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PEDIATRIC CHRONIC ABDOMINAL PAIN NURSING: A MIXED METHOD ANALYSIS OF BURNOUT

by

NIKITA P. RODRIGUES

Under the Direction of Lindsey L. Cohen, PhD

ABSTRACT

Nurses are at increased risk for job burnout, which can lead to psychological and physical problems, decreased quality of care, and premature exit from the profession. Studies have found common predictors of burnout in multiple service occupations, but there are important differences across settings. The current study used embedded mixed-method analyses to explore burnout in a sample of nurses that work with patients with chronic abdominal pain. Thirty-two nurses participated in focus groups and data analyses revealed the following six themes: negative pain beliefs, barriers to effective pain management, nurse empathy/compassion, moral distress, coping methods, and burnout. These themes were evaluated with proposed theoretical frameworks and the extant literature to build the Pediatric Chronic Pain Nurse Burnout model. The constructs in this model were then evaluated quantitatively via measures completed by 41 nurses. Analyses provided partial support for the model and highlighted areas for further evaluation of burnout in nursing.

INDEX WORDS: Nurses, Burnout, Mixed-methods, Chronic pain, Pain Management, Pediatric

PEDIATRIC CHRONIC ABDOMINAL PAIN NURSING: A MIXED METHOD ANALYSIS OF BURNOUT

by

NIKITA RODRIGUES

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2016

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2016

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1 STUDY ONE INTRODUCTION

1.1 Overview of Pediatric Nursing

The nurse is a critical member of the pediatric healthcare workforce. There are over 3,000,000 registered nurses in the United States (U.S.) and approximately 200,000 work in pediatrics (U.S. Department of Health and Human Services, 2010). In general, pediatric nurses are charged with providing care for children and their parents. Nurses' responsibilities are multifaceted and dynamic, and duties might include implementing innovative, developmentally-appropriate interventions; communicating sensitive information to patients and their families; teaching health and illness-related care; and reducing the stress associated with illness (Christian, 2013; Muscari, 2005).

As health outcomes for sick children have continued to improve, pediatric nursing has become increasingly focused on enhancing the quality of care by providing an environment within the hospital for optimal growth and development, as well as meeting the health needs of the patient (Price & Gwin, 2008). Most commonly, pediatric nurses are the "front-line" caretaker providing the primary point of contact and support for patients and their families. In this capacity, nurses often identify patients' and their parents' needs and express these to the healthcare team. In addition, nurses often serve as the interventionist and conduct a number of treatment protocols (e.g., monitoring vitals, administration of medication).

The pediatric health care setting is dynamic, multifaceted, and challenging, and can be very rewarding for the pediatric nurse. Nurses enjoy developing strong relationships with patients and families, and they reportedly feel a sense of comfort and accomplishment in knowing that they have improved the lives of their patients and families through their nursing care (Haberman, Germino, Maliski, Stafford-Fox, & Rice, 1994). However, pediatric nursing can

also be challenging. Healthcare reforms, increased length of hospital stays, heightened acuity levels in hospitalized patients, and changes in medical technology all contribute to pediatric nurse stress and burnout (Broyles, 2008).

1.2 Burnout in Nursing

It is well established that nurses face stress in their work environment and therefore are at risk for burnout (Cohen-Katz, Wiley, Capuapo, Baker, & Shapiro, 2005). Burnout is commonly conceptualized as a state of physical, emotional, and mental exhaustion that occurs as a reaction to demanding working conditions over an extended period of time (Schaufeli & Greenglass, 2001). Burnout has long been identified as a syndrome of emotional exhaustion, depersonalization (cynicism and lack of empathy), and a decreased sense of personal accomplishment (Maslach & Jackson, 1981). However, burnout is increasingly seen as consisting of two core components: exhaustion and cynicism (Bakker, Demerouti, & Verbeke, 2004; Maslach, Schaufeli, & Leiter, 2001).

It is suggested that 40% of hospital nurses have burnout levels that exceed the norms for health care workers (Aiken et al., 2001). The consequences of nurse burnout include negative work attitudes, poor patient evaluations of the quality of care, and reduced productivity (Bourbonnais, Comeau, & Bezina 1999; Leiter, Harvie, & Frizzell, 1998). These conditions can threaten the quality of patient care and patient safety (Laschinger & Leither, 2006). Specifically, nurses' increased burnout affects their relationship with their patients, as it leads to less contact and therefore a higher risk of incorrect medical treatment (West et al., 2006). For hospitals, nurse burnout can be costly as it leads to increased tardiness, absenteeism, turnover, and difficulty in both recruiting new and retaining current staff (Lake, 1998; Lee & Ashforth, 1996; Parker & Kulik, 1995). Data suggest that approximately half of employee turnover is due to job stress

(Caine & Ter-Bagdasarian, 2003). Job dissatisfaction has been found to be four times greater among hospital nurses than the average for all U.S. workers (Aiken et al., 2001). Not surprisingly, 1 in 5 hospital nurses report that they intend to leave their current jobs within a year (Aiken et al., 2001).

1.3 Pediatric Chronic Abdominal Pain Nursing

Nursing on an inpatient unit with pediatric chronic abdominal pain might be particularly challenging. Chronic abdominal pain is widely prevalent and is the second most common pain syndrome in children (Berger, Gieteling, & Benninga, 2007). It is estimated that chronic abdominal pain occurs in 0.3% to 30.8% of children, depending on the diagnostic criteria (Chitkara, Rawat, & Talley, 2005; Van Gessel, Gabmann, & Kroner-Herwig, 2011). Chronic abdominal pain is typically characterized by the presence of chronic pain for at least 3 months, with pain occurring at least once a week, in the absence of serious physical disease (Apley & Naish, 1958). Nausea and vomiting are common symptoms, and pain has to be sufficiently severe so that everyday functioning is impaired. Increasing numbers of children present to hospitals and outpatient clinics with complaints of recurrent pain. A descriptive study by Coffelt, Bauer, and Carrol (2013) indicated that the number of patients with chronic pain diagnoses increased by 831% from 2004 to 2010; 39% had secondary diagnoses of abdominal pain and 65% had a gastrointestinal diagnosis. In this study, patients had a mean length of hospital stay of 7.32 days, and many (12.5%; ~467 patients) were readmitted within one year of their initial discharge. Further, patients hospitalized for chronic pain underwent a mean of 3.18 procedures with the most common procedures being an esophagogastroduodenoscopy with closed biopsy, a closed biopsy of the large intestines, and an insertion of a spinal canal catheter.

Abdominal pain can be described as functional or organic. Chronic abdominal pain, which is sometimes referred to as functional abdominal pain (FAP), occurs due to a sensitivity to nerve impulses in the solar plexus (Drossman & Dumitrascu, 2006). FAP encompasses a group of conditions characterized by chronic or recurrent symptoms that are not explained by biochemical, anatomical, or structural abnormalities (Saps & Di Lorenzo, 2009). FAP can be triggered by a virus or stress and can lead to symptoms including constipation, nausea, diarrhea, gas, sweating, and a flushed or pale face. Whereas the specific reason for pain is unknown, food intolerances, heredity, weakness of the immune system, and psychological issues can increase a child's susceptibility to developing FAP. Unfortunately, there is no cure currently available for FAP, but it can often be managed through diet changes and certain medications. Stress reduction efforts, like following a regular routine and diet, can also help control pain experiences. The poor understanding of the causes of FAP, the range of difficult symptoms, and the lack of cure all contribute to frustration and stress for the patient, family, and their healthcare team.

In addition to treating FAP, gastrointestinal units at children's hospitals often treat other chronic abdominal pain conditions including patients who present with inflammatory bowel disease (IBD). IBD is a complicated group of diseases that includes Crohn's disease, reflux, ulcerative colitis, and indeterminate colitis. Nursing care for children with chronic abdominal pain consists of educating the patient and family about the condition, symptoms, and coping techniques; providing support and assurance that the experience is common and can possibly be outgrown; and if applicable, developing a bowel program regime (Mandleco, 2011). Pain management is an extremely vital aspect of nursing care of the pediatric patient. The nurse assesses for the presence of pain, plans both pharmacological and non-pharmacological pain management strategies with the multidisciplinary medical team, implements the management

plan, and then evaluates the effectiveness of the interventions (American Nurses Association [ANA], 2001). The management of pain incorporates psychological, physical, and pharmacological interventions. Although the main goal of the treatment for pain is to return the child to a functional state that allows them to participate in life activities (e.g., return to school) rather than focusing solely on pain reduction (Twycross, Dowden, & Stinson, 2013), hospital policies and patient satisfaction often require nurses to predominately focus on the patient's pain experiences. Pharmacological interventions for chronic pain management include simple analgesics, opioid analgesics, anticonvulsants, antidepressants, antiarrhythmics, anxiolytics, and nerve blocks. Unfortunately, concerns have been expressed about the safety of long-term opioid administration (Large & Schug, 1995). These concerns stem around issues of adverse side effects, and the development of tolerance, addition, and/or drug diversion (Abs et al., 2000; Ballantyne & Mao, 2003; Kalso, Edwards, Moore, & McQuay, 2004). Furthermore, a 2008 Cochrane review of pharmacological interventions for recurrent abdominal pain and irritable bowel syndrome in children concluded that there is weak evidence for the efficacy of any pharmacological agent in children with recurrent abdominal pain (Huertas-Ceballos, Logan, Bennett, & MacArthur, 2008). Physical interventions include exercise, thermal stimulation, physiotherapy, occupational therapy, massage, and acupuncture (Twycross et al., 2013). Psychological interventions include education about pain diagnosis and coping, sleep hygiene, relaxation, biofeedback, behavioral therapies, cognitive therapies, cognitive behavioral therapy, Acceptance and Commitment Therapy, mindfulness therapy, family therapy, and psychotherapy (Twycross et al., 2013). Pediatric abdominal pain nurses are often required to plan and implement interventions across all three disciplinary modes of pain management, while balancing hospital policy guidelines and medical insurance limitations on care.

1.4 Burnout in Pediatric Chronic Abdominal Pain Nursing

The majority of studies on burnout in nursing have been conducted in specialized areas of oncology, critical care, and mental health settings in adults (Kash et al., 2000, Kennedy & Barloon, 1997, Kilfedder, Power & Wells, 2001; Pines & Maslach, 1978). Data are absent regarding the prevalence of nurses' rates of burnout when working with inpatient pediatric chronic abdominal pain patients. Despite the availability of pain management medications, studies have continued to find suboptimal pain management in chronic pain patients (Schafheutle, Cantrill, & Noyce, 2001). Schafheutle et al. (2001) proposed two possible reasons for inadequate care, including a) the absence of curriculum content related to pain management in nursing and medical education, and b) faculty attitudes and beliefs related to chronic pain. Suboptimal pain management can lead to increased patient distress, which can in turn be distressing for caregivers (Ferrell-Torry & Glick, 1993). Similarly, due to the subjective nature of pain reporting, nurses working with chronic pain populations often face difficult decisions about pharmacological pain management.

Given the complicated presentation of chronic pain and the lack of relief provided solely by pharmacological interventions (Huertas-Ceballos et al., 2008), nurses are faced with tough decisions about pain management and often cannot effectively lower their patient's pain while in the hospital. Moreover, factors beyond the nurses' control may hinder their ability to provide optimal care for patients and families (Austin, Berum, & Goldberg, 2003). When nurses face impediments to what they perceive as moral practice (e.g., providing patients with pain relief), they may be subject to the frustration and inner turmoil of moral distress (De Villers & DeVon, 2012). Moral distress has been defined as the painful feelings and/or psychological disequilibrium that occur when nurses are aware of the morally appropriate action (e.g.,

providing pain relief), but they cannot carry out that action because of obstacles (Jameton, 1984). These obstacles to morally acceptable care can include a lack of time; reluctance from supervisors; and/or being inhibited by the medical power structure, institutional policy, or legal constraints (Corley, Minick, Elswick, & Jacobs, 2005). Both nurse moral distress and burnout have been found to be related to decreased quality of care for the patient or client, as well as psychological and physical problems for the service provider and eventual premature exit from the profession (Aiken et al, 2001; Hamric & Blackhall, 2007; Medland, Howard-Ruben, & Whitaker, 2004). It is therefore important to identify specific factors contributing to moral distress and burnout in pediatric abdominal pain nurses in hopes of developing interventions to better meet the needs of nurses.

In one qualitative study of nurses working with children with a variety chronic conditions, 20 nurses were interviewed about their experiences with compassion-fatigue and burnout (Maytum, Heiman, & Garwick, 2004). Nurses in this study identified personal and work-related contributors to burnout and distress including seeing too many painful procedures, witnessing too much sadness and death, and becoming overly involved and crossing professional boundaries. They identified environmental stressors specific to chronic pain populations including regular exposure to pain and suffering, ever-changing technology, and challenging institutional and ethical issues. This study was an important first step in identifying prevalence of burnout in nurse populations that work specifically with patients with chronic conditions; however, the findings are limited because a) all chronic conditions were combined into one sample, with no elaboration on the specific patient populations included and b) the results are based solely on qualitative analyses and generalizability may be limited. Furthermore, no

distinction was made between general chronic conditions and chronic conditions that had a pain component.

1.5 Predictors of Burnout in Pediatric Chronic Abdominal Pain Nursing

Given the detrimental effects of stress and burnout in nursing, it is critical to identify contributors that might be targeted for intervention. A number of stressors have been identified including working long hours, having little power and control over patient care decisions, providing emotional support to patient and families, and witnessing traumatic illness events and patient deaths (Aiken et al., 2001; Aiken, Clarke, Sloane, Sochalski, & Silber, 2002; Decker, Bailey, & Westergaard, 2002). These predictors for burnout have been identified in studies combining large samples of nurses working across a range of settings and services; there are likely important distinctions in stress and burnout when examining unique environments. Unfortunately, there is a dearth of studies examining stress and burnout in nurses working with specific pediatric populations.

Despite the lack of empirical evidence exploring burnout and distress in nurses who specifically work with chronic abdominal pain patients, several theories can be applied to the challenges these nurses face. Stanley and Pollard (2013) applied self-efficacy theory to nurse management of pediatric pain. Bandura (1997) defined self-efficacy as a person's beliefs in his or her ability to perform a specific task successfully. Bandura posited that self-efficacy is influenced by cognitive, affective, motivational, and self-actualization psychological processes. When working with chronic abdominal pain patients, a nurse might reflect on and doubt his/her self-efficacy, as often there is little success in long-term pain management. Extended exposure to feelings of failure, and therefore decreased feelings of self-efficacy, could contribute to burnout and distress.

A recent body of literature has examined the role of attribution theory in relation to the management of pain (De Ruddere, Goubert, Stevens, de C Williams, & Crombez, 2013; Lundquist, Higgins, & Prkachin, 2002). Theories of attribution describe the processes by which individuals explain the events that occur around them, traditionally focusing on the perceived causality of behaviors and events (Finchman & Jaspars, 1980). Researchers evaluating attribution theory in chronic pain populations has suggested that individuals who are perceived as being responsible for their illness will evoke less sympathy and more anger from caretakers. Subsequently, these caretakers will be less willing to help their patients. For example, De Ruddere et al. (2013) reported that patients with undiagnosed conditions evoke less sympathy and help from general practitioners and physiotherapists. Often, patients with chronic abdominal pain do not receive specific medical diagnoses, which could contribute to negative attributions from their healthcare providers. These attributions could result in more depersonalization, a core feature of burnout that refers to the development of negative, cynical attitudes towards the recipients of one's service or care (Demerouti, Bakker, Nachreiner, & Schaufeli, 2000).

Additionally, some researchers have applied a framework of cognitive dissonance onto the changes that nurses go through upon "socializing" into the practice environment when their initial ideals about nursing are challenged by the realities of real-world practice (Mackintosh, 2006). Specifically, although nurses would enter the profession defining "caring compassion" as a core feature of their job, MacIntosh et al. (2006) described a process in which nurses would move away from the caring nature of nursing until they could develop a nursing identity that was compatible with the complexity and challenges of their roles. Day, Field, Campbell, & Reutter (2005) elaborated on this idea, by identifying that nurses moved away from defining care as "compassion" to defining care as "competence" when faced with a practice setting imposed by

business standards, professional regulations and work environment expectations. Wilson and McSherry (2006) looked specifically at the influences of clinical experience on nurses' knowledge of pain. They elaborated on the situations that these nurses confront focusing on the lack of control nurses have over pain management decisions, and in particular over choices around medicating. When nurses have the knowledge that their patients are in pain, but cannot manage their pain experience, it may generate a state of cognitive dissonance (Festinger, 1957). Nurses may then distance themselves from the situation by denying their knowledge base, and/or rationalizing and denying the patient's pain reports (Wilson & McSherry, 2006). By removing nurses' autonomy and control over the situation, cognitive dissonance is likely to increase and may result in defending or ignoring the stressor (i.e., the patient's pain reports).

1.6 Current Study and Aims

It is well established that nurses' experience increased workplace pressure, which puts them at risk for chronic stress and job burnout. Burnout can lead to psychological and physical problems, decreased quality of care, and premature exit from the profession (Aiken et al., 2001; Medland, Howard-Ruben, & Whitaker, 2004). Studies have identified predictors of burnout in multiple service occupations, but there are differences across settings that are critical to consider.

In this two-phase embedded mixed-methodology study, both qualitative and quantitative methods were used to examine predictors of nurse distress and burnout when working with pediatric patients with chronic abdominal pain. Mixed-methods research combines strengths from both qualitative and quantitative approaches to obtain a richer understanding of human experience, and this methodology has been identified as specifically valuable to understanding the complex phenomena that occur within the health services field (Zhang & Creswell, 2013). Zhang and Creswell (2013) identified three procedures for combining mixed-methods research in

health services research - integration, connection, or embedding. Given the lack of empirical research in burnout with chronic pain nurses, qualitative methodology, working from a constructivist paradigm, was employed to gain insight into the complex dynamic phenomena of burnout in pediatric chronic pain nurses. A constructivist paradigm allows the researcher to recognize that reality is often socially constructed and therefore rely upon the participants' views of the situation to gain understanding (Creswell, 2012). Inductive qualitative methods better allow for the recognition of previously unknown systems, explanations of why and how phenomena occur, and the range of their consequences (Pasick et al., 2009). Then, via a sequential embedded design, the results of the qualitative analysis and the extant literature were used to develop a model of nurse burnout that could be assessed via a quantitative battery. The quantitative portion of this embedded design was used to test and revise the emergent framework for further study of the pediatric chronic pain nursing experience.

The overall purpose of study 1 was to use qualitative methods to evaluate predictors of burnout in a sample of nurses that work with children with chronic abdominal pain. An inductive qualitative approach was used to explore whether the nurses' narratives included challenges to pediatric chronic pain care that are in line with the models and theories of nurse distress in the extant literature. However, as with most clinically based research, it was anticipated that there would be multiple etiological pathways predicting distress and burnout.

2 STUDY ONE METHODS

2.1 Participants

This study employed framework analysis to determine commonalities and differences in nurse focus group reports of contributors to and protectors against burnout. Participants included nurses at CHOA's Scottish Rite Children's Hospital, on the inpatient gastrointestinal unit that

admits youth with abdominal pain conditions (e.g., FAP, IBD). Hospital administration had identified this unit as experiencing a high level of staff turnover and requested the support of psychology services to determine contributing factors and points of intervention. All nurses working on the gastrointestinal unit of Scottish Rite Children's Hospital were invited to participate in the focus groups, which were held during regularly scheduled staff meetings. Focus groups were conducted until theoretical saturation occurred (Glaser & Strauss, 1967), at which point no new narratives were emerging. Four focus groups were conducted with 8 nurses per group (n = 32).

2.2 Procedures

Four separate focus group discussions were conducted over three scheduled staff meetings. Nurses were informed prior to attendance about the research participation opportunity and were read a waiver of documentation of consent that was approved through hospital institutional review board (IRB) as sensitive information about job satisfaction would be discussed, and signatures on consent forms would identify the participants. A script outlining focus group procedure and confidentiality was read and research personnel documented verbal consent (Appendix A). Focus groups typically lasted 60-75 minutes and were conducted using open-ended questions to explore issues most important to the interviewees surrounding their chronic pain nursing experiences. Semi-structured discussions were led by trained research staff covering topics of contributors to nurse burnout, knowledge and use of non-pharmacological pain management strategies, currently utilized coping methods for dealing with job frustration, and ideas for effective interventions that could help alleviate nurse distress (Appendix A). Research staff leading the discussions began the groups with the same broad statement: "Tell me about the issues that are involved with caring for patients with chronic pain." From there,

research participants largely motivated conversation, with prompts given as necessary. Group discussions were audiotaped and a researcher was present to document any non-verbal communication that may have been relevant for analysis. As reactivity is a concern when conducting focus-group discussions, the audiotaping was acknowledged at the beginning of the session but was not intrusive or overly apparent during discussion. Furthermore, we requested that hospital management and unit leaders not be present for the focus groups in hopes of increasing the likelihood of open and honest discussion. Confidentiality and benefits of honest participation were highlighted during verbal consent.

The qualitative portion of this study focused on gaining an understanding of the shared experience nurses had when working with patients with chronic abdominal pain and specifically how this experience leads to burnout. The goals of this study align with a phenomenological analytic method, with the focus on understanding the common, shared experience of the nurses in the study (Creswell, 2013). By exploring the phenomenon of burnout on the unit, nurses were asked to explain the "what" and "how" of their experiences while caring for children with chronic abdominal pain (Moustakas, 1994). However, in the interest of going beyond simply identifying common themes in the focus group discussions, the analysis was expanded to focus on relationships between different elements of the data that would base expectations of construct relationships for the explorative quantitative portion of the study. Thus, the qualitative analysis of the focus-group data utilized the Framework Method, which can be adapted for use with a phenomenological qualitative approach (Gale, Heath, Cameron, Rashid, & Redwood, 2013). Although this method does not align with a particular epistemological, philosophical, or theoretical approach, the Framework Method is most commonly used for the thematic analysis of semi-structured interview transcripts and allows the researcher to draw descriptive and/or

explanatory conclusions clustered around themes (Gale et al., 2013) and produces highly structured outputs of summarized data (Pope, Ziebland, & Mays, 2000).

3 STUDY ONE DATA ANALYSIS

All data were tape-recorded, transcribed, anonymized, and then analyzed using the framework approach. This consisted of five phases: 1) familiarization, 2) identification of a thematic framework, 3) indexing, 4) charting, and 5) mapping and interpretation. The familiarization state involved immersion in the data by the two coders. This included attending focus group discussions, listening to the tapes, and re-reading the transcripts and field notes. In developing the thematic framework, a combined inductive and deductive approach was utilized. Specifically, topics from the interview topic guide (Appendix A) were suggested as themes, but the coders also allowed for inductive theme development by allowing for open (unrestricted) coding, followed by refinement of themes. Gale et al. (2013) suggests that a combined approach is appropriate when the project has specific issues to explore (i.e., moral distress, barriers, ideas for change), but also aims to allow for the discovery of unexpected aspects of the participants' experience or the way they assign meaning to that phenomena. Furthermore, if topics from the interview topic guide did not result in much discussion or identifiable thematic elements, they were not forced upon the data (i.e., ideas for change did not apply to the data as this discussion topic did not spur much unique conversation, but rather further identification of barriers). Both coders were involved in thematic selection and met regularly during coding to revise the thematic framework. Following thematic selection, indexing was done by systematically applying the thematic framework to all interview transcripts. During this component, both coders applied themes to sections of each of the four focus groups until reliability was achieved. In order to ensure consensus and reliability in code assignment, inter-rater reliability was assessed

after 25% of the data had been coded, and coders met to discuss any areas of confusion in the codes and definitions. Below satisfactory agreement ($\kappa < .60$; Stemler, 2001), was resolved through modifying the code conceptualization and thematic framework to ensure a better fit with the data and an additional 25% of the data was double-coded. Once reliability was established, one coder continued to index the remaining 50% of the data. During the charting phase, quotes were lifted from its original context and rearranged according to theme. Finally, during the mapping and interpretive phase, quotes were compared and contrasted and examined to develop patterns and explanations within the data. Miles, Huberman, and Saldana (2014) identified guidelines to help maintain objectivity when interpreting findings. They emphasized that logical connections could be drawn between themes when patterns appear in multiple cases that are found in expected places and counterexamples can be explained. Furthermore, they suggested that produced networks could then be used to note the relationships between variables and identify intervening variables. These processes were used to develop the proposed model framework. Finally, focus group transcripts and codes were analyzed at a holistic level to look for trends in conversation flow between focus groups. Analysis of the data was aided by the computer software package Atlas.ti.

4 STUDY ONE QUALITATIVE ANALYSIS

The purpose of this study was to gain an understanding of the shared experience nurses have when working with patients with chronic abdominal pain and specifically how this experience leads to burnout. The analysis revealed the following six major themes: negative pain beliefs, barriers to effective pain management, nurse empathy/compassion, moral distress, coping methods, and burnout. Miles et al. (2014) identified parallelism across data sources as an important consideration when assessing data reliability. Although each focus group was

conducted independently with different nurses in each group and even different discussion leaders, all four focus groups revealed similar progression in topic discussions (Figure 1). The six themes will be discussed in line with the general flow of conversation. When applicable, emergent themes will be related to relevant theoretical models and the extant literature.

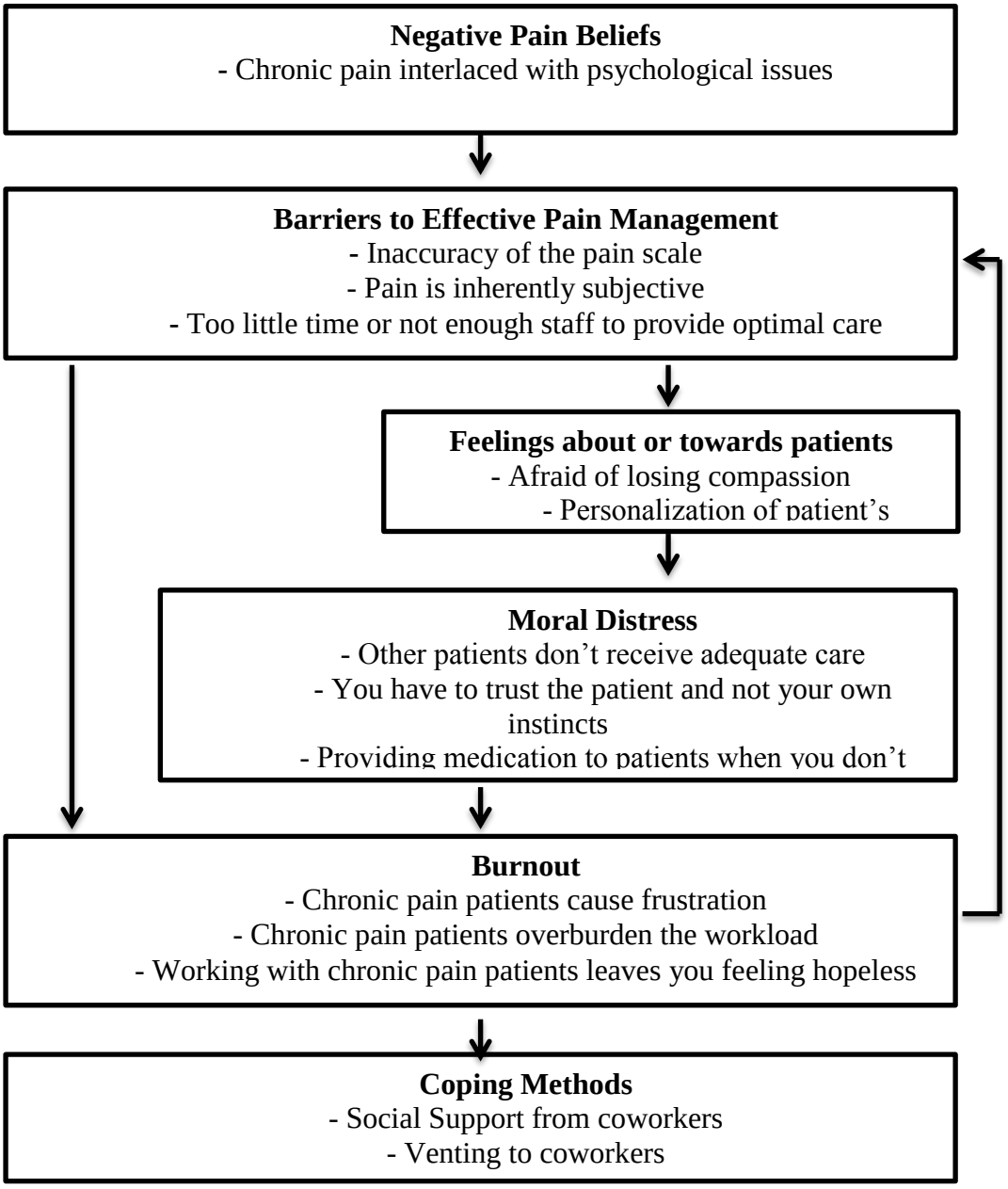

Figure 1 Outline of Focus Groups Conversation Flow.

4.1 Negative Pain Beliefs

Negative pain beliefs emerged as a prominent theme in all four focus groups. Specific to the chronic pain population, nurses expressed frustration about the subjective nature of pain and difficulties assessing pain which led to negative views their patients (i.e., finding them annoying, not believing their pain reports, thinking they were drug-seeking). Interestingly, each focus group began with one nurse describing the frustrations that arise when not believing a patient's pain report. For example, the respondent quoted below was the first to speak and the comment was echoed in other focus groups:

> "I'll start. I think one of our biggest issues is, um, in nursing we learn that pain is what the patient tells us it is, and unfortunately sometimes on our floor there's a big difference in what the patient is telling us their pain is and what their pain actually is. [FG 3]"

Similarly, in another focus group, a nurse began the discussion by saying:

> "I think our biggest issue is with the chronic kids and their pain. Are they really hurting that much? They feel like they're a ten out of a ten on a pain scale, but just looking at them, they don't look like they're in pain. They're watching TV, they're very distractible, and as far as nursing goes, you're supposed to rely on the patient and their report of the pain to decide what to do for them, so it's challenging. [FG 4]"

The negative pain belief theme included statements that referenced the interplay of pain and psychological issues, the distrust of pain reports due to patient presentation, and the beliefs that chronic pain patients are often seeking drugs and overly medicated. These comments were frequent and align with the literature support for cognitive dissonance when managing a subjective patient experience and balancing hospital guidelines. This theme highlights the lack of

autonomy in pain management decisions. This might serve the function of allowing the nurse to distance herself from the patient. By adding the cognition that the patient is lying or over-endorsing, she might reduce the dissonance experienced when potentially incorrectly medicating a young patient. Several studies have identified misconceptions in nurses' beliefs about pain (Ferrell, McGuire, & Donovan, 1993; Layman, Horton & Davidhizar, 2006) but have not examined the relations between these beliefs and moral distress or burnout.

Furthermore in line with the negative attribution theory, nurses often emphasized the psychological aspects of pain along with their negative comments about patients. Given the lack of understanding around the cause of chronic abdominal pain, chronic pain patients may evoke less empathy and result in more depersonalization (Demerouti et al., 2000):

> "I mean abdominal pain has so many potential causes and it can be so psychological. This is a fabulous place to come if you happen to have psychologically based abdominal pain because everyone's really nice to you, there are fun things to do, and it's a break from anything in your life that sucks. So, no, your pain is never going to go away."

4.2 Pain Management Barriers

Often, discussions about negative pain beliefs led quickly to discussion of the barriers in place to providing optimal care. Nurses in all four focus groups discussed barriers that they perceived hindering their care. These included limitations of current pain assessments in accurately measuring their patients' pain, difficulties and issues of distrust with the parents of the patients, and managing their time given the excessive time demands required by chronic pain patients:

> "Well, I'm frustrated. I get frustrated when I have a lot of other patients that really need me. I feel like I'm almost wasting my time when I feel like they're taking a lot of my time and effort when I have to go give them pain medicine, when I know and see and don't think they're actually in pain."

Nurses discussed how parents can be barriers or impediments in their provision of nursing services:

> "I would say 90% of the time, parents are gonna believe whatever their child says. So it becomes a very sticky situation from a nursing standpoint when the parent is feeling that the pain their child is reporting is legitimate and from a nursing standpoint you kind of have a strong suspicion that it's not. I mean telling a parent that… they look at you like, 'I can't believe you would ever suggest that my child is not reporting their pain accurately.' It's a very sticky situation."

Nurses also reported difficulties with the pain scale that contributed to the inability to obtain accurate pain reports:

> "And sometimes I wonder how true the pain scale is because I know at their age that they're supposed to be using the numeric scale versus the FLACC scale, but sometimes I don't really think that the kids really understand what the pain scale is."

Another stated:

> "Because this is the worst pain they've ever been in and to us it may look like a 3. But if it's the worst pain they've ever been in, then they're like, 'oh gosh, well I'm a 10 then."

The barriers nurses described seemed to contribute both to their moral distress about the treatment they provide and to their levels of emotional exhaustion. Studies have shown that

pediatric nurses have continuously reported multiple barriers that interfere with their ability to provide optimal pain management (Byrd, Gonsalez, & Parsons, 2009; Czarnecki et al., 2011; Gimbler-Berglund, Ljusegren, & Enskar, 2008). However, no studies to date have examined how these pain management barrier perceptions might relate to moral distress and burnout. Although specific pain-related barriers have not been studied, general barriers to optimal care like under-staffing, poor staff training, and monetary limitations (either in the form of hospital resources or patient ability to pay for treatment) have been shown to contribute to both burnout and moral distress in nurses (Burston, & Tuckett, 2012; Corley et al., 2005; Levert, Lucas, & Ortlepp, 2000).

4.3 Nurse Empathy/Compassion

Two divergent themes emerged in the area of nurse empathy and compassion. On the one hand, nurses talked about their fears of losing or having already lost compassion for their patients, and, on the other hand, nurses talked about actively trying to empathize and understand their patients' experience and behaviors.

Specifically, with discussions of loss of compassion, nurses often referenced cognitive dissonance, although not using the exact term. For example:

> "It's frustrating and I know I also feel a lot of guilt because we got into this business to make people feel better and we are sitting there judging and rolling our eyes. It's hard because that's conflicting. We as nurses want to make them feel better, but then in the back of my mind I'm like, 'Oh, you're so full of it.' I don't want to feel that way about my patients, but sometimes it's hard not to and so you try to get that. The frustration and the guilty feeling of wanting to help but that feeling that you're just perpetuating a non-medical need for pain medication."

Nurses' fears of losing compassion were often coupled with statements that this loss of compassion increases as they spend more time on the unit:

> "I was kind of blown away when I first started working here, realizing that these types of issues with pain management with kids and with their parents. It just, you know, it's not something you think happens until you actually see it and so I think unfortunately the more experience you have, usually the more negative experiences have with children's pain management and how their families handle it. And so you just kind of get more and more set in your negative ways of seeing things."

Contrary to this qualitative finding, studies of nurse burnout that have quantitatively examined years of experience have either found no significant relation with burnout variables or have found that more experienced workers have significantly lower burnout than less experienced nurses (Breen & Sweeny, 2012; Laschinger, Wong, & Grau, 2013). Breen and Sweeny (2012) hypothesized that more experienced nurses may have learned to better manage their emotions during stressful situations than younger nurses, which would explain this finding.

Although many nurses spoke to losing compassion as they spent more time on the unit, there were some nurse responses that evidenced an effort to empathize and understand their patients' behaviors:

> "It's disheartening and it's sad. You just feel like with those kids you're not getting any headway with them. So it's frustrating not only for us, but I think it's also frustrating to the patient. I think that's why a lot times they act the way they do and they lash out. It's because they're kind of feeling the same thing, but only a different perspective."

Nurses described being able to cope better with frustration when they were able to empathize and take the perspective of their patients or their patients' parents. Several studies have found a negative relation between empathy and burnout (Astrom, Nilsson, Norberg, & Winblad, 1990; Lee, Song, Cho, Lee, & Daly, 2002; Miller, Stiff, & Ellis, 1988).

> "See I think because they're chronically in pain, they get used to a certain amount of pain at home all the time and they come here and they know that they can get something for it that might actually help. So even when they're playing and stuff like that, there may be a degree of pain there that normally at home is not treated because they don't have the opportunity to do so."

4.4 Moral Distress

Given the literature on moral distress (i.e., the feeling of distress that results from knowing the right thing to do, but being prevented from doing so due to institutional constraints), this concept was somewhat deductively examined as discussions of experiencing moral conflict were led by research staff during the focus groups. That said, it is likely that this theme would have emerged organically as nurses often discussed the distress surrounding medicating pain that they were not sure even existed. This theme encompassed feelings around pain medication (both over-medicating and incorrectly treating), time burdens that affected their care of other patients, and the distress surrounding ignoring one's own nursing instincts.

Nurses often discussed the distress over basing patient medication decisions on patient pain reports and expanded on both sides of the issue: when they believe patients are over-reporting and when they believe they are underreporting:

> "I think that's almost more taxing on our emotions. Like we mostly see where they ask for it more and I think that's kind of wearing you down. Almost like annoying

and tired of it and feeling like you're drugging someone you shouldn't. But the other side of it, that's emotionally difficult to sit and see your patient like that."

Discussions about moral distress often resulted in commenting on the lack of autonomy nurses feel, specifically at times when their instincts do not align with patient reports and hospital mandates:

"And I feel guilty for like a weird reason, by not being upfront and honest with the family sometimes. 'This is what I think is going on,' and instead just kind of going through the motions of what I'm supposed to do. 'Oh, your pain is a 9 out of 10. Okay, let me go get you the morphine.' I'm never addressing the issues like 'Hey mom, I think your kid is not expressing their pain in the correct way.' It's sad to say it, but that takes so much time and effort and risk to be able to do that and have those conversations that are probably really needed and instead I feel guilty cause I'm just like, 'Well, what can I do about it?' So I just go about my daily business and give the kid the pain meds while in the back of my mind I'm rolling my eyes and thinking, 'This is not, this is not the heart of the problem.'"

Moral distress has been examined in various nursing populations (e.g., Austin et al., 2008; Elpern, Covert, & Kleinpell, 2005), but to our knowledge, there has not been a study examining moral distress in nurses who specifically work with pediatric pain patients. However, in the general nursing moral distress literature, moral distress has been identified as a significant contributor to nursing turnover, burnout, and exit from the nursing profession (Aiken et al., 2002; Corley, 1995; Sundin-Huard & Fahy, 1999). This literature has mostly been conducted with nurses who work with adult patients (e.g., Elpern et al., 2005; Hamric & Blackhall, 2007; Zuzelo, 2007). Within the pediatric field, the literature has mostly focused on nurses who work

with cancer, intensive care, or neonatal populations (e.g., Austin et al., 2003; Caveliere, Daly, Dowling, & Montgomery, 2010; Sabo, 2008).

4.5 Burnout

As evidenced above, feelings of burnout were often interlaced through all of the themes and these feelings progressively strengthened as discussion continued during the focus groups. The burnout theme included expressions of frustration, overburden of their workload, and the general hopelessness of dealing with a chronic condition. Many nurses referenced the cyclical nature of chronic pain and the lack of improvement they see in their patients:

> "I think people's frustration is too, you go home that night and you come back and it's just the same cycle over and over so we feel like we're not really helping the patient. We're not doing what's best for them. There's no fix. It's just this every time they're here and everyday we're just doing the same things."

These issues that lead to their frustration could relate to the self-efficacy theory (Stanley & Pollard, 2013). Although nurses might be conducting their job correctly, they may not receive the same reinforcement in feelings of self-efficacy when there is no cure and specifically when they actually fear that they are contributing to the problem:

> "In a lot of these kids you don't see a difference. Actually they get worse. They become more depressed, withdrawn, which stems them getting more and more pain medicine because they're combatting that along with their chronic pain. I don't know if we send them out any better than we take them in."

4.6 Coping Methods

After extended discussions of contributors to their burnout experiences, nurses were encouraged to discuss the coping methods they utilize to combat these negative feelings. Nurses in every focus group strongly emphasized the social support that they receive on the unit:

> "We watch out for each other and you don't even have to ask for help. Sometimes they can just see you and they pick up on it. Voicing our concerns and sharing with each other and supporting each other is a very common thing... I think the main reason, with everything else aside, I think the only thing that really keeps a lot us on our floor is the camaraderie between our group."

Several studies of nurse burnout have found that high levels of social support are associated with low levels of burnout (Jenkins & Elliott, 2004; Kilfedder et al., 2001; Sullivan, 1993). Although all nurses brought this up as a positive coping method, there was a distinction between those that discussed receiving actual support and those that just discussed being able to complain or vent to their coworkers:

> "The frustration, the weariness of the patients. Sometimes the patients are just so taxing, the nurses have to vent. They have to let it out, so we vent with each other, which is okay as long as we're doing it in private. Not in front of patients, but it does affect everyone."

5 STUDY TWO INTRODUCTION

The themes identified in study one were evaluated in light of the applied theoretical models and the extant literature to form a model of nurse burnout with specified predictors and moderators (The Pediatric Chronic Pain Nurse Burnout Model, Figure 2). Two

additional moderators were included upon review of the extant literature: self-efficacy and views of hospital environment.

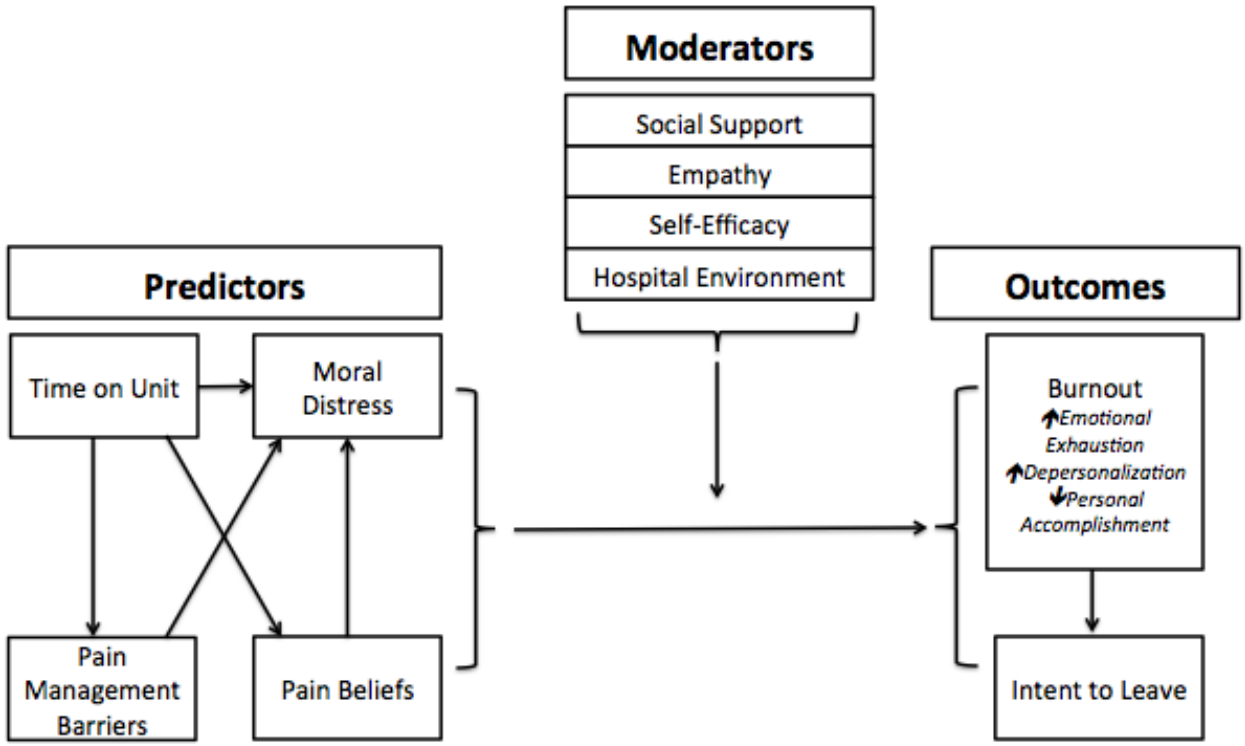

Figure 2 The Proposed Pediatric Chronic Pain Nurse Burnout Model

Although Bandura's theory of self-efficacy was expected to be applicable to this population, self-efficacy did not arise as a theme from the preliminary analyses of the focus group data beyond discussions of the hopelessness of patient's prognoses. This may not be surprising because talking about one's own worth and abilities in a group of peers might be viewed as bragging and thus be discouraged. In addition, the idea that self-efficacy decreases burnout has been found in multiple studies (Van Dierendonck, Schaufeli, & Sixma, 1994; VanYperen, 1998). Given the strong support for the role of self-efficacy in examining burnout, it was included as a potential moderator of the relations between the suggested predictors and burnout. Similar to previous studies, negative correlations are expected to be found between self-

efficacy beliefs and burnout and for self-efficacy to moderate the relations between the suggested predictors and burnout.

Hospital environment also did not arise as a theme from the analysis of the focus group data. Nurses spoke about environmental barriers that were specific to their patients' pain experiences, but did not raise issues specific to hospital management. While it is possible that nurses are completely satisfied with the hospital environment, it is also possible that participants did not feel comfortable voicing negative opinions about the hospital environment (e.g., management, staffing, organizational support) during a group setting in the hospital. In the nursing burnout literature, hospital environment has been consistently identified as a major contributor to increased burnout in nursing staff (Bogaert, Clarke, Willems & Mondelaers, 2012; Bowers, Allan, Simpson, Jones, & Whittington, 2009; Kilfedder et al., 2001). In fact, a study conducted by Kanai-Pak, Aiken, Sloane, and Poghosyan (2008) examined predictors of burnout in 5,956 staff nurses in Japan and found that nurses in poorly staffed hospitals were 50% more likely to exhibit burnout than nurses in better-staffed hospitals. Similarly, a study examining favorable practice environments and burnout in psychiatric nurses found that higher ratings of manager skill, leadership ability, and nurse-physician relations were significantly related to decreased emotional exhaustion and depersonalization on measures of burnout (Hanrahan, Aiken, McClaine, & Hanlon, 2010). Similar results are expected to be found with more negative ratings of practice environment to be associated with higher burnout. Conversely, it is possible that work environment did not appear as a theme in the qualitative focus groups because nurses on this unit do not believe that their practice environment is an issue. If this is a case, a good practice environment may be protecting against the predictors in the model from leading to burnout.

Additionally, intent to leave was included as a model outcome as job turnover has been an identified issue on the unit. Not surprisingly, nurses did not discuss intention to leave their jobs in the focus groups sessions, but a number of studies have shown that job turnover is significantly higher among nurses experiencing burnout (Hasselhorn, Tackenberg, & Muller, 2003; Larrabee et al., 2003). If this same association is found, specific predictors and moderators in the model can be examined in hopes of better predicting the likelihood of one leaving his/her current job.

Prior to the administration of the quantitative battery, the research team met with a select group of representatives from the nurse unit (nurse manager and charge nurses) to discuss the results of the qualitative analysis. Miles et al. (2014) discusses testing the internal validity, credibility, and authenticity of qualitative results through discussion with the people being studied. At this stage of the study, the nurse staff consistently commented that the findings from the analysis did allow the reader to vicariously live the nurses' experience and accurately depicted the views of the nurses on the unit. Given this validation, the research team moved forward in attempt to further test validity of the findings, by triangulating the data with quantitative data.

5.1 Primary Aims for Study Two

The purpose of the current study was to quantitatively examine the applicability of the proposed model (Figure 2). Specifically, this study aimed to assess the unique contributions of four identified predictors (time on unit, perceived pain management barriers, pain beliefs, and moral distress) on burnout in nurses who work with pediatric patients with chronic abdominal pain. Furthermore, this study hoped to determine whether social support, empathy, self-efficacy,

and/or hospital environment moderate the relations between each of the four predictors and burnout.

Due to limitations of sample size (all inpatient pediatric GI nurses in Atlanta were eligible for participation), and the number of different predictors and moderators included in the model, advanced statistical techniques (e.g., structural equation modeling) were not appropriate. Thus, correlational analyses with all study variables were conducted to examine whether the predictive variables (proposed predictors and moderators) are related to the burnout outcome variables (i.e., emotional exhaustion, depersonalization, and personal accomplishment) in the expected directions (Figure 3). Given the qualitative findings and the review of the literature outlined above, it hypothesized that time on unit, moral distress, perceived pain management barriers, negative pain beliefs, and negative views of the hospital environment would be positively correlated with emotional exhaustion and depersonalization and negatively correlated with personal accomplishment (Figure 3).

⇑ Emotional Exhaustion	⇑ Time on Unit ⇑ Moral Distress Scale ⇑ Moral Distress Thermometer ⇑ Perceived Pain Management Barriers ⇑ Negative Pain Beliefs ⇓ Coworker Social Support ⇓ Empathy ⇓ Self-Efficacy ⇑ Negative Views of the Hospital Environment
⇑ Depersonalization	⇑ Time on Unit ⇑ Moral Distress Scale ⇑ Moral Distress Thermometer ⇑ Perceived Pain Management Barriers ⇑ Negative Pain Beliefs ⇓ Coworker Social Support ⇓ Empathy ⇓ Self-Efficacy ⇑ Negative Views of the Hospital Environment
⇑ Personal Accomplishment	⇓ Time on Unit ⇓ Moral Distress Scale ⇓ Moral Distress Thermometer ⇓ Perceived Pain Management Barriers ⇓ Negative Pain Beliefs ⇑ Coworker Social Support ⇑ Empathy ⇑ Self-Efficacy ⇓ Negative Views of the Hospital Environment

Figure 3 Expected Directions of Bivariate Correlational Analyses Between Proposed Predictors, Moderators, and Model Outcomes

Furthermore, it was hypothesized that social support, empathy, and self-efficacy would be negatively correlated with emotional exhaustion and depersonalization and positively correlated with personal accomplishment. Subsequently, four predicted moderation relationships were analyzed. Specifically, empathy and the hospital environment were examined as potential moderators of the perceived pain management – emotional exhaustion relation (Figure 4). They were also examined as potential moderators of the negative pain beliefs – emotional exhaustion relation (Figure 5). Emotional exhaustion was chosen as the primary outcome variable as recent literature has suggested that it provides the most consistent relationship within the burnout nomological network (Halbesleben & Bowler, 2007).

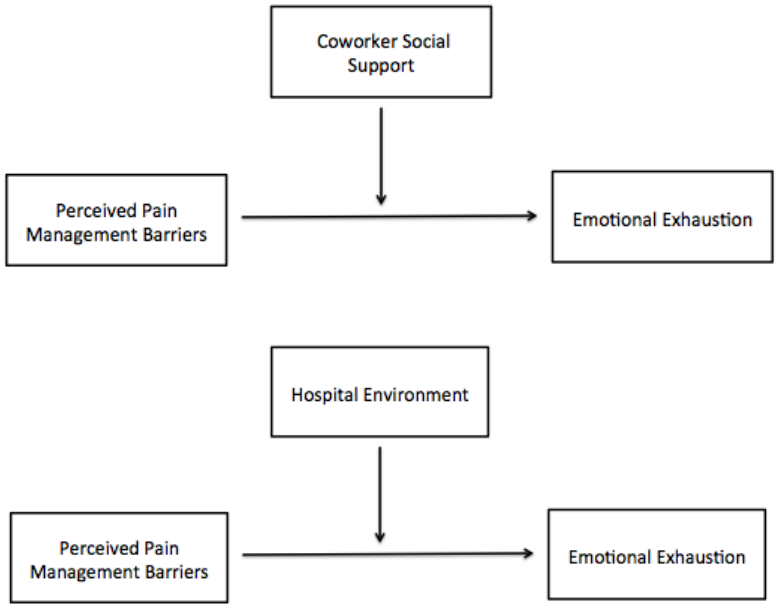

Figure 4 Hypothesized moderations between barriers and emotional exhaustion

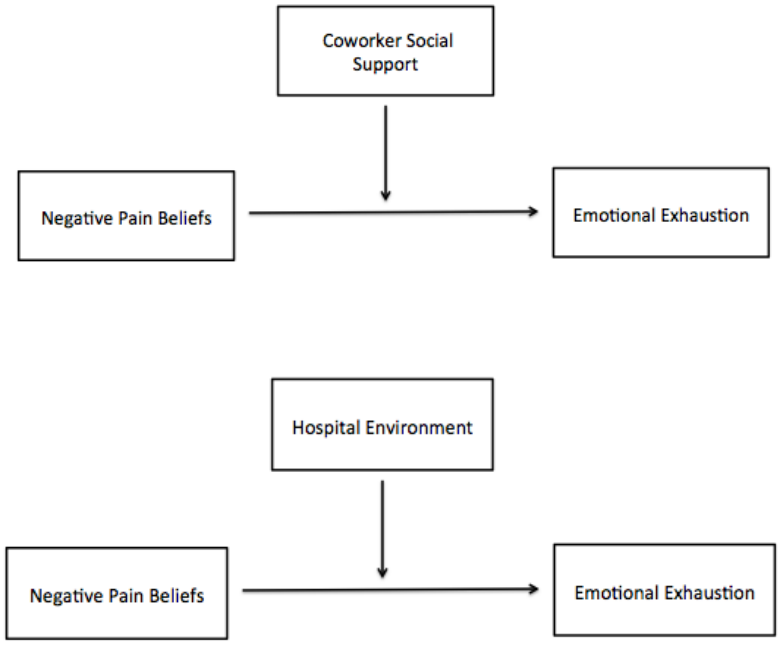

Figure 5 Hypothesized moderations between pain beliefs and emotional exhaustion

It was expected that for those nurses who report increased empathy, there would not be a significant relation between perceived pain barriers and emotional exhaustion. However, it was hypothesized that perceived pain barriers would predict emotional exhaustion if there is decreased empathy. Similarly, it was hypothesized that negative views of the hospital environment would accentuate the positive relation between perceived pain management barriers and emotional exhaustion whereas positive reports of the hospital environment would buffer pain management barriers from impacting emotional exhaustion. It was expected that these same relationships would be found in the following two moderation analyses, where negative pain beliefs will be exchanged for perceived pain barriers.

6 STUDY TWO METHODS

6.1 Participants

Given logistical limitations on enrollment, the power analysis assumed that this study would only have enough power to examine moderation effects individually with proposed predictors and moderators. Thus, a power analysis (G-Power; Erdfelder, Faul, & Buchner, 1996) was conducted to determine the sample that would be needed to detect a moderation effect. A conservative medium effect size (f^2) of .20 was chosen based on a prior effect of .19 found in a prior study linking current stress exposure to nurse burnout, moderated by group cohesion (i.e., coworker social support; Li, Early, Mahrer, Klaristenfeld, & Gold, 2013). It was determined that 52 participants would provide adequate power (.80) to test this hypothesized effect. All nurses on both GI units in CHOA hospital network were approached for study participation. Forty-one nurses were enrolled in the study, thus the moderation analyses were underpowered. Results from this study represent population parameters, as all eligible GI CHOA nurses enrolled in the study.

Participants included 41 nurses working at the CHOA hospitals. Twenty-seven nurses were recruited from the CHOA Gastrointestinal unit at Scottish Rite Children's Hospital and fourteen nurses from Egleston Children's Hospital. All nurses in each unit were eligible for participation.

A waiver of documentation of consent was approved through the CHOA IRB as sensitive information about job satisfaction was collected and a signature on the consent form would identify participating nurses. An IRB approved cover letter (Appendix B) was attached to copies of the quantitative battery that were administered at regularly scheduled staff meetings and handed out on the unit. This cover letter outlines the goals of the study, a brief description of questionnaires, issues of confidentiality, the risks and benefits of participation, and the right to withdraw.

6.2 Procedures

The questionnaire battery and cover letter were administered at staff meetings for each abdominal pain unit at Scottish Rite and Egleston hospitals or handed out on the unit to nurses who were not present at the meetings. A research coordinator was present to assist in the distribution and collection of questionnaire packets. In order to assist those who have difficulty in following and understanding questions in assessment measures, the research coordinator was trained on how to read and administer questionnaires in a way that was objective so as not to influence the way nurses answer the questions. There was no monetary compensation for participation, but snacks were provided in the room where questionnaires were completed.

6.3 Measures

The development of the questionnaire battery was a result of the thematic analyses and subsequent literature review. Literature reviews were conducted to determine the best measures to quantitatively assess identified constructs in the proposed model (Figure 6).

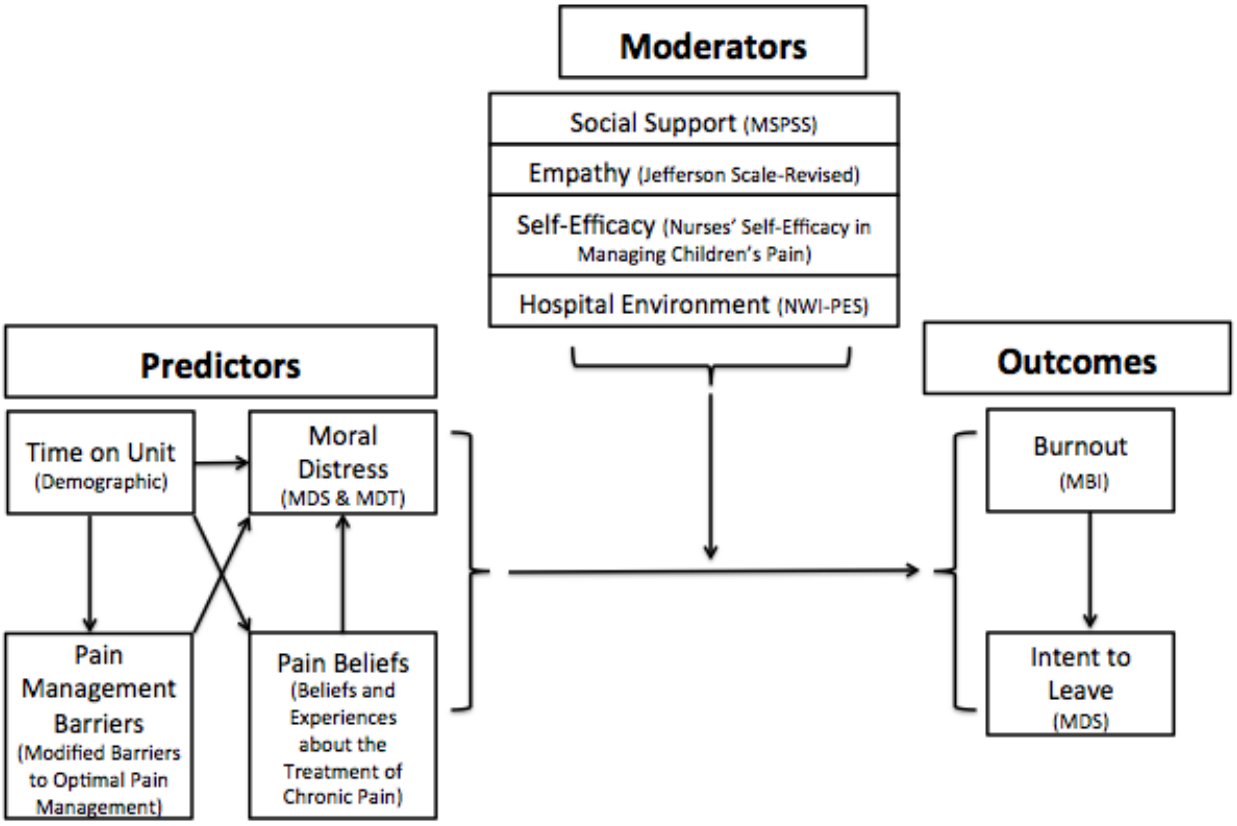

Figure 6 The Proposed Pediatric Chronic Pain Nurse Burnout Model with Measures.
Note. MDS: Moral Distress Scale; MDT: Moral Distress Thermometer; MSPSS: Multidimensional Scale of Perceived Social Support; NWI-PES: Nursing Work Index of Practice Environment Scale; MBI: Maslach Burnout Inventory

6.3.1 Background Information (Appendix C)

Demographic data was collected using a demographic measure to assess age, gender, ethnicity, race, country of origin, income, type of education, marital status, parental status, years of nursing experience, and time at current job. Time on unit was used for correlational analyses.

6.3.2 Moral Distress (Appendix D, E)

The Moral Distress Scale-Revised (MDS; Hamric, Borchers, & Epstein, 2012) is a 22-item questionnaire used to measure the intensity and frequency of moral distress. Options range from 0 (*none*) to 6 (*great extent*) for the Intensity Scale and 0 (*none*) to 6 (*very frequently*) for the Frequency Scale. Cronbach's alphas for both subscales in prior studies have been high: 0.83 for Intensity and 0.95 for Frequency (Hamric & Blackhall, 2007; Zuzelo, 2007) and showed similar levels with the sample in this study ($\alpha = .94$ intensity; $\alpha = .85$ frequency). Content validity of the MDS has also been supported by a study that examined the relationship between moral distress and nurses' reports of working in an ethical work environment (Corley et al., 2005). The MDS also has a question at the end of the measure that states, "Are you considering leaving your position now?" and participants are asked to circle "Yes" or "No." This question was used as a measure of intent to leave in the model. Because the MDS has been used mainly with intensive-care health care professionals, several of the questions were not applicable to the nurse population in this study. However, the scale was given in its entirety as there are not examples in the literature of it being modified and this was the first time moral distress was measured with nurses working with patients with chronic pain. However, in case the MDS did not capture moral distress specific to chronic pain health care, the Moral Distress Thermometer was also included (MDT; Wocial & Weaver, 2013) in the battery. The MDT is a one-item measure that asks healthcare providers to rate their current (within the past week) level of moral distress on a visual analog scale ranging from 0 to 10. A definition for moral distress is provided at the top of the measure stating, "Moral distress occurs when you believe you know the ethically correct thing to do, but something or someone restricts your ability to pursue the right course of action." We believed this would allow the nurses to incorporate situations specific to their discipline in

evaluating their moral distress. The moral distress thermometer has demonstrated convergent validity with the MDS (Wocial & Weaver, 2013). Both the MDS composite score (accounting for frequency and intensity) and the moral distress thermometer scores were used in correlational analyses.

6.3.3 Pain Management Barriers (Appendix F)

The Modified Barriers to Optimal Pain Management (Czarnecki, Salamon, Thompson, & Hainsworth, 2014) has been used to assess nurses' opinions of barriers in their current jobs that prevent them from providing optimal pain management for their patients. The original tool asked about thirteen potential barriers, but was modified by Czarnecki et al. (2014) to include eight additional potential barriers that they had identified in previous studies (Czarnecki et al., 2011). Similar to this methodology, six potential barriers were added that were proposed in the focus groups of the current study. These included: the reliability of patients' reports on the pain scale; insufficient care taken to treat psychological issues that are effecting pain experiences; limitations in nurses' knowledge of non-pharmacological pain management; insufficient time or availability of child life, psychology, or other allied healthcare professionals; parents' resistance to non-pharmacological pain management; and patients' resistance to non-pharmacological pain management. Two potential barriers were also removed because they are not relevant to chronic abdominal pain patients. Namely, insufficient time allowed to pre-medicate prior to procedures and insufficient pre-medication orders prior to procedures were eliminated. Nurses were asked to rate each of the final 24 potential barriers from 0 "not a barrier" to 10 "a major barrier." Scoring of this questionnaire allowed us to identify which barriers are perceived to be the biggest obstacles in providing optimal care, as well as allowed us to obtain an overall sum of the magnitude of perceived barriers each nurse perceives is preventing them from providing optimal

care. This measure has shown good internal consistency of 0.85-0.87 in previous literature (Czarnecki et al., 2011, 2014; Van Hulle Vincent, 2005) and showed similar validity with the current sample ($\alpha = .88$). The overall sum of the magnitude of perceived barriers was used in the following correlation and moderation analyses.

6.3.4 Negative Pain Beliefs (Appendix G)

The Questionnaire on Beliefs and Experiences about the Treatment of Chronic Pain was originally a 15-item questionnaire that solicited the beliefs and experiences of providers about barriers to chronic pain management in the emergency department (Wilsey, Fishman, Ogden, Tsodikov, & Bertakis, 2008). Responses are made on a 6-point ordinal scale ranging from 1 (*strong disagreement*), 2 (*moderate disagreement*), 3 (*some disagreement*), 4 (*some agreement*), 5 (*moderate agreement*), to 6 (*strong agreement*). This questionnaire was slightly modified for the study by replacing any references to the "emergency department" with "our unit." Additionally, three items were added to the questionnaire based on qualitative results (i.e., "I think that most chronic pain patients over-report their pain on the pain scale"; "I get annoyed easily by parents of chronic pain patients"; "I believe that chronic pain patients who come to our unit are doing so to avoid reality back home"). One item (i.e., "I think that writing prescriptions for schedule II or III medications is a problem because the DEA number might be forged on another prescription") was removed because hand-written prescriptions are no longer used on the unit. Scoring of this questionnaire allowed us to identify which pain beliefs are most strongly endorsed by the nurses, as well as allowed us to obtain an overall sum of the magnitude of negative pain beliefs each nurse holds about their chronic pain patients. This measure was developed and used in a study that examined physicians', nurses' and patients' beliefs about chronic pain (Wilsey et al., 2008). No psychometric data is available in previous studies, but the

sample used in this study showed good internal consistency on all items (α = .89). The overall sum of the magnitude of negative pain beliefs were used in the proposed correlation and moderation analyses.

6.3.5 Perceived Social Support (Appendix H)

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988) scale is a 12-item measure that assesses perceived social support from three sources: friends, family, and significant other with four items for each subscale. Study participants respond using a 1-7 rating scale from 1 (*very strongly disagree*) to 7 (*very strongly agree*. All three subscales have shown good internal consistency (α= .87, α= .85, α= .91, respectively; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Because perceived social support from coworkers was also of interest, four additional items were added modeled off of the items for the other subscales with "coworker" replacing "friend" or "family (i.e., "I can talk about my problems with my coworkers"; "My coworkers really try to help me"; "There is a coworker I can go to when I am in need"; "I get the emotional help and support I need from my coworkers"). Similar changes to the MSPSS have been made to assess perceived coworker social support in previous studies (Ben-Zur & Michael, 2007). The four included subscales: friends, family, significant other, coworkers and the overall scale all demonstrated good internal consistency (α = .93, α = .93, α = .89, α = .95, α = .95, respectively). The coworker social support composite was used for correlational analyses.

6.3.6 Empathy (Appendix I)

The Jefferson Scale-Revised (Hojat et al., 2002) is a 20 Likert-type item questionnaire that is answered on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Convergent validity has been confirmed by examining the relation of this scale with measures of

compassion (Hojat et al., 2001). Internal consistency reliability has been determined as well (α = .87-.89; Hojat et al., 2001) and was replicated in this study (α = .87). The revised version of the original Jefferson Scale (Hojat et al., 2001) was created to make the scale more applicable to other health care providers including nurses; however, there was still some physician-specific language. In these cases, "physician" was exchanged with "nurse." The summed overall empathy composite was used in correlational and moderation analyses.

6.3.7 Self-Efficacy (Appendix J)

The Nurses' Self-Efficacy in Managing Children's Pain (Chiang, Chen, & Huang, 2006) is a brief, 5-item measure that assesses nurses' self-efficacy using 5-point Likert scales ranging from 0 (*not at all confident*) to 4 (*very confident*). The measure is comprised of three items specific to pain assessment, two on pain management, and one on cooperation with the health care team. Internal consistency has been shown to be adequate in previous studies (α = .88-.91; Chiang, Chen, & Huang, 2006; Stanley & Pollard, 2013) and was replicated here (α = .84). The summed overall self-efficacy composite was used in correlational analyses.

6.3.8 Negative Views of Hospital Environment (Appendix K)

The Practice Environment Scale of the Nursing Work Index (NWI-PES; Lake, 2002) is a 31-item questionnaire that results in a total score for perceived practice environment, as well as five subscales that measure 5 aspects of professional nursing work life environments. Items are rated from 1 (*strongly disagree*), 2 (*disagree*), 3 (*agree*), to 4 (*strongly agree*). The five subscales include hospital affairs (*Participation*), the nursing foundations for quality of care (*Nursing Model*), nurse manager ability/ support of nurses (*Leadership*), staff and resource adequacy (*Staffing*), and collegial nurse/physician relationship (*Nurse/Physician Relationship*). Both construct validity and internal consistency reliability (α = .84-.91) have been established for

the NWI-PES (Parker, Tuckett, Eley, & Hegney, 2010; Siedlecki & Hixson, 2011). In this sample, the NWI-PES also demonstrated good internal reliability (α = .89). For the proposed study, the composite score was used as a measure of satisfaction with hospital environment in both the correlational and the moderation analyses.

6.3.9 Burnout (Appendix L)

The Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), a 22-item questionnaire, has been widely used as an approach for conceptualizing and measuring burnout. This approach addresses burnout as a phenomenon made up of three components: increased emotional exhaustion, depersonalization, and decreased personal accomplishment. There is a strong base of literature documenting the psychometric features of the MBI, especially in the human services professions (Schaufeli, Leither, Maslach, & Jackson, 1996). Maslach and Jackson (1981) found good internal consistency coefficients for the three subscales (α = .74-.89) and internal consistency was similarly demonstrated in this sample on the emotional exhaustion, depersonalization, and personal accomplishment subscales (α = .93; α = .76; α = .76, respectively). A recent meta-analysis of 45 exploratory and confirmatory factor-analytic studies supported the use of the three-factor model within the MBI to assess burnout (Worley, Vassar, Wheeler, & Barnes, 2008). The three subscale scores were used in correlational analyses, but only the emotional exhaustion subscale was used for the proposed moderation analyses.

6.3.10 Intent to Leave

The MDS has one question at the end about one's intention to leave their current job (Hamric et al., 2012). Specifically it says, "Are you considering leaving your position now?" and subjects are asked to circle "Yes" or "No." This variable was not used in any analyses for this current project, but rates of response were provided to better understand the unit.

7 STUDY TWO RESULTS

7.1 Preliminary Quantitative Results

Descriptive statistics, including means, standard deviations, and ranges were calculated to characterize the sample demographics (i.e., age, gender, race/ethnicity, marital status, family income, degree, years of experience, and work shift; Table 1) and study variables (i.e., time on unit, moral distress, perceived pain management barriers, negative chronic pain beliefs, perceived coworker social support, empathy, self-efficacy, negative views of hospital environment, and burnout [emotional exhaustion, depersonalization, and personal accomplishment]; Table 2).

Table 1 Participant Demographic Data

Variable	*M* (*SD* or %)	Range
Age	37.77 (10.21)	26-59
Family Income	$102,656.25 ($56,382.68)	$40,000-350,000
Years Experience	9.75 (6.79)	1-24
Variable	*N* (%)	
Gender		
Male	0 (0%)	
Female	41 (100%)	
Race		
Caucasian	35 (85.4%)	
Black/African American	3 (7.3%)	
Hispanic	0 (0%)	
Asian/Pacific Islander	3 (7.3%)	
Native American	0 (0%)	
Other	0 (0%)	
Marital Status		
Single	12 (29.3%)	
Married	26 (63.4%)	
Divorced	3 (7.3%)	
Highest Degree		
High School	1 (2.4%)	
Associates Degree	11 (26.8%)	
Bachelors Degree	28 (68.3%)	
Masters Degree	1 (2.4%)	
Typical Shift		
Day	27 (65.9%)	

Night	14 (34.1%)

Table 2 Variable Descriptive Data

Variable (Possible Range)	*M* (*SD*)	Actual Range
Time on Unit (1-15)	6.84 (3.78)	1-15
Moral Distress Scale (0-352)	52.71 (41.36)	0-174
Moral Distress Thermometer (0-10)	2.64 (2.00)	0-8
Perceived Pain Management Barriers (24-240)	92.66 (29.56)	37-176
Negative Chronic Pain Beliefs (16-96)	39.02 (12.72)	17-66
Perceived Coworker Social Support (7-28)	23.78 (4.35)	12-28
Empathy (20-140)	123.95 (11.78)	93-140
Self-Efficacy (0-24)	19.61 (3.42)	12-24
Negative Views of Hospital Environment (1-4)	2.09 (0.33)	1.10-2.84
Burnout- Emotional Exhaustion (0-54)	24.39 (11.68)	7-47
Burnout- Depersonalization (0-30)	6.24 (4.67)	0-17
Burnout- Personal Accomplishment (0-48)	37.99 (5.95)	20-46
Natural Log Burnout Personal Accomplishment	1.99 (0.66)	
		N(%)
Intent to Leave		
Yes		11 (26.8%)
No		30 (73.2%)

Data were tested for normality and statistical assumptions for correlational and regression analyses. Normality tests revealed that all variables were normally distributed, except for burnout-personal accomplishment, which was negatively skewed. This variable was reverse scored and then a natural log transformation was used and successfully redistributed the variable normally.

In order to evaluate whether the primary variables differed on any demographic variables, correlation and mean difference analyses were conducted. Specifically, correlational analyses were used to assess the associations between age, family income, and years of experience and study variables, and mean difference tests were employed to examine differences in race/ethnicity, marital status, degree, and work shift on study variables. Significant positive

Pearson correlations were found among age, family income, and years of nursing experience. None of these variables were related to the primary outcome variables (Table 3).

Table 3 Intercorrelations Among Age, Family Income, Years Experience, and Primary Variables

Variable	Age	Family Income	Years Experience
Time on Unit	.32*	.51*	.50**
Moral Distress Scale	-.05	-.11	-.05
Moral Distress Thermometer	-.07	-.25	-.16
Perceived Pain Management Barriers	-.08	.15	-.20
Negative Chronic Pain Beliefs	-.03	.25	.05
Perceived Coworker Social Support	-.25	.14	-.28
Empathy	-.03	-.27	-.02
Self-Efficacy	-.13	-.24	-.09
Negative Views of Hospital Environment	-.21	-.02	-.06
Emotional Exhaustion	-.08	-.04	-.27
Depersonalization	-.17	-.08	-.12
Personal Accomplishment	-.07	-.23	-.02

Note. * $p < .05$; ** $p < .001$.

Univariate analyses of variance (ANOVAs) revealed that there were significant differences across racial groups on reports on the Moral Distress Thermometer, $F(2,37) = 15.71$, $p < .001$ (Table 4). Planned contrasts indicated that participants who identified as Black/African American (M – 7.33, $n = 3$) reported significantly higher moral distress than those who identified as Caucasian ($M = 2.24$, $n = 35$) or Asian/Pacific Islander ($M = 2.50$, $n = 2$), $t(37) = -5.09$, $p < .001$; $t(37) = -4.83$, $p < .01$, respectively. There were no significant differences in primary or outcome variables among nurses with different levels of education (Table 5). There were significant differences across marital status groups on time on unit, $F(2,38) = 5.06$, $p < 0.05$, and perceived coworker social support, $F(2, 38) = 12.48$, $p < .01$ (Table 6). Planned contrasts indicated that participants who were married had served significantly more time on the unit (M = 8.07 years) than those who were single ($M = 4.25$ years), $t(38) = -3.82$, $p < .01$. In addition, participants who were divorced ($M = 14.67$) reported significantly less social support than either

single (M = 25.83) or married participants (M = 23.88), $t(38) = 11.17$, $p < .001$; $t(38) = 9.22$, $p < .001$ respectively. Additionally, regarding work shifts, the only significant difference indicated that participants on the day shift had spent significantly more time on the unit (M = 8.31 years) than those on the night shift (M = 3.99 years), $t(39) = 4.10$, $p < .01$ (Table 7). As none of the demographic variables were found to related to the outcome variables (emotional exhaustion, depersonalization, personal accomplishment), they were not included in subsequent analyses.

Table 4 Race/Ethnicity Mean Differences Among Variables

Variable	Caucasian (M ± SD)	Black/African American (M ± SD)	Asian/Pacific Islander (M ± SD)
Time on Unit	7.13±3.83	4.33±2.52	5.92±4.30
Moral Distress Scale	50.17±40.74	78.33±54.50	56.67±43.65
Moral Distress Thermometer	2.24±1.51[a]	7.33±1.15[b]	2.50±2.12[a]
Perceived Pain Management Barriers	91.66±31.56	106.67±5.51	90.33±13.87
Negative Chronic Pain Beliefs	39.33±12.63	37.67±9.71	36.77±20.36
Perceived Coworker Social Support	23.69±4.41	21.67±4.93	27.00±1.00
Empathy	124.49±11.95	112.67±4.04	129.00±9.85
Self-Efficacy	19.83±3.35	19.33±3.51	17.33±4.73
Negative Views of Hospital Environment	2.10±0.26	2.08±0.89	1.99±0.36
Emotional Exhaustion	22.87±11.33	37.67±9.02	28.92±11.41
Depersonalization	6.04±4.58	9.00±8.00	5.83±1.76
Personal Accomplishment	2.01±0.70	2.12±0.46	1.78±0.17

*Note. * a&b superscripts* < .05

Table 5 Highest Degree Differences Among Variables

Variable	High School (M ± SD)	Associates (M ± SD)	Bachelors (M ± SD)	Masters (M ± SD)
Time on Unit	4.08	6.43±2.79	7.11±4.23	6.50
Moral Distress Scale	60.00	58.18±54.90	52.18±36.07	0.00
Moral Distress Thermometer	1.00	1.85±1.60	3.04±2.08	1.00
Perceived Pain Management Barriers	52.00	95.90±27.78	93.58±30.43	72.00
Negative Chronic Pain Beliefs	36.00	34.00±13.21	41.83±12.30	22.00
Perceived Coworker Social Support	24.00	24.09±4.09	24.07±4.07	12.00

Empathy	133.00	127.09±10.74	122.61±12.35	118.00
Self-Efficacy	23.00	18.64±2.94	19.75±3.58	23.00
Negative Views of Hospital Environment	1.87	2.06±0.30	2.11±0.35	2.00
Emotional Exhaustion	11.00	24.34±11.89	25.40±11.59	10.00
Depersonalization	6.00	5.91±4.41	6.57±4.89	1.00
Personal Accomplishment	2.94	1.81±0.84	2.06±0.56	1.39

Table 6 Marital Status Mean Differences among Variables

Variable	Single (M ± SD)	Married (M ± SD)	Divorced (M ± SD)
Time on Unit	4.25±3.13[a]	8.07±3.71[b]	6.50±0.50[a]
Moral Distress Scale	54.25±36.03	55.38±44.30	23.33±33.72
Moral Distress Thermometer	2.67±2.27	2.78±1.93	1.33±1.53
Perceived Pain Management Barriers	90.45±19.27	94.34±32.87	87.00±42.53
Negative Chronic Pain Beliefs	37.03±10.05	40.98±13.77	30.00±10.58
Perceived Coworker Social Support	25.83±2.69[a]	23.88±3.66[a]	14.67±4.62[b]
Empathy	126.25±10.70	122.50±12.46	127.33±11.37
Self-Efficacy	19.73±2.79	19.23±3.72	22.0±2.65
Negative Views of Hospital Environment	2.23±0.33	2.04±0.32	1.98±0.36
Emotional Exhaustion	28.33±12.98	23.00±10.02	20.67±20.23
Depersonalization	7.67±5.30	5.69±4.48	5.33±3.79
Personal Accomplishment	2.15±0.55	1.93±0.72	1.97±0.60

*Note. *a&b superscripts* < .05

Table 7 Typical Shift Mean Differences Among Variables

Variable	Day (M ± SD)	Night (M ± SD)
Time on Unit	8.31±3.28**	3.99±3.03**
Moral Distress Scale	50.85±43.87	56.29±37.34
Moral Distress Thermometer	2.39±1.61	3.15±2.64
Perceived Pain Management Barriers	96.16±33.44	85.93±19.44
Negative Chronic Pain Beliefs	41.35±13.09	34.52±11.03
Perceived Coworker Social Support	23.19±4.24	24.93±4.48
Empathy	123.44±12.41	124.93±10.84
Self-Efficacy	19.26±3.60	20.29±3.05
Negative Views of Hospital Environment	2.07±0.26	2.14±0.44
Emotional Exhaustion	23.79±10.94	15.55±13.35
Depersonalization	5.87±4.77	6.96±4.57

Personal Accomplishment	1.91±0.68	2.16±0.60

Note. *$p < .05$; **$p \leq$.

7.2 Primary Quantitative Results

Given the small sample size and lack of power, results significant at an alpha level of .05 are presented first and directionality of correlations with a p-value less than .10 are discussed.

Analyses of intercorrelations between predictor variables indicated that the moral distress scale and moral distress thermometer were positively correlated, $r = .31$, $p < .05$ and that the moral distress thermometer was correlated with higher reports of perceived pain management barriers, $r = .31$, $p < .05$. Perceived pain management barriers were associated with higher negative chronic pain beliefs, $r = .39$, $p < .05$, decreased empathy, $r = -.40$, $p < .01$, and decreased self-efficacy, $r = -.48$, $p < .01$. Increased negative chronic pain beliefs were also associated with decreased empathy, $r = -.39$, $p < .05$, as well with increased negative views of the hospital environment, , $r = .39$, $p < .05$. Increased empathy was associated with increased self-efficacy, $r = .31$, $p < .05$, and a more positive view of the hospital environment, $r = -.32$, $p < .05$. Increased self-efficacy was also associated with a more positive view of the hospital environment, $r = -.40$, $p < .01$. Additionally, though not significant, the positive relationship between the moral distress scale and perceived pain management barriers approached significance, $r = .31$, $p = .07$; as did the relationship between higher reports on the moral distress thermometer and lower reports of empathy, $r = -.29$, $p = .08$ (Table 8).

Table 8 Intercorrelations Among Primary Variables

Variable	1	2	3	4	5	6	7	8	9
1. Time on Unit	1.00								
2. Moral Distress Scale	-.04	1.00							
3. Moral Distress Thermometer	-.14	.31*	1.00						
4. Perceived Pain Management Barriers	.03	.28^	.31*	1.00					

5. Negative Chronic Pain Beliefs	.11	.15	.20	.39*	1.00				
6. Perceived Coworker Social Support	-.16	.07	-.06	-.23	.17	1.00			
7. Empathy	.07	-.03	-.28^	-.50**	-.39*	.23	1.00		
8. Self-Efficacy	-.13	-.16	-.13	-.48**	-.23	-.02	.31*	1.00	
9. Negative Views of Hospital Environment	-.17	.06	.20	.15	.35*	.06	-.32*	-.40**	1.00

Note. ^$p < .10$; *$p < .05$; **$p \leq .01$

Pearson correlations were conducted to examine the relations between the proposed predictor variables (time on unit, moral distress, perceived pain management barriers, negative chronic pain beliefs, perceived coworker social support, empathy, self-efficacy, negative views of hospital environment) and outcome variables (emotional exhaustion, depersonalization, and personal accomplishment; Table 9, Figure 7).

Significant results in the hypothesized direction	
⇑ Emotional Exhaustion	⇑ Moral Distress Thermometer ⇓ Self-Efficacy ⇑ Negative Views of the Hospital Environment
Significant results in direction contrary to hypotheses	
⇑ Emotional Exhaustion	⇓ Time on Unit
Non-significant results in the hypothesized direction	
⇑ Emotional Exhaustion	⇑ Moral Distress Scale ⇑ Perceived Pain Management Barriers ⇑ Negative Pain Beliefs ⇓ Empathy
⇑ Depersonalization	⇑ Moral Distress Scale ⇑ Moral Distress Thermometer ⇑ Perceived Pain Management Barriers ⇑ Negative Pain Beliefs ⇓ Empathy ⇓ Self-Efficacy ⇑ Negative Views of the Hospital Environment
Non-significant results in direction contrary to hypotheses	
⇑ Emotional Exhaustion ⇑ Depersonalization	⇑ Coworker Social Support ⇓ Time on Unit ⇑ Coworker Social Support

Figure 7 Found Directions of Bivariate Correlational Analyses Separated by Significance and Alignment with Study Hypotheses

7.2.1 Emotional Exhaustion

Correlational analyses revealed that higher self-efficacy was associated with lower reports of emotional exhaustion, $r = -.44$, $p < .01$. Contrary to hypothesis, more time on the unit was significantly associated with lower reports of emotional exhaustion, $r = -.34$, $p < .05$. Additionally, higher reports on the moral distress thermometer and a more negative view of the hospital environment were associated with increased emotional exhaustion, $r = .32$, $p < .05$, $r = .46$, $p < .01$, respectively. Analyses revealed no significant associations between moral distress scale, perceived pain management barriers, negative chronic pain beliefs, perceived social support, or empathy with emotional exhaustion (Table 9).

The relationships between perceived pain management barriers and negative chronic pain beliefs with emotional exhaustion were in the hypothesized positive direction, $r = .26$, $p = .09$, $r = .27$, $p = .09$, respectively. Empathy and emotional exhaustion had a negative relationship approaching significance, $r = -.29$, $p = .07$. The relationships between the moral distress scale and perceived coworker social support with emotional exhaustion were not significant or approaching significance (*p's > .10).*

7.2.2 Depersonalization

Correlation analyses revealed no significant associations between the 9 predictor variables and depersonalization (Table 9). The relationship between time on unit and depersonalization was approaching significance and contrary to qualitative results, was in the negative direction, $r = -.27$, $p = .08$. The relationships between the moral distress scale, moral distress thermometer, perceived pain management barriers, negative pain beliefs, perceived coworker social support, empathy, self-efficacy and negative views of hospital environment with depersonalization were not significant or approaching significance (*p's > .10)*

7.2.3 Personal Accomplishment

Correlation analyses revealed no significant or approaching significant associations among primary variables and the personal accomplishment outcome (*p's > .10;* Table 9).

Table 9 Intercorrelations between Primary Variables and Outcomes

Variable	Emotional Exhaustion	Depersonalization	Personal Accomplishment
Time on Unit	-.34*	-.27^	-.02
Moral Distress Scale	.16	.23	-.03
Moral Distress Thermometer	.33*	.15	-.09
Perceived Pain Management Barriers	.26^	.09	.03
Negative Chronic Pain Beliefs	.27^	.13	.01
Perceived Coworker Social Support	.03	.16	-.02
Empathy	-.29^	-.15	.01
Self-Efficacy	-.44**	-.19	-.01
Negative Views of Hospital Environment	.46**	.24	-.12

Note. ^$p < .10$; *$p < .05$; **$p \leq .01$

7.3 Exploratory Quantitative Results

Four exploratory moderations were tested. Multicollinearity was not present among the predictor variables in the regression analyses and none of the cases presented problems due to outliers. Residual scatterplots showed normality, linearity, and homoscedasticity of the residuals. In moderation analyses, variables in the interaction term were centered to reduce multicollinearity that could be augmented by creating the interaction terms.

7.3.1 Perceived Pain Management Barriers X Empathy Interaction

We first examined whether empathy or the hospital environment moderated the perceived pain management barriers-emotional exhaustion relation (Figure 4). The first moderation model, examining whether the perceived pain management barriers-emotional exhaustion relationship was moderated by empathy, was tested by a hierarchical multiple regression model. The main effect variables (i.e., perceived pain management barriers, empathy) were entered in the first

block, and the interaction term was entered in the second block. The main effects of barriers to optimal pain management and empathy were not significant, β = .30, p = .09; β = -.23, p = .16, though the main effect of perceived pain management barriers was approaching significance. In the second step of the regression analysis, the interaction term between perceived barriers to optimal care and empathy was entered, and it explained a significant increase in the variance in emotional exhaustion, ΔR^2 = .15, $F(3, 40) = 4.16$, p = .01. Thus suggesting that the effect of perceived pain management barriers on emotional exhaustion depended on the level of reported empathy.. The standardized simple slope for nurses who reported low levels of empathy (-1 SD below the mean) was in the negative direction and non-significant, β = -.08, p = .68. The standardized simple slope for nurses with a moderate level of empathy (mean) was in the positive direction and non-significant at alpha .05, but was approaching significance, β = .30, p = .09. Finally, the standardized simple slope for employees who reported high levels of empathy (+1 *SD* above the mean) was also in the positive direction and significant, β = .68, p = .01 (Figure 8).

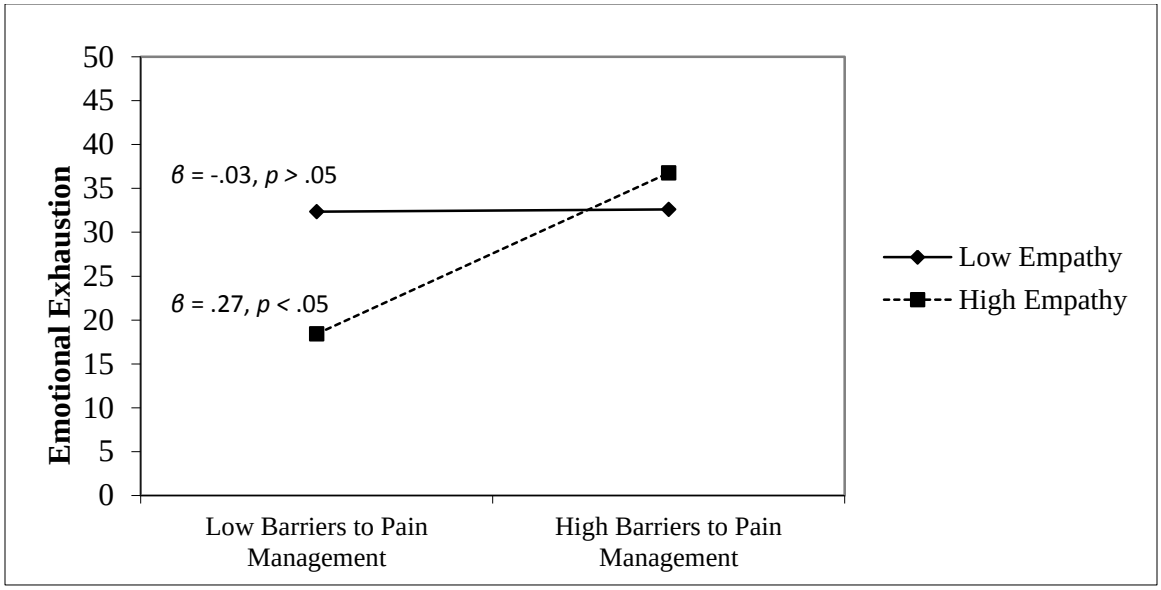

Figure 8 Barriers x Empathy Interaction

7.3.2 Perceived Pain Management Barriers X Hospital Environment Interaction

The second moderation model, examining whether the perceived pain management barriers-emotional exhaustion relationship was moderated by views of hospital environment, was tested by a hierarchical multiple regression model. The main effect variables (i.e., perceived pain management barriers, hospital environment) were entered in the first block, and the interaction term was entered in the second block. The main effect of barriers to optimal pain management was not significant, $\beta = .24$, $p = .08$, but was approaching significance. The main effect of hospital environment on emotional exhaustion was significant, $\beta = .43$, $p = .003$. In the second step of the regression analysis, the interaction term between perceived barriers to optimal care and views of hospital environment was entered, and it explained a significant increase in the variance in emotional exhaustion, $\Delta R^2 = .10$, $F(3, 40) = 6.60$, $p = .001$. Thus suggesting that the effect of perceived pain management barriers on emotional exhaustion depended on the level of reported negative views of hospital environment. The standardized simple slope for nurses who reported low levels of negative views of hospital environment (-1 SD below the mean) was in the positive direction and significant, $\beta = .66$, $p = .009$. The standardized simple slope for nurses with a moderate level of negative views of hospital environment (mean) was also in the positive direction and significant, $\beta = .43$, $p = .003$. However, the standardized simple slope for employees who reported high levels of negative views of hospital environment (+1 *SD* above the mean) was in the negative direction and non-significant, $\beta = -.17$, $p = .41$ (Figure 9).

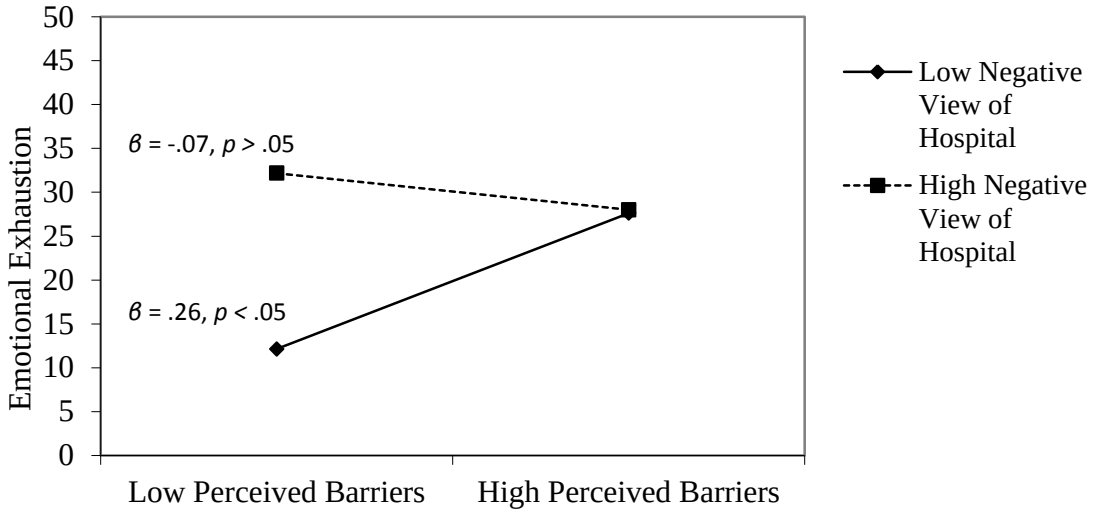

Figure 9 Barriers x Views of Hospital Environment Interaction

7.3.3 Negative Pain Beliefs X Empathy Interaction

We then examined whether empathy or the hospital environment moderated the negative pain beliefs-emotional exhaustion relation (Figure 5). The third tested moderation model, examining whether the negative pain beliefs-emotional exhaustion relationship was moderated by empathy, was tested by a hierarchical multiple regression model. The main effect variables (i.e., negative pain beliefs, empathy) were entered in the first block, and the interaction term was entered in the second block. The main effects of negative pain beliefs and empathy were not significant, β = .28, p = .15; β = -.12, p = .55. In the second step of the regression analysis, the interaction term between perceived negative pain beliefs and empathy did not explain a significant increase in the variance in emotional exhaustion, ΔR^2 = .06, $F(3, 40) = 2.22$, $p > .05$.

7.3.4 Negative Pain Beliefs X Hospital Environment Interaction

In the fourth tested moderation model, examining whether the negative pain beliefs-emotional exhaustion relationship was moderated by views of hospital environment, the main effect of negative pain beliefs was not significant, β = .08, p = .62, but the main effect of hospital

environment was significant, $\beta = .44$, $p = .02$. In the second step of the regression analysis, the interaction term between negative pain beliefs and views of hospital environment was entered, and it did not explain a significant increase in the variance in emotional exhaustion, $\Delta R^2 = .00$, $F(3, 40) = 2.98$, $p > .05$.

8 STUDY ONE & TWO DISCUSSION

The current study was the first to investigate nurse burnout in the context of a pediatric pain unit using a mixed methods design. It is well established that nurses' experience increased workplace pressure, which puts them at risk for chronic stress and job burnout (Cohen-Katz et al., 2005). Burnout can lead to psychological and physical problems, decreased quality of care, and premature exit from the profession (Aiken et al., 2001; Hamric & Blackhall, 2007; Medland et al., 2004). Studies have found common predictors for burnout in multiple service occupations, but there are important differences across settings. Given the lack of empirical research in burnout with nurses working with patients with chronic pain, both qualitative and quantitative methodology were employed to gain insight into the complex dynamic phenomena of burnout in these nurses. In study one, qualitative methodology revealed six major themes: negative pain beliefs, barriers to effective pain management, nurse empathy/compassion, moral distress, coping methods, and burnout. These themes were integrated with the literature to develop the Pediatric Chronic Pain Nurse Burnout Model, which includes 4 primary predictors (time on unit, moral distress, perceived pain management barriers, negative pain beliefs) and 4 moderators (perceived coworker social support, empathy, self-efficacy, negative views of hospital environment) to explain nurse burnout (emotional exhaustion, depersonalization, personal accomplishment; Figure 2). In study two, a quantitative battery was employed to evaluate the model.

8.1 Descriptives and Demographics

First, descriptive statistics were compared with the scores found in published studies to evaluate and obtain an overall sense of the nursing unit climate. Using similar methodology as Heeb and Haberey-Knuessi (2014), nurses' reports on the outcome variables were examined within the burnout framework in relation to the normative sample of North American nurses and physicians that was used in a large measure validity study (Maslach, Jackson, & Leiter,1996). High degrees of burnout were defined as a score of 27 or higher on the emotional exhaustion subscale, 10 or higher on the depersonalization subscale, and 33 or lower on the personal accomplishment subscale (Heeb & Haberey-Knuessi, 2014). In the current study sample, 46% of the nurses working in pediatric chronic abdominal pain reported high degrees of emotional exhaustion; 20% of the nurses reported high depersonalization, and 17% indicated low personal accomplishment. Furthermore, over a quarter (26.8%) of the sample responded "yes" that they intended to leave the job. Thus, these nurses working with pediatric patients with chronic pain are reporting extremely high levels of burnout and many are intending to leave their job. This is concerning and suggests the need for support and intervention for this unit of nurses. Although the generalizability of these results are limited, this study identified many areas of nursing specific to working with chronic pain patients that contribute to burnout. Further studies should examine these variables in different healthcare environments to explore if these high negative outcomes are consistent across settings.

In general, the nurses in this study reported higher moral distress – the conflict experienced when a person is unable to behave the personally perceived "right" way – than nurses on general care units (Trotochaud, Coleman, Krawiecki, & McCraken, 2013). In terms of pain management barriers, nurses in this study reported a higher rate of perceived barriers than

nurses in other studies (Czarnecki et al., 2014). Similarly, these nurses reported higher negative views of chronic pain patients than nurses in other studies (Wilsey et al., 2008), supporting the qualitative results that negative chronic pain beliefs are an important issue.

These nurses also reported generally higher negative views of the hospital environment on all subscales of the practice environment scale than found in the extant literature (Aiken, Clarke, Sloane, Lake & Cheney, 2008), and specifically higher negative reports on the nurse manager relationship subscale. This was an interesting finding, as nurse-manager and difficulties with unit leadership were not discussed at all in the focus groups. It is possible that although nurse managers were not present for the focus groups, nurses did not feel comfortable voicing their opinions on this topic in a group setting. There may be specific aspects of about chronic pain nursing that leads to dissatisfaction with the hospital environment (e.g., need for chronic vs. acute staffing decisions, better communication about pain management with physicians, more support from nurse management). However, the higher scores may reflect personnel difficulties on this specific unit or unfavorable hospital policies of this specific medical institution and thus findings may not be generalizable to all chronic pain nurse populations. Taking both the qualitative and quantitative findings into account, it is clear that interventions aimed at improving the working situation of nurses treating pediatric patients with chronic pain might consider targeting perceived barriers, views and beliefs about chronic pain, and perceptions of the practice environment.

In contrast, nurses in this study generally reported relatively high levels of social support (Ben-Zur & Michael, 2007). Nurses reported generally similar scores on the empathy and self-efficacy scales as found in previous studies (Fields et al., 2004; Stanley & Pollard, 2013). The social support scale findings corroborate the qualitative reports that both the social support on the

unit and the support nurses had outside of the hospital was a strength of the unit. Despite the findings that nurses on the unit were experiencing high levels of distress it is promising that nurses still reported average levels of empathy and self-efficacy. These positive outcomes suggest that nurses have strong foundations in emotional care for patients and their nursing skills, which may help explain why they feel high levels of conflict when faced with patients who present unique challenges or patients who often return to the unit without improving.

8.2 Intercorrelations between Primary Variables

The correlation analyses for primary variables indicated higher reports of barriers to optimal pain management were associated with moral distress. This was not surprising as frequently during the focus group discussions, the barriers (i.e., accurate assessment of pain, competing demands on time) were identified as causes of distress (i.e., internal conflict about providing medication). Additionally, perceived pain management barriers had a negative relationship with empathy and a positive relationship with negative chronic pain beliefs. Though we cannot make causal inferences with cross-sectional data, this finding could provide some support for cognitive dissonance theory (i.e., when nurses cannot provide optimal care, they distance themselves from their patients to lessen distress). This was further supported by the nearly significant relationship between increased moral distress and lower reports of empathy. More perceived pain management barriers were also related to decreased reports of self-efficacy, which was expected given the fact that nurses who report not being able to provide optimal care would not feel as competent in their work. Similarly, nurses who reported more negative chronic pain beliefs also reported decreased empathy. This supports the attribution theory of chronic pain (De Ruddere et al., 2013; Lundquis et al., 2002), where nurses who had more negative views of the reality of chronic pain and their patient's demands, reported less empathy. Nurses who

reported higher negative chronic pain beliefs also reported more negative views of the hospital environment, which could just be explained by a more negative view of their total work environment (both institutional and interpersonal).

On a positive note, nurses who reported more empathy also reported increased self-efficacy and a more positive view of the hospital environment. Again, causality in these relationships cannot be determined, but it is important to note that relationships exist between these variables and interventions that target any of these constructs may lead to positive outcomes for the nurses.

8.3 Intercorrelations of Model Predictors and Model Outcomes: Time on Unit, Moral Distress, Perceived Pain Management Barriers, and Negative Pain Beliefs

Moral distress, perceived pain management barriers, and negative pain beliefs emerged as primary themes from the qualitative analysis. Time on unit was a secondary code within the "feelings about and towards patients" theme. Correlational analyses were used to assess the relationships between the four model predictors (time on unit, moral distress, perceived pain management barriers, and negative chronic pain beliefs) and the three burnout outcomes (emotional exhaustion, depersonalization, and personal accomplishment). More time on unit was associated with lower emotional exhaustion. Similarly, more time on unit was approaching a significant correlation with lower reports of depersonalization. These finding are in line with previous studies, showing that more experienced workers have significantly lower burnout than less experienced nurses (Breen & Sweeny, 2012), though contrary to what was indicated by the qualitative analysis (i.e., nurses reported that they felt more burned out the more time they spent on the unit). It is important to note that the sample may be biased in that nurses who left the unit due to experiencing burnout are not represented in the sample. The nurses who have spent more

time on the unit and not transferred or left the profession, may represent a unique sample of nurses who have found ways to better cope and manage their emotions. However, nurses who spent more time on the unit did not report significantly higher scores on any of the proposed moderating variables. Further study is warranted to determine individual resilient characteristics that allow nurses to continue working with difficult patient populations.

Two measures of moral distress were evaluated. Higher scores on the Moral Distress Thermometer – but not the Moral Distress Scale – were correlated with higher emotional exhaustion. The lack of relation between the Moral Distress Scale and burnout might be related to the fact that the Moral Distress Scale was specifically designed for use with nurses who work with terminally ill patients and that some questions may not have been relevant for nurses working with chronic pain populations. On the other hand, the thermometer allowed nurses to think of situations specific to their own work. Based on the thermometer findings, nurses working with pain populations may experience moral distress that is related to emotional exhaustion. It is important to consider that this moral distress-emotional exhaustion relationship might be unique to this particular unit. For example, during the focus groups nurses discussed how other hospitals make staffing assignments based on acuity of patient needs, which they believe would help manage the time demands of chronic pain patients. Not having adequate time to provide optimal care for their patients, was a commonly stated (qualitatively) and reported (quantitatively) barrier that seemed related to feelings of moral distress and in turn feelings of emotional exhaustion. Given these are cross-sectional data, it could also be that nurses who are experiencing emotional exhaustion experience more morally distressing situations. For example, nurses who have more depleted emotional coping reserves may interpret events that happen on the unit as more conflicting and their ability to manage and reason around these issues may be

impaired. Either way, the findings indicate that moral distress might be a relevant factor to consider in nurses working with pediatric chronic pain populations. Given that moral distress has never been examined in this population, it is a construct in need of further exploration. Although the moral distress literature has been focused predominately on nurses working with terminally-ill patients (e.g., Austin et al., 2008; Elpern et al., 2005), we found that questions about medicating children based on patient self-report of pain can also lead to feelings of moral distress.

Neither perceived barriers to pain management nor negative pain beliefs were significantly related to any of the burnout subscales, but the relationships between these variables and emotional exhaustion were approaching significance in the hypothesized positive direction (i.e., more perceived barriers and more negative pain beliefs were related to higher emotional exhaustion). Post-hoc power analyses using observed effect sizes indicated that the correlations were significantly underpowered (power < .42), which might explain the lack of significance. That said, we are encouraged that the model might be viable. Beyond concerns about power, it is possible that perceived barriers do not lead directly to emotional exhaustion (i.e., may be mediated by moral distress, moderated by proposed variables, or influenced by other factors). Further analyses could be beneficial as barriers to optimal pain management were one of the strongest endorsed themes in the qualitative study when nurses discussed factors contributing to burnout. In regards to negative chronic pain beliefs, it is possible that these beliefs do not lead to emotional exhaustion, but rather, through a cognitive dissonance perspective, protects nurses from emotionally attaching to patients and numbs them to emotional distress. However, it is surprising that negative chronic pain beliefs were not related to the depersonalization outcome variable. Possibly due to higher self-monitoring when reporting on questionnaires than in group

discussions, nurses may have been more resistant to endorse negative views of patients on quantitative than qualitative measures. Additionally, it might simply be that barriers to pain management and negative chronic pain beliefs are important issues for nurses, but these factors are not directly related to burnout.

8.4 Intercorrelations of Model Moderators and Model Outcomes: Perceived Coworker Social Support, Empathy, Self-Efficacy, and Hospital Environment

Nurses in the focus groups consistently reported coworker social support and venting as the most frequent coping method utilized on the unit to deal with feelings of frustration and burnout. Interestingly, there was almost no relationship between reports of social support and burnout variables on the quantitative measures. Although several studies have found relationships between high levels of support and low levels of burnout (Jenkins & Elliot, 2004; Kilfedder et al., 2001; Sullivan, 1993), this might not be true in our sample. It is possible that the measure of social support was not comprehensive enough to determine how the intricacies of social environment (i.e., positivity or negativity in social networks; Campo et al., 2009) influences burnout outcomes. Although it was not fully distinguished in qualitative coding, when discussing challenges and negativity in the work setting, there appeared to more excitement and emotion. A study by Boren (2013a, 2013b) looked specifically at co-rumination, which was defined as excessively discussing personal problems within a dyadic relation. He found that co-rumination was related to increasing levels of burnout (Boren, 2013b) and additionally suppressed the relationship between general social support and burnout (Boren, 2013a). Thus, it is possible that these frequent conversations about problems at work – albeit beneficial in the moment for venting distress and receiving validation – may not be a beneficial coping mechanism for some nurses in the long-term.

Empathy did not show a significant relationship with any burnout outcomes, but did approach significance with emotional exhaustion. Specifically, nurses who reported more empathy also reported decreased emotional exhaustion. Several studies have found similar relationships between empathy and emotional exhaustion (e.g., Lee et al., 2002), suggesting that perspective taking can help nurses remain mindful in practice and can improve their emotional coping.

Finally, for the two variables that were added to the model based on previous literature (i.e., self-efficacy, work environment), both showed significant relationships with the emotional exhaustion burnout variable. Specifically, higher reports of self-efficacy were related to lower reports of emotional exhaustion and higher reports of a negative work environment were related to higher reports of emotional exhaustion. It is important to note that nurses increased self-efficacy could buffer against emotional exhaustion, which is consistent with previous studies (Van Dierendonck et al., 1994; VanYperen, 1998). Additionally, the reports of a negative work environment are important to consider, as this was not something that was endorsed during the qualitative interviews. Although we tried to emphasize the confidentiality of reports during the focus groups and remove hospital management from the process, there may have been a reluctance to discuss this topic openly. As is apparent with the quantitative results, nurses reported many negative aspects of the hospital environment, and consistent with previous studies (Bogaert et al., 2012; Bowers et al. 2009; Kanai-Pak et al., 2008), these negative views were strongly associated with feelings of emotional exhaustion.

8.5 Exploratory Moderation Analyses

8.5.1 Perceived Pain Management Barriers X Empathy Interaction

This moderation analysis suggested that the effect of perceived pain management barriers on emotional exhaustion depended on the level of reported empathy. Specifically, the results indicated that the positive relationships between barriers and emotional exhaustion only existed at high levels of empathy. This finding was contrary to study hypotheses, which suggested that the relationship would only be found in nurses who report low empathy. However, further review of the results supports the idea that nurses who do report low empathy are generally at increased risk for emotional exhaustion, and this relationship is consistent whether or not they perceive pain management barriers. Additionally, for nurses that have high empathy for patients, if they perceive low barriers, they experience lower emotional exhaustion; but, if they perceive high barriers, they experience similar levels of emotional exhaustion as nurses with low empathy (Figure 8). This suggests that maintaining empathy can protect against emotional exhaustion, but only if perceived pain management barriers are low. Interestingly, as these nurses are all working in the same hospital environment, it is important to note that the measurement of barriers is more about perception than reality as all nurses should be experiencing similar environmental challenges. Given the cross-sectional nature of the study, the order of change in variables cannot be inferred, but these results suggest that interventions targeting both maintenance of empathy and positive perceptions of ability to provide optimal care as important factors to consider when addressing emotional exhaustion.

8.5.2 Perceived Pain Management Barriers X Negative Views of Hospital Environment Interaction

This moderation analysis suggested that the effect of perceived pain management barriers on emotional exhaustion depended on the level of reported negative views of hospital environment. Specifically, the relationship between barriers and emotional exhaustion was only significant when nurses also reported positive views of the hospital environment. Similarly to the previous interaction, at high negative views of the hospital environment, nurses reported high levels of emotional exhaustion, regardless of specific pain management barriers. However, for nurses who have a more positive view of the hospital environment, if they perceived lower pain management barriers, they had better emotional exhaustion outcomes (Figure 9). Future studies should consider personality or resilient individual factors that influence nurses' views of their environment as these perceptions seem important in assessing risk for burnout.

8.6 Study Limitations and Future Directions

It is important to consider some of the limitations in the current study. First, the specific nursing unit selected was not randomly selected; hospital staff identified this specific unit as one with high nurse turnover. Additionally all nurse participants were from a single health care institution. Thus, these findings might not generalize well to other units or other healthcare environments. Furthermore, limitations associated with focus groups are also relevant here. Some themes may have been discussed more thoroughly in certain groups, as topics discussed may be influenced by the comments of specific group members (Krueger, 1994). For example, nurses may not have felt comfortable speaking about the positive aspects of their experience or about the coping methods they utilize, as often times participants who had strong negative experiences dominated the conversations. In the quantitative portion of the study, a large sample

is necessary to fully evaluate a complex model, such as the one derived in Study 1. In short, the quantitative analyses were underpowered to examine the various relations predicted.

In terms of study design, the present quantitative study was cross-sectional and did not include a comparison group, which limits the ability to make causal conclusions or generalize findings to other samples. Future studies in this area might conduct both focus groups and individual qualitative interviews, enroll larger samples, evaluate burnout over time, examine interventions, and/or employ other strategies to advance understanding of burnout in nurses.

9 CONCLUSIONS AND CLINICAL IMPLICATIONS

The current study aimed to explore factors that contribute to burnout. Overall, results presented an expanded view of contributors to burnout that emerged both from the qualitative and quantitative data. Qualitative results suggested that nurses who work with chronic pain patients have unique stressors that contribute to burnout (i.e., negative pain beliefs, barriers to pain management, moral distress over pain medication and lack of patient improvement). Furthermore, nurses discussed how these stressors increase over time. Quantitative findings provided some support for the qualitatively-derived model, and highlighted some potential areas for intervention. Assessment of unique characteristics of nurses who continue in distressing work environments is warranted as this study did not fully identify protective variables that might moderate the relationship between predictors and burnout. This could be done through stronger assessment of a selected group of nurses, or through a similar study design including nurses who have already burned out and left the unit.

Although qualitative results suggested social support as a positive coping mechanism, quantitative results indicated that further assessment of intricacies of social support is warranted. Finally, the two variables that were added to the model (i.e., self-efficacy and views of hospital

environment) were important in quantitatively analyzing contributors to burnout, which supports the use of mixed-method analyses of complex phenomena in the work setting. Strengths of both study designs were utilized effectively to gain insight into areas of intervention for the nurses on this unit. Further testing of the hypothesized model with a larger sample would help clarify relationships between study variables.

Clinical implications include that nurses working with chronic pain patients may be at increased risk for moral distress and burnout. To our knowledge, this finding has not been explored with nurses who specifically work with these populations. Points of intervention supported by this study include boosting nurses' feelings of self-efficacy, improving nurse-patient relationships in hopes of buffering negative pain beliefs and preventing depersonalization, and ensuring that social support on the unit is productive and not further fostering negativity that may have long-term negative outcomes.

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11 APPENDICES

Appendix A Focus Group Script

1. WELCOME

Good evening and **welcome** to this research session. Thanks for taking the time to join us to talk about some of the issues you face on your unit.

My **name** is _____ and I'm here from the Department of Psychology at Georgia State University.

Along with **Eileen Murray and Karen Trotochaud**, we are gathering some information from nurses on this unit about their experiences **working with children with chronic pain** and their parents. We want to know how these experiences have affected you, the patients, and their parents.

This **study** will help us understand what is **challenging** so that we can **design an intervention** to help. Our discussion will take a little over an hour.

Your participation is **completely voluntary -** you do not have to participate if you do not want to. If you agree to participate, you have the right to only answer the questions you choose to answer. The potential **risks of this research are minimal** and confidentiality of private health information that you share with us will be maintained to the highest level. Each person in this focus group will be assigned **a Study ID number** and your names will not be included in any data documentation. If **patients** are mentioned by name, their names will also be replaced in study transcripts. You have the **right to stop participation** at any point during the interview if you so choose. For this phase of the study, the focus groups, the only personal information we will be collecting is what will be **recorded on the audiotapes** from these discussions. Again, when transcribed, participants and patients will only be identified by ID number. We will not be asking for personal health information at this time. We expect to enroll 60 participants in this study. If you have questions or concerns regarding this research**, you can contact** the PI Lindsey Cohen, PhD at Georgia State University or the Children's Healthcare of Atlanta IRB, the committee that works to protect your rights and welfare at Egleston Children's Hospital.

"Do you have **any questions**?"
"Do you agree to **voluntarily participate** in this survey process?"

---

2. OVERVIEW OF TOPIC & GUIDELINES

You were **selected to participate** because you work on the gastrointestinal unit at the Scottish Rite Children's Hospital. Our **goal** for this study is to find out exactly **what the difficulties** are in working on this unit with these patients so we can then look at **things we can do** to make your **work easier.** There are **no wrong answers** but rather differing points of view. Please feel free to **share your point of view** even if it differs from what others have said. Keep

in mind that we're just as **interested in defining the problems** as **developing solutions**; and, at times, talking about the **barriers** we face can be the most helpful.

You've probably noticed the **microphone**. We're tape recording the session because we don't want to miss any of your comments. People often say very helpful things in these discussions and we can't write fast enough to get them all down. We understand, due to the nature of the work you do here, it might not be possible for you to turn off your **cell phones or pagers**. If you must respond to a call, please do so as quietly as possible and rejoin us as quickly as you can. We will be on a **first name basis** tonight, but we won't use any names in our reports. You may be assured of complete **confidentiality**. My role as moderator will be to **guide the discussion**. The reports from these discussions will be used to evaluate the need for one or more intervention programs.

Well, **let's begin**. We've placed name cards on the table in front of you to help us remember each other's names. Let's find out some more about each other by going around the table. Please tell us **your name, your title and position, and how long you have been on this unit**.

3. **QUESTIONS**
    a. General Issues
        i. Explain the issues involved in working with children experiencing chronic pain.
    b. Moral Distress and Burnout
        i. What are the things you have to do that you don’t agree with when working with children experiencing pain?
        ii. What type of feedback do you receive about the work you do on this unit?
        iii. Describe how you feel at the end of a shift.
            1. How do you cope with stress?
    c. Ideas for change
        i. What are some things that could make this part of your job easier?
            1. What additional knowledge and skills would help make your job easier?
            2. Do you have any ideas for changes that could be made?
    d. Potential Barriers
        i. What are some barriers that you face on this unit?
            1. What does communication look like on this floor?
                a. Other than you and the children, describe who else is involved?

4. **GENERAL PROBES**
    a. Would you explain further?
    b. Would you give an example?
    c. I don’t understand.
    d. Tell me more.

5. **CONCLUSION**

a. **Summarize** and **confirm topic** discussed and lessons learned
b. **Review** goals and ask if anything has been **missed**
c. Ask nurses to **limit discussion** about the focus group process until the end of the week and all nurses have participated.
d. Thanks and dismiss

Appendix B IRB Consent for Quantitative Battery

Cover Letter for Quantitative Battery of Questionnaires
Study Title: Mixed Method Analysis of Nurses' Response to Pediatric Pain
Principle Investigator: Lindsey Cohen, PhD

We are asking you to volunteer to take part in a survey as part of a research study about the unique challenges the nurses' face when working with children with chronic abdominal pain. First we will ask you to complete a short form that will ask for personal information (i.e. gender, date of birth, race, etc). We will also ask for your nursing experience and about your current work hours. The questions in the survey that follows pertain to different aspects of your experience working with children with chronic abdominal pain and your feelings about the work that you do. The survey will take approximately 45 minutes of your time. Your participation in this survey is completely voluntary. This means you do not have to participate if you don't want to. If you agree to participate, you have the right to only answer the questions you choose to answer. The potential risks of this research are minimal and confidentiality of the information that you share with us will be maintained to the highest level. You have the right to stop participation at any point during the interview if you so choose. We expect to enroll 160 participants in this study. If you have questions or concerns regarding this research, you can contact the PI Lindsey Cohen, PhD at Georgia State University or the Children's Healthcare of Atlanta IRB, the committee that works to protect your rights and welfare at Egleston/Scottish Rite Children's Hospital. If you would like to participate- please continue with completing this survey and return it to the research coordinator.

Appendix C Background Information Form

Demographic Information Form

Please take a moment to complete the following forms making sure to answer every item. If you have any questions, please ask. Thanks!

1. Your gender (circle response): Male Female

2. Your age: _____

3. Your Race/Ethnicity (circle response): Caucasian Black/African American Hispanic
   Asian/Pacific Islander Native American If other, describe:_____

4. Your Marital Status (circle): Single Married Separated Divorced Widowed

5. Approximate total family income per year: _____

6. Number of children: _____

7. Highest degree: _____

8. Years of Nursing Experience: _____

9. Time (years and months) on current unit: _____

10. Years of experience with pediatric gastrointestinal patients: _____

11. Current Nursing Position (circle): Novice Colleague Resource

12. Number of hours worked per week: _____

13. Typical shift (circle): 7am-7pm 7pm-7am If other, describe: _____

Appendix D Moral Distress Inventory

Nurse Questionnaire (Pediatric)

Moral distress occurs when professionals cannot carry out what they believe to be ethically appropriate actions because of internal or external constraints. Please indicate how ***frequently*** you experience each item described and ***how disturbing*** the experience is for you.

Using the following two 0-5 scales, please rate the level of frequency **AND** the level of disturbance you have experienced for each statement.

Frequency

0	1	2	3	4
Never				Very Frequently

Level of Disturbance

0	1	2	3	4
Not Disturbed				Very Disturbed

	Frequency					Disturbance				
1. Provide less than optimal care due to pressures from administrators or insurers to reduce costs.	0	1	2	3	4	0	1	2	3	4
2. Witness healthcare providers giving "false hope" to parents.	0	1	2	3	4	0	1	2	3	4
3. Follow the family's wishes to continue life support even though I believe it is not in the best interest of the child.	0	1	2	3	4	0	1	2	3	4
4. Initiate extensive life-saving actions when I think they only prolong death.	0	1	2	3	4	0	1	2	3	4
5. Follow the family's request not to discuss death with a dying child who asks about dying.	0	1	2	3	4	0	1	2	3	4
6. Carry out the physician's orders for what I consider to be unnecessary tests and treatments.	0	1	2	3	4	0	1	2	3	4
7. Continue to participate in care for a hopelessly ill child who is being sustained on a ventilator, when no one will make a decision to withdraw support.	0	1	2	3	4	0	1	2	3	4
8. Avoid taking action when I learn that a physician or nurse colleague has made a medical error and does not report it.	0	1	2	3	4	0	1	2	3	4
9. Assist a physician who in my opinion is providing incompetent care.	0	1	2	3	4	0	1	2	3	4
10. Be required to care for patients I don't feel qualified to care for	0	1	2	3	4	0	1	2	3	4
11. Witness medical students perform painful procedures on patients solely to increase their skill.	0	1	2	3	4	0	1	2	3	4
12. Provide care that does not relieve the child's suffering because the physician fears that increasing the dose of pain medication will cause death.	0	1	2	3	4	0	1	2	3	4
13. Follow the physician's request not to discuss the child's	0	1	2	3	4	0	1	2	3	4

prognosis with parents.										
14. Increase the dose of sedatives/opiates for an unconscious child that I believe could hasten the child's death.	0	1	2	3	4	0	1	2	3	4
15. Take no action about an observed ethical issue because the involved staff member or someone in a position of authority requested that I do nothing.	0	1	2	3	4	0	1	2	3	4
16. Follow the family's wishes for the child's care when I do not agree with them, but do so because of fears of a lawsuit.	0	1	2	3	4	0	1	2	3	4
17. Work with nurses or other providers who are not as competent as the child's care requires.	0	1	2	3	4	0	1	2	3	4
18. Witness diminished patient care quality due to poor team communication.	0	1	2	3	4	0	1	2	3	4
19. Ignore situations in which parents have not been given adequate information to insure informed consent.	0	1	2	3	4	0	1	2	3	4
20. Watch patient care suffer because of a lack of provider continuity.	0	1	2	3	4	0	1	2	3	4
21. Work with levels of nurse or other care provider staffing that I consider unsafe.	0	1	2	3	4	0	1	2	3	4
22. If there are other situations in which you have felt moral distress, please write them and score them here:										
	0	1	2	3	4	0	1	2	3	4
	0	1	2	3	4	0	1	2	3	4
	0	1	2	3	4	0	1	2	3	4
	0	1	2	3	4	0	1	2	3	4

Have you ever left or considered quitting a clinical position because of your moral distress with the way patient care was handled at your institution?

No, I've never considered quitting or left a position _____
Yes, I considered quitting but did not leave _____
Yes, I left a position _____

Are you considering leaving your position now? Yes No

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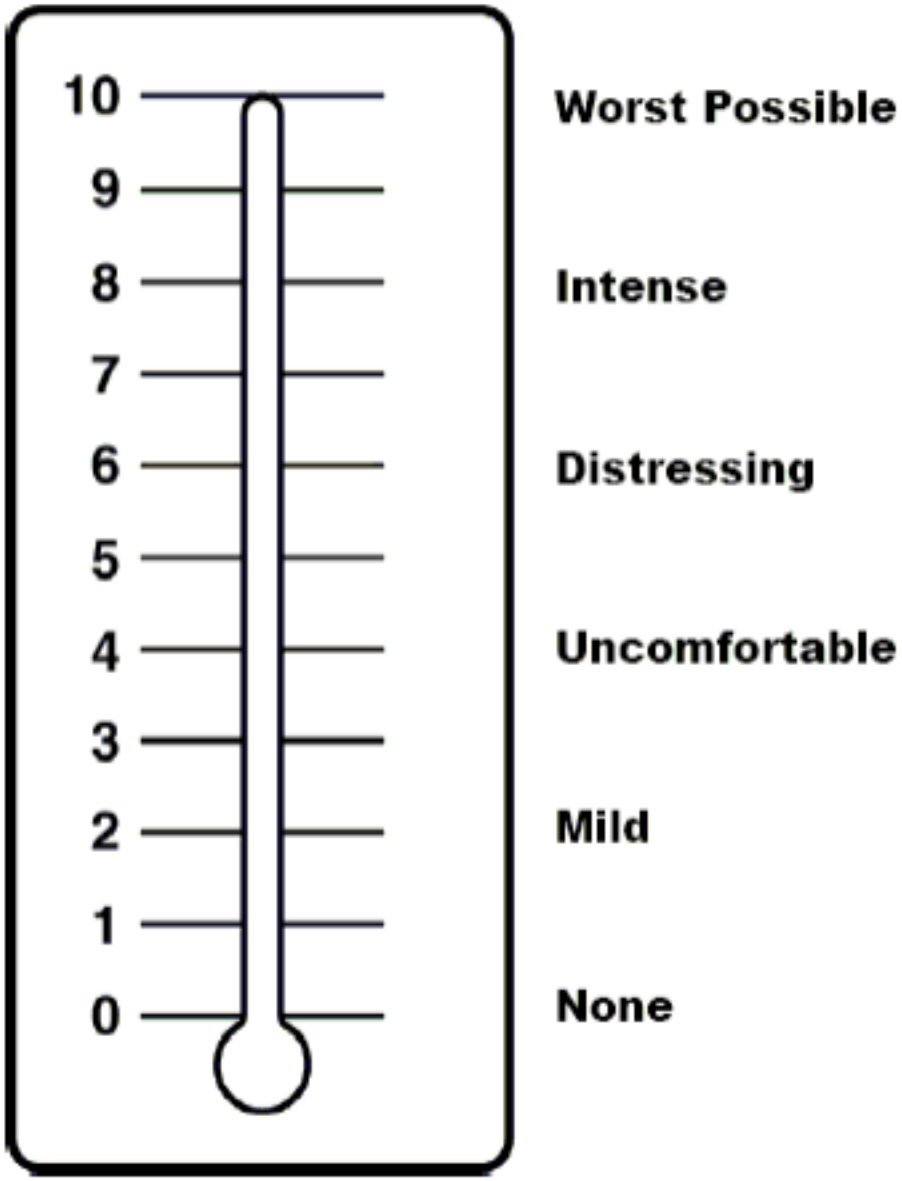
Appendix E Moral Distress Thermometer

Moral Distress Thermometer

Moral distress occurs when you believe you know the ethically correct thing to do, but something or someone restricts your ability to pursue the right course of action.

Please circle the number (0-10) on the Moral Distress Thermometer that best describes how much moral distress you have been experiencing related to work in the past week including today.



Appendix F Modified Barriers to Optimal Pain Management

Modified Barriers to Optimal Pain Management

Using the following 0-10 scale, please rate whether the following are barriers to optimal pain management on your unit?

0 1 2 3 4 5 6 7 8 9 10
Not a barrier A major barrier

1. Delays in orders being processed or delivered by the pharmacy	1 2 3 4 5 6 7 8 9 10
2. Inadequate or insufficient MD medication order	1 2 3 4 5 6 7 8 9 10
3. Reluctance of MD to get pain service involved	1 2 3 4 5 6 7 8 9 10
4. Low priority given to pain management by medical staff	1 2 3 4 5 6 7 8 9 10
5. Parents' reluctance to have children receive medication	1 2 3 4 5 6 7 8 9 10
6. My concern about side effects of medications	1 2 3 4 5 6 7 8 9 10
7. Patients' reluctance to report/rate pain	1 2 3 4 5 6 7 8 9 10
8. Patients' reluctance to take pain medications	1 2 3 4 5 6 7 8 9 10
9. Current documentation format	1 2 3 4 5 6 7 8 9 10
10. Competing demands on my time	1 2 3 4 5 6 7 8 9 10
11. Insufficient resources to provide guidance	1 2 3 4 5 6 7 8 9 10
12. My concern about children becoming tolerant to analgesics	1 2 3 4 5 6 7 8 9 10
13. Limitations in my knowledge of pain management	1 2 3 4 5 6 7 8 9 10
14. Low priority given to pain management by nursing staff	1 2 3 4 5 6 7 8 9 10
15. Low priority given to pain management by nursing management	1 2 3 4 5 6 7 8 9 10
16. Limitations in my ability to assess pain	1 2 3 4 5 6 7 8 9 10
17. My concern about children becoming addicted	1 2 3 4 5 6 7 8 9 10
18. Low priority given to pain management by me	1 2 3 4 5 6 7 8 9 10
19. The reliability of patients' reports on the pain scale	1 2 3 4 5 6 7 8 9 10
20. Insufficient care taken to treat psychological issues that are effecting pain experiences	1 2 3 4 5 6 7 8 9 10
21. Limitations in my knowledge of nonpharmacological pain management	1 2 3 4 5 6 7 8 9 10
22. Insufficient time or availability of Child Life, Psychology, or other allied healthcare professionals	1 2 3 4 5 6 7 8 9 10
23. Parents' resistance to nonpharmacological pain management	1 2 3 4 5 6 7 8 9 10
24. Patients' resistance to nonpharmacological pain management	1 2 3 4 5 6 7 8 9 10
25. Other _____	1 2 3 4 5 6 7 8 9 10
26. Other _____	1 2 3 4 5 6 7 8 9 10
27. Other_____	1 2 3 4 5 6 7 8 9 10

Appendix G Beliefs and Experiences about the Treatment of Chronic Pain

Questionnaire on Beliefs and Experiences about the Treatment of Chronic Pain

Using the following 0-6 scale, please rate how much you agree with the following statements.

1	2	3	4	5	6
Very Strongly Disagree	Moderately Disagree	Somewhat Disagree	Somewhat Agree	Moderately Agree	Very Strongly Agree

1. I do not believe the validity of a pain complaint in the absence of physical findings or a lack of objective findings on imaging studies, EMG, etc.	1	2	3	4	5	6
2. The treatment of chronic pain in our unit takes a back seat to treatment of more pressing issues like trauma or myocardial infarctions.	1	2	3	4	5	6
3. I do not have adequate time to assess and treat patients complaining of chronic pain.	1	2	3	4	5	6
4. I avoid administering opioids because patients will develop physical dependence and go through withdrawal when they abruptly halt the intake of the medicine.	1	2	3	4	5	6
5. I find myself labeling chronic pain patients as “bad patients” or “drug seekers.”	1	2	3	4	5	6
6. I tend to ignore patients when they become frequent flyers and turn to our unit for help for their chronic pain.	1	2	3	4	5	6
7. I am reluctant to treat chronic pain with opioids because these medications are not likely to work.	1	2	3	4	5	6
8. I think that most of the patients who come to our unit for pain medications do so because they do not have a primary care physician who will manage their pain complaints.	1	2	3	4	5	6
9. I get annoyed easily by chronic pain patients.	1	2	3	4	5	6
10. I believe that chronic pain patients who come to our unit are addicted to their pain medications.	1	2	3	4	5	6
11. I avoid administering opioids because patients will divert the medication.	1	2	3	4	5	6
12. I think that most of the patients who come to our unit for opioids are there because of lack of insurance or for some other financial reason	1	2	3	4	5	6
13. I tend to ignore patients when they seem to be magnifying their symptoms.	1	2	3	4	5	6
14. I think that most chronic pain patients over-report their pain on the pain scale.	1	2	3	4	5	6
15. I get annoyed easily by parents of chronic pain patients.	1	2	3	4	5	6
16. I believe that chronic pain patients who come to our unit are doing so to avoid reality back home	1	2	3	4	5	6

Appendix H Multidimensional Scale of Perceived Social Support

Multidimensional Scale of Perceived Social Support

Using the following 1-7 scale, please indicate how you feel about each statement.

1	2	3	4	5	6	7
Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree

1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I can talk about my problems with my coworkers.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. My coworkers really try to help	1	2	3	4	5	6	7
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is coworker I can go to when I am in need.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7
13. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
14. I can talk about my problems with my family.	1	2	3	4	5	6	7
15. I get the emotional help and support I need from my coworkers.	1	2	3	4	5	6	7
16. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7

Appendix I Jefferson Scale-Revised

Jefferson Scale- Revised

Using the following 1-7 scale, please indicate how you feel about each statement.

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

1. An important component of the relationship with my patients is my understanding of the emotional status of the patients and their families.	1	2	3	4	5	6	7
2. I try to understand what is going on in my patients' minds by paying attention to their nonverbal cues and body language.	1	2	3	4	5	6	7
3. I believe that empathy is an important therapeutic factor in medical treatment.	1	2	3	4	5	6	7
4. Empathy is a therapeutic skill without which my success as a nurse would be limited.	1	2	3	4	5	6	7
5. My understanding of my patients' feelings gives them a sense of validation that is therapeutic in its own right.	1	2	3	4	5	6	7
6. My patients feel better when I understand their feelings	1	2	3	4	5	6	7
7. I consider understanding my patients' body language as important as verbal communication in nurse-patient relationships.	1	2	3	4	5	6	7
8. An important component of the relationship with my patients is my understanding of the emotional status of the patients and their families.	1	2	3	4	5	6	7
9. I have a good sense of humor, which I think contributes to a better clinical outcome.	1	2	3	4	5	6	7
10. I try to think like my patients in order to render better care.	1	2	3	4	5	6	7
11. Patients' illnesses can be cured only by medical treatment; therefore, affectional ties to my patients cannot have a significant place in this endeavor.	1	2	3	4	5	6	7
12. Attentiveness to my patients' personal experiences in irrelevant to treatment effectiveness.	1	2	3	4	5	6	7
13. I try not to pay attention my patients' emotions in interviewing and history taking.	1	2	3	4	5	6	7
14. I believe that emotion has no place in the treatment of medical illness.	1	2	3	4	5	6	7

15. I do not allow myself to be touched by intense emotional relationships among my patients and their family members	1	2	3	4	5	6	7
16. My understanding of how my patients and their families feel is an irrelevant factor in medical treatment.	1	2	3	4	5	6	7
17. I do not enjoy reading nonmedical literature or experiencing the arts	1	2	3	4	5	6	7
18. I consider asking patients about what is happening in their lives an unimportant factor in understanding their physical complaints.	1	2	3	4	5	6	7
19. It is difficult for me to view things from my patients' perspectives	1	2	3	4	5	6	7
20. Because people are different, it is almost impossible for me to see things from my patients' perspectives.	1	2	3	4	5	6	7

Appendix J Nurses' Self-Efficacy in Managing Children's Pain

Nurses' Self-Efficacy in Managing Children's Pain

Please respond to each question by circling the degree which best indicates your confidence in managing children's pain.

1. How confident are you that you could assess children's pain across developmental stage?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident
2. How confident are you that you could choose appropriate pain assessment methods?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident
3. How confident are you that you could use the pediatric pain assessment tool for your patients?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident
4. How confident are you of your ability to give the correct pain controller to patients?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident
5. How confident are you of your ability to provide the nonpharmacological pain management to children?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident
6. How confident are you of your ability to cooperate with the medical team to relieve children's pain?	Very Confident	Moderately Confident	Fairly Confident	Mildly Confident	Not at all Confident

Appendix K The Practice Environment Scale of the Nursing Work Index

The Practice Environment Scale of the Nursing Work Index

For each item, please indicate the extent to which you agree that the item is PRESENT IN YOUR CURRENT JOB. Indicate your degree of agreement by circling the appropriate number.

1. Adequate support services allow me to spend time with my patients.	Strongly Agree	Agree	Disagree	Strongly Disagree
2. Physicians and nurses have good working relationships	Strongly Agree	Agree	Disagree	Strongly Disagree
3. A supervisory staff that is supportive of the nurses.	Strongly Agree	Agree	Disagree	Strongly Disagree
4. Active staff development or continuing education programs for nurses.	Strongly Agree	Agree	Disagree	Strongly Disagree
5. Career development/clinical ladder opportunity.	Strongly Agree	Agree	Disagree	Strongly Disagree
6. Opportunity for staff nurses to participate in policy decisions.	Strongly Agree	Agree	Disagree	Strongly Disagree
7. Supervisors use mistakes as learning opportunities, not criticism.	Strongly Agree	Agree	Disagree	Strongly Disagree
8. Enough time and opportunity to discuss patient care problems with other nurses.	Strongly Agree	Agree	Disagree	Strongly Disagree
9. Enough registered nurses to provide quality patient care.	Strongly Agree	Agree	Disagree	Strongly Disagree
10. A nurse manager who is a good manager and leader.	Strongly Agree	Agree	Disagree	Strongly Disagree
11. A chief nursing officer who is highly visible and accessible to staff.	Strongly Agree	Agree	Disagree	Strongly Disagree
12. Enough staff to get the work done.	Strongly Agree	Agree	Disagree	Strongly Disagree
13. Praise and recognition for a job well done.	Strongly Agree	Agree	Disagree	Strongly Disagree
14. High standards of nursing care are expected by the administration.	Strongly Agree	Agree	Disagree	Strongly Disagree
15. A chief nursing officer equal in power and authority to other top-level hospital executives.	Strongly Agree	Agree	Disagree	Strongly Disagree

16. A lot of team work between nurses and physicians.	Strongly Agree	Agree	Disagree	Strongly Disagree
17. Opportunities for advancement.	Strongly Agree	Agree	Disagree	Strongly Disagree
18. A clear philosophy of nursing that pervades the patient care environment.	Strongly Agree	Agree	Disagree	Strongly Disagree
19. Working with nurses who are clinically competent.	Strongly Agree	Agree	Disagree	Strongly Disagree
20. A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a physician.	Strongly Agree	Agree	Disagree	Strongly Disagree
21. Administration that listens and responds to employee concerns.	Strongly Agree	Agree	Disagree	Strongly Disagree
22. An active quality assurance program.	Strongly Agree	Agree	Disagree	Strongly Disagree
23. Staff nurses are involved in the internal governance of the hospital (e.g., practice and policy committees).	Strongly Agree	Agree	Disagree	Strongly Disagree
24. Collaboration (joint practice) between nurses and physicians.	Strongly Agree	Agree	Disagree	Strongly Disagree
25. A preceptor program for newly hired RNs	Strongly Agree	Agree	Disagree	Strongly Disagree
26. Nursing care is based on a nursing, rather than a medical, model.	Strongly Agree	Agree	Disagree	Strongly Disagree
27. Staff nurses have the opportunity to serve on hospital and nursing committees.	Strongly Agree	Agree	Disagree	Strongly Disagree
28. Nursing administrators consult with staff on daily problems and procedures.	Strongly Agree	Agree	Disagree	Strongly Disagree
29. Written, up-to-date nursing care plans for all patients.	Strongly Agree	Agree	Disagree	Strongly Disagree
30. Patient care assignments that foster continuity of care, i.e., the same nurse cares for the patient from one day to the next.	Strongly Agree	Agree	Disagree	Strongly Disagree
31. Use of nursing diagnoses.	Strongly Agree	Agree	Disagree	Strongly Disagree

Appendix L Maslach Burnout Inventory

MBI

In the following measure, the term "recipients" refers to the people for whom y9ou prove your service, care, or treatment. Thus, it likely refers to your patients and their parents.

Indicate how frequently you have the following feelings at work.

1. I feel emotionally drained from my work.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
2. I feel used up at the end of the workday.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
3. I feel fatigued when I get up in the morning and have to face another day on the job.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
4. I can easily understand how my recipients feel about things.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
5. I feel I treat some recipients as if they were impersonal objects.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
6. Working with people all day is really a strain for me.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
7. I deal very effectively with the problems of my recipients.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
8. I feel burned out from my work.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
9. I feel I'm positively influencing other people's lives through my work.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

10. I've become more callous toward people since I took this job.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
11. I worry that this job is hardening me emotionally.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
12. I feel very energetic.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
13. I feel frustrated by my job.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
14. I feel I'm working too hard on my job.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
15. I don't really care what happens to some recipients.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
16. Working with people directly puts too much stress on me.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
17. I can easily create a relaxed atmosphere with my recipients.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
18. I feel exhilarated after working closely with my recipients.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
19. I have accomplished many worthwhile things in this job.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
20. I feel like I'm at the end of my rope.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
21. In my work, I deal with emotional	Never	A few times a	Once a month	A few times a	Once a	A few times a	Every day

problems very calmly.		year or less	or less	month	week	week	
22. I feel recipients blame me for some of their problems.	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day