006). Effects of Incivility on Anger and Emotional Exhaustion: The Moderating Role of Racial Identity. Paper presented at the Penn State Emotion Research Network Conference. State College, PA.

Grandey, A., & **Kern**, J. (August, 2005). *Biting the Hand that Serves Them: When Does Customer Aggression Predict Employee Exhaustion?* Paper presented at the Annual Meeting of the Academy of Management Conference, Honolulu, Hawaii.