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The Prevalence of Burnout among Chiropractic Practitioners

Shawn P. Williams
Seton Hall University

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The Prevalence of Burnout among Chiropractic Practitioners

BY

Shawn P. Williams

Dissertation Committee:

Chair: Dr. Genevieve Pinto Zipp

Dr. Terrance F. Cahill

Dr. Raju K. Parasher

Approved by the Dissertation Committee:

Genevieve Pinto Zipp, Ph.D. Date 6-6-13
Terrance F. Cahill Date 6/6/13
Raju K. Parasher Date 6/6/13.

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Dedication

I dedicate the fruits of my labor to my family, both immediate and extended, whose life lessons have shaped my reality. Grandma Marie, Poppa Pete, Grandma Sara and Grandpa Jimmy – your words of encouragement will also always remain with me. Mom and Dad – thank you for all that you do. Kari, Rhiannon and Chris – we are internally connected through a common bond (universal intelligence). Olivia, Hayden, Tyra, Justin and Colin – I love you as if you were my own children. Yarissa, Logan and Lyanna – you mean the world to me. You've allowed me to express myself as a runner, healer and scholar; and for that I am humbly grateful. Finally, the science, art and philosophy of chiropractic – you've given me the gift of reasoning and for that I will forever be grateful.

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Abstract

Workplace burnout is emerging as a major concern in many health professions. Despite the extensive data on the prevalence of burnout amongst various helping professionals and anecdotal evidence of it in DCs, no formal study has evaluated rates of burnout among doctors of chiropractic. The purpose of this study was to establish the prevalence of burnout among doctors of chiropractic in the United States and compare these results with burnout data in other health care professionals. Using a non-probability convenience sampling methodology, the Maslach Burnout Inventory-Human Services Survey and a sociodemographic questionnaire was emailed to randomized sample of licensed chiropractors. Based on the groupings, 21% of the participants had high emotional exhaustion (EE), 8% of the participants had low personal accomplishment (PA), and had high 8% depersonalization (DP). In total, only twenty participants (2%) had met the criteria for high burnout while 539 participants (46%) were low. Results of the one-sample t test for emotional exhaustion, $t(1160) = -16.69, p < .001$, personal accomplishment, $t(1160) = 25.52, p < .001$, and depersonalization, $t(1160) = -17.38, p < .001$ suggest that chiropractors' overall burnout scores were significantly lower than health care norms. Furthermore, statistically significant differences were found in the level of EE, DP and PA as a function of gender, time dedicated to clinical care and administrative duties, source of reimbursement, the type of practice setting, the nature of practitioners' therapeutic focus, the location of chiropractic college, self-perception of burnout, the of effect of suffering from a work related injury, the varying chiropractic philosophical perspectives, and the public's opinion of chiropractic. Although doctors of chiropractic in the United States had lower levels of burnout compared to other healthcare professionals, higher levels of emotional exhaustion remain workplace issues for this professional group.

Key Words: Prevalence, Chiropractor, Burnout

Chapter I.

INTRODUCTION

Mainstream health care and governmental organizations such as the World Health Organization consider chiropractic to be complementary and alternative medicine (CAM) (Chapman-Smith, Cleveland, 2005). The chiropractic profession is the largest CAM profession (Meeker & Haldeman, 2002) and one of the largest licensed health care professions in the United States (Bureau of Labor Statistics, U.S. Department of Labor, 2012). Reports from chiropractic governing bodies, trade magazines, and research proceedings suggest that although the practice of chiropractic can be remarkably meaningful and personally gratifying, it is also arduous and stressful (Busse et al., 2011; Institute for Alternative Futures, 2005; Johnson & Green, 2012; Konrad, Fletcher, & Carey, 2004; Murphy, Schneider, Seaman, Perle, & Nelson, 2008; Nelson et al., 2005; S. Williams, 2011). The cumulative effect of chronic stress in the health care service industry often results in a condition known as burnout (Felton, 1998; Schaufeli & Enzmann, 1998). Burnout is defined as a “*psychological syndrome*” that involves a loss of enthusiasm for work (emotional exhaustion), feelings of cynicism (depersonalization), and a reduced sense of personal accomplishment (Maslach, Jackson, & Leiter, 1996; Zalaquett & Wood, 1997). The data from research on helping professionals (such as physicians, nurses, and rehabilitative therapists) has shown that burnout has serious consequences that go beyond the negative effects placed on the individual health care provider (depression, sleeplessness and illness) (Ahola & Hakanen, 2007; Leiter & Maslach, 2001; Wolfe, 1981). Additionally, burnout in helping professionals has led to their demonstration of poor job performance, unprofessionalism, absenteeism, attrition

and reduction of organizational commitment, which not only harms the patient-practitioner relationship (Munn-Giddling, Hart, & Ramon, 2005), but also increases organization expenditure by having to recruit and train new staff (Blankertz & Robinson, 1997).

A search using the medical subject heading term “burnout” in specialized databases such as PubMed, PsychLit and Medline reveals thousands of scientific publications (Maslach, Schaufeli, & Leiter, 2001; National Center of Complementary and Alternative Medicine, 2007; Schaufeli, 2003), suggesting that the popularity of the topic is unabated. Despite the extensive data (Eatough, Chang, Miloslavic, & Johnson, 2011; Lee & Ashforth, 1996; Schaufeli, 2003; Shanafelt et al., 2012) on the prevalence of burnout amongst helping professionals; no formal study has evaluated rates of burnout among US chiropractors (Williams, 2011; Williams & Innes, 2012)

Several salient reasons for investigating burnout among U.S. chiropractors include increased attrition rates and negative job satisfaction data within the chiropractic profession (Bernat, 2010; Foreman & Stahl, 2010; Garte, 1987; Mirtz, Hebert, & Wyatt, 2010; Simon, 2008), which have been linked to burnout amongst similar professions. Thus, suggesting that the chiropractic profession may be unknowingly and negatively impacted by the consequences of burnout. The scientific literature (Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002; Donohoe, Nawawi, Wilker, Schindler, & Jette, 1993; Gorter, Eijkman, & Hoogstraten, 2000; Gunn, Woolfolk, & Maxson, 1990; Humphris, 1998; Li Calzi et al., 2006; Lindsay, Hanson, Taylor, & McBurney, 2008; Murtomaa, Haavio-Mannila, & Kandolin, 1990; Ogiwara & Hayashi, 2002; Osborne & Croucher, 1994; Pavlakis, Raftopoulos, & Theodorou, 2010; Rogers & Dodson, 1988; Schuster,

Nelson, & Quisling, 1984; H. Te Brake, Bouman, Gorter, Hoogstraten, & Eijkman, 2007; H. Te Brake, Smits, Wicherts, Gorter, & Hoogstraten, 2008; J. H. Te Brake, Bouman, Gorter, Hoogstraten, & Eijkman, 2008; Wandling & Smith, 1997; Wolfe, 1981) from similar manual therapy-related professions (physical therapy and occupational therapy) and dentistry identifies specific occupational characteristics that have contributed to burnout within their respected fields. These burnout predictors include those that are associated with physical workload, role stress, and mental and emotional demands; and are outlined in prominent burnout theoretical models such as the Job-Demands Resource (JD-R) models and the Conservation of Resources (COR) model.

The data from previous burnout research in other helping professions has provided them the opportunity to organize efforts for early detection and prevention of burnout (Balch & Shanafelt, 2011; Ybema, Evers, & van Scheppingen, 2011), which ultimately reduces negative consequences of burnout that are placed on individuals, families, communities and health resources (Balch & Shanafelt, 2011; Ybema et al., 2011). As a result, this research effort attempts to fill the void that exists within the chiropractic literature in relation to understanding the prevalence of burnout and its potential impact on the profession.

Background to the Problem

The impact of burnout on various health care professionals can have significant consequences for both the provider and the patient receiving their services (Maslach & Florian, 1988; Schaufeli, 2003). While the term “burnout” has become quite common in both research and practice, it has been ill defined historically. Initially, the term burnout was introduced by Freudenberg in the 1970’s, and was used as an informal expression

by lawyers, social workers, psychiatrists, teachers and hospice counselors, to denote their gradual energy depletion and loss of motivation and commitment that was often associated with a wide array of other physical and mental symptoms (Freudenberger, 1974; Schaufeli, 2003). Although several different definitions of burnout (Cherniss, 1980; Pines, Aronson, & Kafry, 1981; Pines & Aronson, 1988) were proposed after Freudenberger's initial description, Maslach's (1982) definition of burnout is now the most influential and widely referenced (Schaufeli & Enzmann, 1998). Maslach (1982) and her colleagues (Maslach & Jackson, 1982) defined burnout as a psychological syndrome of emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (PA) that can occur among individuals who do "people work" of some kind. Furthermore, Maslach and Jackson's (1996) tripartite theory of burnout suggests that these three dimensions of burnout (EE, DP, PA) are progressive in nature. Emotional exhaustion, the first stage, develops when a person becomes overly involved and/or overwhelmed by the demands and needs of others. This in turn may progress to the second stage of burnout, depersonalization. As the sense of depersonalization heightens, the health care provider may move to the last stage, reduced personal accomplishment. A reduced sense of personal accomplishment may ultimately lead to depression, causing the person to seek counseling, quit, leave the profession, and/or try to obtain a job with less patient contact (Maslach & Jackson, 1982; Painter, Akroyd, Elliot, & Adam, 2003).

Researchers investigating burnout agree that helping professionals (physicians, nurses and various rehabilitation therapists) have a high potential for developing stress and consequently burnout (Cherniss, 1980; Cherniss, 1995; Pines et al., 1981; Schaufeli

& Enzmann, 1998). The increased susceptibility for burnout in helping professionals may be the result of spending their careers focusing on the needs of others (Schaufeli & Enzmann, 1998). For direct-care providers, it has been noted that constantly focusing on the needs of individuals who are not well may take an emotional toll on a caregiver. These feelings may in-turn, lead to fatigue, feelings of frustration and anger, a sense of ineffectiveness and failure, and result in the onset of depression (Ahola & Hakanen, 2007; Leiter & Maslach, 2001; Wolfe, 1981). Psychological symptoms have been noted to co-exist with, or manifest into, physical symptoms like frequent headaches, gastrointestinal disturbances, sleeplessness, chronic fatigue and illness (Maslach, 1976; Piko, 2006; Wandling & Smith, 1997). Either physical or psychological problems may ultimately be detrimental to a person's health, leading to severe mental, physical and behavioral stress reactions, and may impact their professional life as well (Dyrbye et al., 2008; Freudenberger, 1974; Kompier & Marcelissen, 1990; Wolfe, 1981).

Based upon the noted negative psychological, physiological and economic impacts of burnout in other helping professions, exploring the presence of burnout in the chiropractic profession appears reasonable as it may negatively affect the chiropractic professional, the care of the chiropractic patient, the institution in which chiropractic patients are cared for, and the chiropractic profession at large (Balogun et al., 2002). The literature (Balch & Shanafelt, 2011; Ybema et al., 2011) suggests that burnout is a preventable syndrome; and therefore, a detailed understanding of the prevalence and incidence of burnout with the chiropractic profession, may provide an opportunity for the profession to implement prevention and intervention strategies.

Intrinsically, there are at least two reasons for investigating burnout among U.S. chiropractors. First, in a recent retrospective analysis (Foreman & Stahl, 2010) of licensed Chiropractors in California, the authors identified that in the past decade attrition rose from 10 to 25% within the first 10 years of practice. The authors hypothesized that the rising attrition rate of chiropractors may be linked to an oversupply of chiropractors, changes in reimbursement, the cost of chiropractic education, and chiropractors' general dissatisfaction with their profession (Foreman & Stahl, 2010). In addition, data from a recent pilot study (Mirtz et al., 2010) exploring the attitudes of non-practicing chiropractors (n= 70) suggest that business ethics, overhead expenses, and salaries were contributing factors of attrition in the chiropractic profession. Interestingly, Mertz et al. (2010) found that most non-practicing chiropractors believed that the practice of chiropractic medicine was not a good career choice and thus would not recommend it to someone considering chiropractic as a vocation. Research has suggested that chiropractic colleges rely on practicing chiropractors as major recruiters of students (Coulter, Adams, Coggan, Wilkes, & Gonyea, 1998). Increasing levels of burnout in the chiropractic profession may impact on this avenue of student recruitment for chiropractic colleges.

Secondly, the organizational and client characteristics that have been shown to influence burnout in the dentistry, physical therapy (PT) and occupational therapy (OT) professions are similar to the occupational characteristics of the chiropractic profession. These occupational characteristics (physical workload, recipient contact, physical environment, feedback, and supervisor support) are delineated in the Job Demands-Resource (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) (Figure 1) as predictors of burnout. In fact, a recent pilot study (Williams, Pinto-Zipp, Cahill, & Parasher, 2013)

similarly found that chiropractors (n = 90) appear to share similar predictors (administrative duties and practice setting/type) of burnout to that of the PT, OT and dentistry professions. These findings suggested that a larger study might help identify precipitating factors of professional burnout and thus help generate a dialogue on improving the quality of professional life for chiropractors.

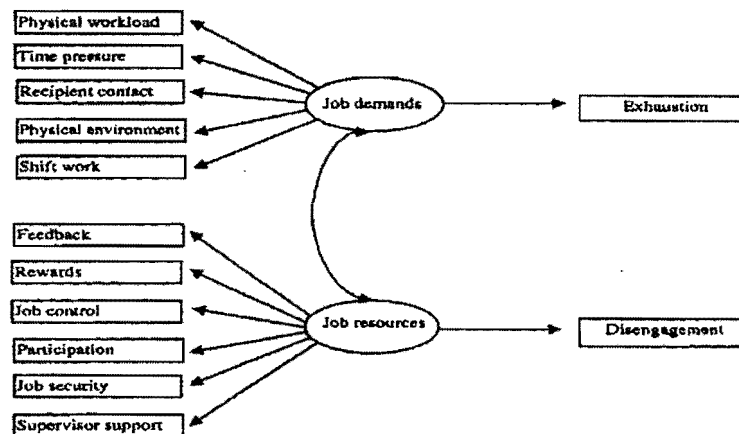


Figure 1. The job demands–resources model of burnout.

Statement of the Problem

Anecdotal information suggests that stress and burnout are noticeable and important issues in the chiropractic community. The first discussion on burnout was noted in 1987 in an ICA Review of Chiropractic (Garte, 1987). Shelley Simon made similar observations in the Chiropractic newspaper *Dynamic Chiropractic* (Simon, 2008). More recently it was raised in the *American Chiropractors Association News* (Bernat, 2010) as an occupation whose practitioners are more prone to job burnout. A web search reveals a multitude of chiropractic-associated organizations/assistants (*Chiropractic Practice Management*, March 27, 2012; *Chiropram's Blog*, July 7, 2009) offering to help reduce stress levels by altering practice methods; yet to date there has been no research

into this sizable and significant occupational group (Williams, 2011; Williams & Innes, 2012). If stress and burnout in the delivering of chiropractic care are at similar levels to that of other helping professions then accurate data, as opposed to anecdotal information, is required.

Purpose of the Study

The purpose of this study was to establish the frequency of burnout among doctors of chiropractic in the United States and compare these results with burnout data for other health care professionals. The importance of exploring burnout in the chiropractic profession is grounded in the Job Demands-Resource (JD-R) model and empirical evidence that is available in similar health care professions. Chiropractic professionals similar to other helping professionals within the healthcare system, such as dentists, physical therapists, and occupational therapists may be exposed to a unique source of stressors (increased demands and reduced resources) due to the autonomous and isolated nature of their practices, their close contact with patients, and their strong reliance on technical skills (Gorter, Albrecht, Hoogstraten, & Eijkman, 1999; Te Brake et al., 2008). In addition, many of these practitioners may also assume the role of private business owner, which usually involves a personal financial risk and a significant dependence on third party reimbursements. Importantly, these similar occupational characteristics appear to significantly influence the prevalence of burnout in the physical therapy, occupational therapy and dentistry professions. Accordingly, it may be appropriate to assume that if these occupational characteristics contribute to burnout in the physical therapy, occupational therapy, and dentistry professions, they may also contribute to burnout in the chiropractic profession. Therefore, the intended research

inquiry seeks to question a representative selection of chiropractors from varying locations on their perceptions of the impact of these factors using past established and validated measuring instruments / inventories.

Research Questions

- 1) What is the frequency of burnout in Chiropractors practicing in the United States?
- 2) How do chiropractor burnout values as measured by the Maslach Burnout Inventory – Human Services Survey compare to normative values?

Theoretical Foundation

The foundation of the proposed conceptual framework is based on the notion that the potential causes and symptoms of burnout are similar within the various health professions (Schuster et al., 1984). According to Maslach (2003), burnout occurs as a result of a complex interaction between individual characteristics and issues in the working environment. Individual characteristics such as age, gender, personality type, self-esteem, length of tenure in a position and additional training after initial qualifications, are some, amongst many factors that have been found to contribute to the onset of burnout (Cushway & Tyler, 1996; Janssen, Jonge, & Bakker, 1999; Kumar, Fischer, Robinson, Hatcher, & Bhagat, 2007; Maslach et al., 1996). Organizational characteristics such as skill variety, task identity, task significance, job feedback, job resources and job demands have also been found to contribute to the onset of burnout (Cordes & Dougherty, 1993; Dickinson & Wright, 2008; Ilhan, Durukan, Taner, Maral, & Bumin, 2008; Kumar et al., 2007; Maslach et al., 1996). In addition to these individual and organizational factors, client characteristics, including caseload, case type, and contact level (Cushway & Tyler, 1996; McLeod, 1997), have been found to contribute to

burnout. Maslach & Jackson (1982) report that medical physicians who spend most of their working time in direct contact with clients scored higher on an emotional exhaustion scale than physicians who spent some of their working hours in teaching or administration. In fact, higher rates of emotional exhaustion and depersonalization and lower rates of personal accomplishment have been found to be related to having a larger caseload (Maslach et al., 1996), too many referrals (McLeod, 1997), and potentially violent patients whom may provoke harm on themselves and/or members of the health care team (Cushway & Tyler, 1996).

Currently, two theory-based models are consistently used in the literature to guide burnout studies (Halbesleben & Buckley, 2004): the conservation of resources (COR) model (Hobfoll, 1989; Hobfoll & Freddy, 1993; Hobfoll, 1998; Hobfoll, 2001) and the job demands-resource (JD-R) model (Demerouti et al., 2001) (Figure 1). Both theories offer an explanation for the relation between job resources, job demands, and burnout. Job resources refer to valued things such as employment, job security, job enhancement opportunities, autonomy, participation in decision-making, and supervisor support (Akhtar & Lee, 2010; Hobfoll & Freddy, 1993). Job demands include physical and psychological demands (i.e. workload, work-pace and time pressures) and role conflict (Cordes & Dougherty, 1993; Demerouti et al., 2001; Lee & Ashforth, 1996). Both the COR model and JD-R model agree that when job demands are high and job resources are limited, there is an increased potential for burnout.

According to the COR theory “individuals strive to obtain, retain, protect, and foster those things that they value” (Hobfoll, 2001, p. 341). The COR theory holds that people try to maintain their valued resources, and when individuals’ resources are lost or

threatened, or when individuals fail to gain sufficient resources following significant resource investment, stress may occur (Hobfoll & Freddy, 1993). Burnout may develop from the prolonged stress created in trying to replace a lost or threatened resource(s) like social support (Houkes, Janssen, de Jonge, & Bakker, 2003).

The COR model (1989, 1998, 2001) of burnout is rooted in a general stress theory. Several studies have reported negative effects of job resources on EE, DP or both (Innstand, Langballe, Espnes, Falkum, & Aasland, 2008; Ito & Brotheridge, 2003; Neveu, 2007), indicating that job resources influence recovery from losses incurred through burnout (Akhtar & Lee, 2010). While the COR model emphasizes the significance of job resources and the notion that a lack of social support is a major contributing factor to burnout (Dignam & West, 1988; Maslach et al., 2001); the job-demands-resources (JD-R) model proposes that the development of burnout follows two independent processes. In the first process, demanding aspects of work lead to constant overtaxing and in the end, exhaustion. In the second process, a lack of resources complicates the meeting of job demands, which further leads to withdrawal behaviors. The long-term consequence of this withdrawal is disengagement (depersonalization) from work and the work environment.

Unlike the COR model which implies that job resources serve as a protective barrier for burnout, the JD-R model suggests that job demands are most predictive of feelings of exhaustion and that lacking resources is most predictive of disengagement from work. In fact, the findings of several research studies (Hobfoll & Freddy, 1993; Janssen et al., 1999; Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998) support the notion that job-demands (i.e. workload and role conflict) are primarily related to

emotional exhaustion, whereas resources (social support and autonomy) are more strongly related to depersonalization and personal accomplishment.

The dimensions identified in the JD-R and COR models are represented in the primary instrument used to evaluate the burnout phenomenon, the Maslach Burnout Inventory (MBI) (Balogun et al., 2002; Maslach & Florian, 1988; Maslach et al., 1996; Schaufeli, 2003). The MBI, a burnout measure tool developed by Maslach and Jackson (1981), dominates the research landscape in this field. It has been shown to be both a reliable and valid tool in evaluating job burnout (Maslach et al., 1996). To date, the primary form of this instrument used to measure burnout among helping professionals is the MBI-Human Services Survey (MBI-HSS) (Balogun et al., 2002; Maslach & Florian, 1988; Maslach et al., 1996; Schaufeli, 2003). Three dimensions / subscales have been distinguished from the 22 questions, namely emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA). Each seeks a rating on a 7-point likert scale (ranging from 0, “never” to 6, “every day”). Scores on each subscale are computed by summing the numeric responses. Given the validity and reliability (Demerouti et al., 2001; Maslach & Jackson, 1981; Schaufeli, 2003) of the MBI-HSS that has been demonstrated in various populations of helping professionals, it appears it is a plausible tool to be used to assess burnout in the chiropractic profession.

Chapter II.

LITERATURE REVIEW

The purpose of this literature review is to review the empirical evidence regarding the prevalence and determinants of burnout in various manual therapy professions, and discuss its possible association to the chiropractic profession. Since research on chiropractic burnout is limited (Williams, 2011), literature on similar autonomous health care professionals such as dentistry, physical therapy and occupational therapy is described. These professions were chosen because they process similar occupational and practice characteristics to that of the chiropractic profession. These characteristics include their independent oftentimes-isolated nature of practice, their strong reliance on technical skills, their hands-on approach and connection with their patients, their relatively high incidence of work-related injury (Gorter et al., 1999; Te Brake et al., 2008; Williams, 2011). Although medical doctors and nurses suffer with high levels of burnout (Grebowski et al., 2005; Ilhan et al., 2008; Kumar et al., 2007; Maslach et al., 1996; Maslach et al., 2001; Piko, 2006; Shanafelt et al., 2012), their occupational characteristics do not appear to completely placate the parameters of the inclusion criteria; and hence were excluded from the search.

This review was conducted as a three-part investigation. The first part involved reviewing burnout prevalence information in similar health professions. A literature search in PubMed, Medline and PsychLit using the terms *burnout*, *job stress*, *physical therapy*, *occupational therapy*, *dentistry*, and *manual therapy* was conducted. The second part of the search involved literature exploring occupational stressors of the chiropractic profession as applied to the JD-R and COR models. A thematic search of PubMed and

PsychLit, as well as the Cochrane Library, professional governing bodies of the chiropractic profession, trade magazines, and research conferences and symposium proceedings, was used. The final element of this literature synthesis sought gather and integrate literature that describes instrumentation used to measure burnout in the health professions and its potential applicability to the chiropractic profession.

Prevalence of Burnout in Manual Therapies

Physical therapists (PTs) and occupational therapists (OTs) are considered prime candidates for burnout because of their demanding clinical roles and their close interaction with clients (Balogun et al., 2002; Kania, Meyer, & Ebersole, 2009; Li Calzi et al., 2006; Lindsay et al., 2008). Wolfe (1981) suggests that therapists may come to lack a feeling of accomplishment – or even feel like a failure – when patients do not achieve their goals. A study (Lindsay et al., 2008) investigating workplace stressors experienced by PTs (n=80) working in public hospitals suggests that the organizational factors that contribute to burnout were high caseloads and staff shortages (Lindsay et al., 2008). In this environment, stress may be caused by the inability to meet various expectations or demands, which may influence burnout or job dissatisfaction. As a result, these helping professionals have a tendency to suffer from work-related or occupational stress which often results from high expectations coupled with insufficient time to meet their regular duties, inadequate skills and/or a lack of social support at work (Barnes, Bloom, & Nahin, 2010; Li Calzi et al., 2006; Wandling & Smith, 1997). Consequently, stress can lead to severe distress, burnout and/or physical illness (Blust, 2009; Dyrbye et al., 2008; Freudenberger, 1974; Piko, 2006; Wandling & Smith, 1997; Wolfe, 1981). The costs of

stress and burnout to organizations are high due to increased absenteeism and high staff turnover, both of which put undue pressure on the remaining therapists.

The burnout indices in the Li Calzi (2006), Balogun et al. (2002) and Painter et al. (2003) studies suggest that rehabilitation therapists (PT's and OT's) experience burnout at higher levels compared to other health service professions. In fact, a number of studies (Table 1) conducted in the USA and Europe have reported levels of burnout amongst PT's and OT's. Factors that contribute to burnout are practice location (hospital versus private practice) and/or specialty of practice (acute care versus chronic care) (Painter et al., 2003; Pavlakis et al., 2010; Schuster et al., 1984). Schuster et al. (1984) found that PTs in acute care general hospitals demonstrated a higher prevalence of burnout symptoms than those working in private practice. Painter and colleagues (2003) suggest that OTs working in chronic care settings (e.g. long term care, rehabilitation and psychiatric settings) demonstrate higher levels of emotional exhaustion than those working in hospital or community settings, such as schools, outpatient clinics and home health agencies. Pavlakis and co-authors (2010) report that PTs working in the private sector (i.e. either self-employed or as an employee) experienced higher levels of EE as opposed to those working in the public sector. Collectively, findings of moderate to high levels of burnout within the PT and OT populations have been reported in studies performed before 2002 and in the Northeast region of the United States (Balogun et al., 2002; Donohoe et al., 1993; Schuster et al., 1984), while relatively low-to-moderate levels have been reported in studies performed after 2005 and outside the United States (Li Calzi et al., 2006; Pavlakis et al., 2010; Wandling & Smith, 1997). In clinical practice, differences in the decade and the geographic location of practice can involve a

host of varying occupational characteristics (e.g. provider rights and responsibilities) that may have an effect on burnout prevalence. Nonetheless, even within these variable levels of burnout, many of the studies listed in Table 1 appear to agree that increased burnout among these helping professionals is linked to increases in perceived job-related stressors (Kania et al., 2009; Maslach & Florian, 1988; Pavlakis et al., 2010) and a lack a supervisor/colleague support (Balogun et al., 2002; Donohoe et al., 1993; Ogiwara & Hayashi, 2002; Schuster et al., 1984). In addition, all of the studies reported in Table 1 suggest that emotional exhaustion is the most prevalent facet of burnout within the PT and OT populations.

Of the variables noted in the JD-R model, the characteristics that appear to influence burnout in the PTs and OTs may also contribute to burnout exhaustion in chiropractors. In addition, in many cases practice location and specialty area in the PT profession are similar to those in the chiropractic profession. Although, most chiropractors work in private practice, a small number work in hospitals and public clinics (Bureau of Labor Statistics, U.S. Department of Labor, 2009; Kaptchuk & Eisenberg, 1998). Furthermore, the practice of chiropractic often involves the treatment and management of both acute and chronic care patients. Given that the individual, organizational and client characteristic are similar, it is predicted that the prevalence and determinants for burnout may also be similar.

Prevalence of Burnout in the Dentistry.

The prevalence (Croucher, Osborne, Marcenes, & Sheiham, 1998; Osborne & Croucher, 1994) and consequences (Murtomaa et al., 1990) of burnout in dentists have

also been extensively explored (Table 2). Like doctors of chiropractic, most dentists are in private practice with very few dentists working in hospital settings. As sole practitioners and private business owners, dentists, like chiropractors, are responsible for the management of both acute and chronic care patients, as well as the supervision of a variety of administrative tasks, including bookkeeping and the buying of equipment and supplies. These specific occupational characteristics appear to play a significant role in the onset and severity of burnout in dentistry. Using the "Burnout Measure" instrument, Pines and Aronson (1981) found that one-third of Finnish dentists (n=232) experienced some degree of burnout, and factors such as dissatisfaction with relationships with patients, problems relating to the physical environment, and poor working posture significantly increased burnout. Another Finnish study (n= 2,555) found that 44-47% of dentists experienced mild levels of burnout, while 2-3% experienced severe levels (Ahola & Hakanen, 2007). Osborne & Croucher (1994) reported high levels of burnout in British dentists (n=340), with 12% of the study population at risk of developing burnout. Additionally, they found that specific sociodemographic variables played a role in burnout risk / prevention, including marital status, educational status, time since qualification, numbers of dentists in the practice, number of days per week spent in practice and the proportion of National Health Service vs. private work undertaken. In another UK study (n=325), Croucher et al. (1998) found that levels of social support in the workplace, measured by the number of dentists in a practice, appear to have a protective effect against some aspects of burnout.

In a study that compared Dutch dentists (n= 709) to other health professionals, Gorter et al. (1999) found that although the prevalence of burnout in Dutch dentists was

low-to-moderate and no greater than prevalence than in other healthcare professions, the severity of Dentists' burned-out was high/extremely highly. In fact, 15.5% of the study population suffered with "high general levels of burnout." In a follow-up study, Gorter et al. (2000) sought to explore the association between dentists with high burnout risk and their subsequent health complaints. The authors concluded that dentists with a high burnout risk would experience more health-related events when compared to dentists at lower burnout risk. Te Brake (2007) also found that overall burnout levels among Dutch dentists (n= 497) were low and that a positive working attitude may be correlated to lower levels of burnout. The Te Brake (2007) findings also support the findings of Gorter (1999), in that dentists did not seem to suffer with greater levels of burnout than that of other healthcare providers.

The findings of Murtomma et al. (1990), Gorter et al. (1999), and Ahola & Hakanen (2007) appear to be consistent with the JD-R model of burnout in the dentistry profession, while findings of Osborne & Croucher (1994), Croucher et al. (1998), and Te Brake et al. (2007) appear to support the COR model. However, like the literature on burnout among PTs and OTs, the literature on burnout in dentistry suggests that dentists encounter numerous sources of professional stress that may have a negative impact on their personal and professional lives. Gorter et al. (1999) suggest that the stressors of working in isolated, private practices while managing staff members may play a significant role in the development of burnout. Also playing a significant role in developing burnout may be that many dentists endure the typical stressors of being a private business owner, while at the same time complying with strict restrictions by government and insurance companies (Gorter et al., 1999). As such, because of their

close contact with patients, their isolated practices, and their strong reliance on technical skills, chiropractors seem to share similar occupational characteristics and stressors to those of dentists, PTs and OTs. These occupational characteristics combined with potential stressors unique to the US chiropractic population emphasize the need for further research on burnout among chiropractors.

Potential Stressors unique to the US Chiropractic.

The chiropractic profession has overcome a variety of stressors and struggles since its inception in the mid-1890s. From that time, numerous chiropractors were prosecuted and jailed under the pretense of being a threat to society and for practicing medicine without a license (DeVocht, 2006). Other hardships include attempts made by the American Medical Association to contain and eliminate the chiropractic profession, including a wide-ranging prejudice by many within and outside of mainstream health care (Coulter, 1986; Konrad et al., 2004; Murphy et al., 2008; Wardwell, 1992). Since the early 1900s the profession has made substantial advances, such as obtaining conventional health care recognition, gaining both authenticity and access to insurance companies and managed care plans, receiving chiropractic research funding by the National Institutes of Health, and including chiropractic physicians in the Veterans Administration healthcare system (Copper & McKee, 2003; Konrad et al., 2004; Murtomaa et al., 1990). Yet in spite of these advances, the chiropractic profession in the United States continues to struggle with unique profession-specific stressors that may place its members at increased risk for burnout. Examples of these unique profession-specific stressors involve philosophical and political differences amongst leadership groups within the profession, professional-identity inconsistencies, poor public perception and negative media

coverage, unique physical demands that result in a risk of suffering from a work-related injury, market competition from other manual therapists (acupuncturists and massage therapists), high student loan default rate, threats to autonomy, and various ethical and morality issues (Copper & McKee, 2003; Foreman & Stahl, 2004). The essence of this theoretical exploration is to suggest that these unique profession-specific stressors combined with the typical stressors (close interaction with clients, lack of supervisor support, strong reliance on technical skills, profitability) that similar helping professions are exposed to, may be applied to the JD-R and COR models as a mean of explaining the potential for burnout in chiropractic profession. As such, consistent with the JD-R model, the main job demands of practicing chiropractors include physical workload, mental and emotional demands and role stress (role ambiguity and role conflict), and the main job resources involved in the practice of chiropractic include job autonomy and social support climate (lack of supervisor support).

Physical Workload

A source of stress within the chiropractic profession, as well as the physical and occupational therapy and dentistry professions (Anton, Rosecrance, Merlino, & Cook, 2002; Cromie, Robertson, & Best, 2000; Darragh, Huddleston, & King, 2009; Michalak-Turcotte, 2000; Molumphy, Unger, Jensen, & Lopopolo, 1985; Morse et al., 2003), is a relatively high incidence of work-related injuries. For many professions, injury history, area of practice specialization, or work environment has been identified as potential risk of work-related injuries (Ndetan, Rupert, Bae, & Singh, 2009b). The chiropractic, physical therapy and dentistry professions are at increased risks for work-related injury because of their exposure to repetitive movements, hand force, static loading and

awkward postures in their work (Albert, Duncan, Currie-Jackson, Goudet, & Callaghan, 2006; Homack, 2005; Ndetan, Rupert, Bae, & Singh, 2009a; Ndetan, Rupert, Bae, & Singh, 2009b). Lorme and Naqvi (2003) found that when performing treatments, chiropractors were continually subject to dynamic forces that increase spinal loading and resultant risk of injury.

Studies investigating the musculoskeletal demands of chiropractic therapies have suggested a high prevalence of low back pain ranging from 57% (Rupert & Ebete, 2004) to 87% (Mior & Diakow, 1987). Mior and Diakow (1987) report that 41% of the chiropractors (n= 320) interviewed felt that the posture(s) they assumed while treating patients was the most significant causative agent in their development of their back pain, and that 82% of those chiropractors thought their back pain was further aggravated by continued practice. Homack's (2005) survey of practicing chiropractors (n = 69) in New York State suggests that patient handling and delivery of side-posture manipulative procedures are the activities that most frequently result in work-related injury to the practicing chiropractors. Bisiacchi and Huber (2006) report differences in the prevalence of musculoskeletal injuries between male and female chiropractors in the United States. Among female chiropractors (n = 43), the low back was the most common site of injury reported, while male chiropractors (n = 77) reported the neck as the most common site of injury (Bisiacchi & Huber, 2006). The study by Holm & Rose (2006) found a moderate prevalence (41%) of workplace musculoskeletal injuries among doctors of chiropractic (n = 397), particularly of the wrist, hand, fingers and shoulder. Furthermore, Holm & Rose (2006) note that injuries occurred most commonly in the first to fifth years of practice, and that side-posture manipulations caused the greatest percentage of injuries.

The few studies (Bisiacchi & Huber, 2006; Holm & Rose, 2006; Homack, 2005; Lorme & Naqvi, 2003; Mior & Diakow, 1987; Rupert & Ebete, 2004) that have investigated injuries associated with chiropractic practice appear to agree that using manual therapy, particularly side-posture manipulation, increases the amount of biomechanical and postural demands on the practitioner applying the therapy. Side posture manipulation is a trademark treatment modality in the chiropractic profession, and is used for the treatment of low back pain (Shekelle, Markovich, & Louie, 1995). As a result of injury, some chiropractors may change their treatment techniques or their frequency or duration of work, or may choose to leave the profession (Ndetan, Rupert, Bae, & Singh, 2009a). This notion brings to light questions that are currently not being addressed in the literature. Namely, what is the impact of chiropractic-specific work-related injuries on burnout of chiropractic practitioners? Despite the lack of literature on this issue, it may be reasonable to hypothesize that if work-related injuries are as significant as the literature suggests, then sustaining a chiropractic-specific work-related injury may partially contribute to not only a physical injury, but a sense of increased emotional exhaustion, increased depersonalization, and reduced personal accomplishment.

Role Stress

Within the job demand category of the JD-R model, concepts such as role ambiguity and role conflict are emphasized (Demerouti et al., 2001). Role ambiguity typically refers to an individual's lack of clarity about his/her expected behavior from a job; whereas role conflict refers to a type of social conflict caused from an individual being forced to take on separate and incompatible roles (i.e. business owner and

physician) (Eatough et al., 2011). The construct of role stress and its influence on burnout within the chiropractic profession may involve the professions' unique public perception and identity stressors.

Within the US, the chiropractic profession has struggled with establishing a clear identity that is both accepted and relevant to the public (Murphy et al., 2008). This struggle may, in part, be due to the presence of two opposing philosophical and political forces within the profession. As a result, these two predominate governing bodies, the American Chiropractic Associate (ACA) and the International Chiropractic Association (ICA), represent the entire profession at large, often creating contradictory scenarios with regards to lobbying, public relations, leadership and advancement of the profession (Copper & McKee, 2003). Although the situation is more complex, the two opposing views are sometimes simplistically referred to as "straights" vs "mixers". Although each side sees chiropractic potentially addressing a wide range of diseases and conditions, the "straight" view focuses on the "chiropractic adjustment" and attributes poor health to "chiropractic subluxations" that interfere with the flow of "vital energy," whereas the "mixer" view supports a broader scope of treatment (eg, a "mixer" will "mix" in other therapies in addition to manipulation, such as physiotherapeutic, diet, exercise) and has a more musculoskeletal and evidenced-based practice focus (Copper & McKee, 2003). These philosophical differences clash during lobbying efforts among leadership groups within the profession and, as a result, may further exacerbate the professional-identity inconsistencies and public perception uncertainties that shadow the profession. These political conflicts resulting in inherent poor public perception and identity discrepancies stressors may have prevented the chiropractic profession from establishing its cultural

authority over any specific domain of health care and, therefore, may be the source of significant stress among its practitioners (Murphy et al., 2008).

Cultural authority allows a profession to impact perception and influence the public (Fuhr, 2010). Dissension in creating its cultural authority may be the result of the varying public perceptions of the chiropractic profession and the chiropractic profession's internal struggle with establishing a universal identity.

Within the profession, an individual chiropractor may specialize in a number of available techniques and methods in his or her practice (Nelson et al., 2005). The practice of chiropractic is multifaceted and, for many, involves a vast array of healing arts and modalities such as manipulation, massage, strength training, various physical therapy modalities, traction, and nutritional consultation (Coulter & Shekelle, 2005). These varying views and practice styles may result in confusion for the public in that patients, medical physicians, the managed care industry, and individual chiropractic practitioners themselves have different perspectives on defining the profession (Mootz, Meeker, & Hawk, 1997). Thus, identity problems combined with poor public comprehension may threaten the future vitality of the profession. The end result of these incongruencies makes it plausible to hypothesize that the identity and public perception discrepancies that shadow the chiropractic profession may partially contribute to a sense of increased emotional exhaustion, increased depersonalization, and reduced personal accomplishment.

Mental and emotional demands

Increased susceptibility for burnout in helping professionals may be the result of spending their careers focusing on the needs of others (Schaufeli & Enzmann, 1998). In

addition to the mental and emotional demands involved in direct patient care, doctors of chiropractic also battle issues that threaten their ability to maintain satisfactory income (e.g. managed care, Medicare regulation, scope of practice restrictions, national health care reform) (American Chiropractic Association, 2010; Stanley, 2007; Zhang, Rupert, Nosco, & Tepe, 2003). These issues may serve as a source of mental stress and thus may have an impact on the prevalence of burnout. In an attempt to understand profitability and viability insecurities, Zhang & Rupert et al. (2003) sought to investigate chiropractic students' knowledge and attitudes of education and financial investments. These authors, along with Coulter, Adams, Coggan, Wilkes, & Gonyea, (1998), suggest that the present-day chiropractic student invests a similar amount of time, effort, and finances to pursue a career in chiropractic, as does the present-day medical student (Coulter et al., 1998). These investment issues raise an important line of questioning, especially in terms of return on investment and career expectations. Edwards et al. (2002) suggest that differences between what medical doctors might have reasonably expected for their career and how their career actually turned out may have obvious implications on burnout (Edwards, Kornacki, & Silversin, 2002). Furthermore, Edward et al. (2002) suggest that students and practitioners, in general, whom invest a significant amount of time, effort, and finances into their education would expect to be rewarded with a profitable career; however, evidence suggests that the default rate for student loans is much higher among chiropractors than it is among graduates of any other health profession (such as dentistry, medicine, podiatry); and that over years, the percentages of defaulters who had declared bankruptcy or were reportedly disabled were also much higher among chiropractors (Bureau of Labor Statistics, U.S. Department of Labor, 2009). The chiropractic loan

default rate signifies an immense problem, and perhaps may be a significant source of stress for chiropractic practitioners. Therefore, it is reasonable to suggest that the chiropractic loan default rate may partially contribute to burnout.

In addition to difficulties with paying student loans, retrospective data seems to be demonstrating that insurance reimbursements to chiropractors are actually lessening, while the number of practitioners is growing, and competition from other healing professions is increasing (Bureau of Labor Statistics, U.S. Department of Labor, 2009; Cooper, 2001). These market competition factors may serve as a source of mental and emotional stress within the chiropractic profession as well. Data from Institute for Alternative Futures (2005) suggests that a slowing economy, along with the recent increase in health insurance premiums, has a dampening effect on the rate of growth in demand for chiropractic services (Institute for Alternative Futures, 2005). In addition, Cherkin, Deyo, Battie, Street, & Barlow (1998), Ernst et al. (1995) and Preyde (2000) suggests that patients seeking manual treatment for musculoskeletal conditions, in a form that is similar to chiropractic spinal manipulation therapy, may choose to seek services from massage therapists who outnumber chiropractors and are growing in both numbers and market share (Copper, Laud, & Dietrich, 1998). Competition from acupuncturists, osteopaths and medical physicians, some of whom are also demonstrating an increased interest in manual therapy, further adds pressure (Copper et al., 1998). In addition, there may be a supply and demand issue regarding the number of chiropractors within the profession. Data from the U.S. Department of Commerce (2001) indicate that the total reported net income for chiropractic offices and clinics rose from \$6.56 billion in 1992 to \$7.68 billion in 1998, which is about 2.8% per year. Because the number of practicing

chiropractors has been increasing (US Census Bureau, 2001), these figures may show that real chiropractic income may be decreasing steadily, thus adding to burnout factors.

Results from a recent pilot study (Williams et al., 2013) support the above-described notion that chiropractors face unique profession specific stressors (such as the professions' public perception and philosophical inconsistencies) that appear to have an association with their subsequent burnout indices. Notably, elevated EE, DP scores and depressed PA scores were related to stressors such as the following: suffering from/with a work related injury, the varying philosophical perspectives within the profession, and the perception of chiropractic by the public. In addition, of the participants that responded to the open-ended question ("what factors do you feel influence the risk for burnout within the chiropractic practitioners?"), the majority of them answered "money", followed by "doing too much". These findings predict a directional association between third party payer influences (increased regulation/decreased reimbursement) with that of increased EE, DP and reduced PA.

The Measurement of Burnout

The Maslach Burnout Inventory (MBI), developed by Maslach and Jackson (1981), appears to be the most frequently used and most reliable and valid tool, in evaluating job burnout (Maslach et al., 1996). The MBI was originally designed for uses in human service occupations (MBI-HSS) and education (MBI-ES). The original version of the MBI was then adapted to use outside human services (MBI-GS) (Schaufeli, 2003). To date, the primary instrument used to measure burnout among helping professionals is the MBI-HSS (Balogun et al., 2002; Maslach & Florian, 1988; Maslach et al., 1996;

Schaufeli, 2003). In the helping professions, three dimensions of burnout are distinguished, namely emotional exhaustion, depersonalization and low personal accomplishment. The MBI-HSS consists of 22 questions measuring the three aspects (dimensions) of burnout. The items are written in the form of statements about personal feelings or attitudes (e.g., “I feel burned-out from my work,” “I don’t really care what happens to some people I encounter at work”) (Zalauett & Wood, 1997). The items are answered in terms of frequency with which the respondent experiences these feelings, on a 7-point likert scale (ranging from 0, “never” to 6, “every day”). Scores on each subscale are computed by summing the numeric responses. There are nine items in the Emotional Exhaustion subscale, five items in the Depersonalization subscale, and eight items in the Personal Accomplishment subscale. Scores range from 0 to 54 on the EE subscale, from 0 to 30 on the DP subscale, and from 0 to 48 on the PA subscale. . By definition, high burnout is characterized by high EE (27 or over), high DP (13 or over), and low PA scores (39 or over); average burnout is characterized by average EE (17-27), DP (7-12), and PA (32-38) scores; and low burnout is characterized by low EE (0 to 16), low DP (0-6), and high PA scores (0 -31) (Kania et al., 2009; Maslach & Leiter, 1997). Low degree of burnout' results encompass “no burnout”.

The Maslach Burnout Inventory (Maslach et al., 1996) has been subjected to numerous exploratory factor analyses, confirming the three components of burnout, emotional exhaustion, depersonalization, and personal accomplishment (Byrne, 1993; Gold, et al., 1992; Iwanicki & Schwab, 1981; Leiter & Durup, 1994; Maslach, Jackson, & Leiter, 1996), and is often referred to as the “gold standard” (Maslach & Leiter, 1997). However, some of the earlier debates about burnout and the MBI, focused on the issues

of reliability and validity (Demerouti et al., 2001; Maslach & Jackson, 1981; Schaufeli, 2003). In survey research, it is important to acknowledge that the instrument of use will always elicit a consistent and reliable response even if questions were replaced with other similar questions (Reynaldo & Santos, 1999). There are two ways that reliability is usually estimated: test/retest and internal consistency. Internal consistency is usually estimated with a Cronbach's alpha statistic (range in value from zero to one), and the higher the score, the more reliable the generated scale is. Nunnally (1978) has indicated 0.7 to be an acceptable reliability coefficient. Initial research on the MBI-HSS for the three subscales ranged from a Cronbach's alpha score of 0.71 for personal accomplishment, 0.79 for depersonalization, and .90 for Emotional Exhaustion, amongst elementary and secondary education, postsecondary education, social services, medicine, and mental health professions (Maslach et al., 1996). Boles, Dean, Ricks, Short and Wang (2000) found Cronbach alpha coefficients of 0.89 and 0.90 for emotional exhaustion, 0.70 and 0.80 for depersonalization, and 0.76 and 0.78 for personal accomplishment among educators and small business owners in the United States, correspondingly. Basson and Rothmann (2002) found internal consistencies of 0.67 for depersonalization, 0.73 for personal accomplishment, and 0.89 for emotional exhaustion in a pharmacist sample. In their sample of psychiatric nurses, Levert, Lucas and Ortlepp (2000) reported alpha coefficients of 0.74 for depersonalization, 0.75 for personal accomplishment and 0.78 for emotional exhaustion. Naude & Rothmann (2004) also report acceptable levels of internal consistency reliability ($P < .001$) in various samples including graduate students, administrators in a health agency, teachers, social service and mental health workers, police officers, nurses and public service employees. In

addition to these internal consistency reliability estimates, data on test/retest coefficients were .82 for emotional exhaustion, .60 for depersonalization, and .80 for personal accomplishment (Maslach et al., 1996). Ruppert and Morgan (2005) report test/retest reliability coefficients of 0.82 for emotional exhaustion, 0.60 for depersonalization, and 0.71 for personal accomplishment, amongst professional psychologists. Jackson, Schwab & Schuler (1986) also demonstrate significant reliability of the MBI. In effect, the goal in designing a reliable instrument is for scores on similar items to be related (internally consistent), but for each to contribute some unique information as well. Although each MBI dimension appears to have a wide range of values (EE: 0.78-0.90; DP: 0.60-0.79; PA: 0.71-0.80), these internal consistency and test-retest estimates suggest that the MBI-HSS demonstrates adequate repeatability across a wide range of helping and non-helping professions when evaluating the three dimensions of burnout.

In survey research it is also important to understand the “true” strength of our conclusions, inferences or propositions. As such, it is important to identify that the MBI is actually measuring the burnout construct, and a not similar construct(s), like stress, job satisfaction, and/or depression. Validity for the MBI-HSS has been established in many forms. Factorial or structural validity is the degree to which the measure of a construct conforms to the theoretical definition of the construct (Hoyle & Smith, 1994; Loevinger, 1957; Messick, 1995) and is considered an important component of establishing evidence for the validity of inferences from test scores (Loevinger, 1957; Messick, 1989, 1995). In 2005, the factorial validity of the MBI-HSS was shown across many (n = 705) occupational groups including health, education and criminal justice professionals (Gil-Monte, 2005). The data from Gil-Monte’s (2005) study provided support for factorial

validity of MBI-HSS and suggests that its subscales present internal consistency to evaluate the quality of working life across several professions. In addition, factorial validity of the MBI-HSS has also been confirmed by Gold et al. (1989), suggesting that burnout, as assessed by the MBI, is a multidimensional construct.

Convergent validity studies indicate that the MBI-HSS scales measure the same constructs as do other burnout instruments (i.e. Burnout Measure & Staff Burnout Scale for Health Professions), in mental health workers, police and spouses, physicians, nurses, and social services workers (Schaufeli & Enzmann, 1998). Convergent validity has also been demonstrated through external verification of personal experiences, dimensions of the job experience, and personal outcomes (Maslach & Jackson, 1981). Divergent validity has been established by distinguishing the MBI-HSS from other psychological constructs, such as job satisfaction and/or depression, which are considered confounding variables of burnout (Maslach et al., 1996). As a result, it appears that the findings from these convergent and divergent validity studies support the notion that the MBI-HSS is actually measuring the three dimensions of burnout and not some other anxiety, depression, or job dissatisfaction phenomenon. Furthermore, Riggall, Godley & Hafer (1984) has established discriminate validity of the MBI-HSS in a group of rehabilitation workers by evaluating job satisfaction and burnout on rehabilitation administrators (n=115) and direct-service rehabilitation providers (n=124). In addition to noting an inverse relationship between job satisfaction and burnout, Riggall et al. (1984) also found that administrators report higher levels of job satisfaction and practitioners with direct client contact report higher levels of burnout. As a result, the above noted studies that have explored validity concerns of the MBI-HSS and its applicability to the three dimensions

of burnout appear to agree that the MBI-HSS is specific to the three dimensions of the burnout phenomenon and not any other job dissatisfaction and/or stress-related phenomenon. The evidence reported in the literature supports that MBI-HSS is a suitable measurement tool to assess burnout across a diversity of professions. More so, given the validity and reliability of the MBI-HSS that has been demonstrated in various populations of helping professionals, it appears that the MBI-HSS provides a reasonable instrument for measuring burnout of chiropractors at this time.

Summary

Chiropractors, like dentists, PTs and OTs may be exposed to a unique source of stressors due to the autonomous and isolated nature of their practices, their close contact with patients, and their strong reliance on technical skills. In addition, many chiropractors also assume the role of private business owner, which usually involves a personal financial risk and a significant dependence on third party reimbursements. These occupational and practice characteristics appear to significantly influence the prevalence of burnout in the other health professions. Paralleling this trend, in many countries, doctors of chiropractic have seen major changes in the healthcare environments in which they practice.

In summary, as chiropractors face many of the same challenges as other health care providers with decreased reimbursement, changing patient payer types, changing patient and payer expectations, and diminished profit margins, they also face unique set of profession-specific stressors such as increasing market competition challenges (both internally and externally), identity and poor public perceptions inconsistencies, a relatively high prevalence of work-related injuries and a high student loan default rate.

Common challenges within the health care arena, combined with the noted chiropractic-specific stressors, and the chronic work-related stressors of caring for individuals, may pose a hazard to the chiropractor at risk of developing burnout. That is, as chiropractors face increasing conflicts, both internally and externally, the need for assessing and measuring burnout and attrition within the chiropractic profession becomes increasingly apparent.

Chapter III.

METHODS

Participants

Subjects included any Doctor of Chiropractic (DC) currently licensed to practice chiropractic (at least 20 years old; with no limit on maximum age criteria) whose primary occupation involved the chiropractic profession in anyone of the following capacities - clinical, academic, administrative, and/or research. Non-DCs and DCs that were principally involved in work outside the realm of chiropractic were excluded from the study

Sampling methodology

Using a non-probability convenience sampling methodology, the principle investigator (PI) approached a national chiropractic-marketing agency (MPA Media, 2013) and purchased the email contact information of a randomized sample of licensed chiropractors (n = 8000) from their membership directory. As such, the accessible population was defined as any DCs with an email address listed in that national database (n = 42,456) during January 2013.

Sample size calculation was performed based on population parameters (Cochran, 1963). With an accessible population of 42,456 chiropractor email addresses, a margin of error of 3%, a confidence level of 95% and response distribution of 50%, the calculated base sample size is 1041. As a result, the relatively large confidence level (95% as opposed to 90%) combined with the relatively small margin of error (3% as opposed to

5%) increased the investigators' level of accuracy and confidence that the sample statistic reflected the desired population parameters (Portney & Watkins, 2009).

Materials

This study was exploratory-descriptive in nature and involved the use cross-sectional data collection as a means of understanding the prevalence of burnout among chiropractors. Survey Monkey (Gold member) software was the electronic medium used. An e-mail letter of invitation with a hyperlink to an online version of the survey was mailed to the randomized sample of 8000 DCs (as provided by the national chiropractic marketing agency). The email letter of invitation (Appendix A) included the title and purpose of the project, procedures for the anonymous and voluntary nature of the survey and potential risks and benefits of participation. The word "burnout" was not mentioned in the email letter of invitation to reduce respondent bias, and respondents were informed that their results would be anonymous. All potential participants were welcomed with two qualification questions, to determine if the participant was a licensed doctor of chiropractic and if their current primary occupation encompassed the chiropractic profession (clinical, academic, administrative and/or research). Non-DCs and/or DCs that were principally involved in work outside the realm of chiropractic were excused from the study; non-direct care DCs (i.e. administrators, academics and/or researchers) were not required to answer questions that referred to direct patient care.

Questionnaire

The first part of the questionnaire (MBI-HSS) consisted of 22 Likert scale questions measuring the three aspects (Emotional Exhaustion, Depersonalization,

Personal Accomplishment) of burnout, which were subsequently categorized as the dependent variables of interest. Permission to use the MBI-HSS was obtained from Consulting Psychologists Press (<http://www.mindgarden.com>) (Appendix B). The second part of questionnaire (Appendix C) contained 25 independent variable demographic questions and one open-ended question that were associated with chiropractic-specific stressors, as previously found in the literature (see Chapter Two). Examples of these chiropractic-specific stressors include issues such as poor public perception, professional-identity inconsistencies, philosophical dissonance, negative media coverage, workplace injury levels from unique physical demands, market competition from other manual therapists, student loan default rates in North America and threats to autonomy (Copper & McKee, 2003; Editorial Staff, 2007; Foreman & Stahl, 2004).

Procedure

Ethics approval for a pilot study was obtained by Seton Hall University's IRB in July 2012, with dissertation study approval obtained in January 2013 (Appendix D). After approval was granted, an e-mail letter of initiation was sent on Jan 10, 2013 via a group email distribution. A reminder email was sent out ten days after the initial email letter of invitation was dispatched. The email letter of invitation (Appendix A) was embedded in the body of an email and contained a link to the online version of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) and the demographic questionnaire (Appendix C). There was no use of monetary or other incentives provided to improve participation.

Data Analysis

Survey data was entered into SPSS version 19.0 for Windows. Descriptive statistics were analyzed to describe the sample demographics and the research variables. Frequencies and percentages were calculated for nominal data, such as gender, age, and marital status.

Means and standard deviations were calculated for the three MBI subscales. Emotional exhaustion was calculated using scores from questions 1, 2, 3, 6, 8, 13, 14, 16, and 20. Personal accomplishment was calculated using scores from questions 4, 7, 9, 12, 17, 18, 19, and 21 and depersonalization was calculated using scores from questions 5, 10, 11, 15, and 22. A total burnout score (EE + DP + PA) is not used to categorize levels (low, average, high) of burnout. The criteria established by the tool originator (Maslach et al., 1996) suggests that, high burnout is characterized by high EE (27 or over), high DP (13 or over), and low PA scores (39 or over); average burnout is characterized by average EE (17-27), DP (7-12), and PA (32-38) scores; and low burnout is characterized by low EE (0 to 16), low DP (0-6), and high PA scores (0 -31) (Appendix E)(Kania et al., 2009; Maslach & Leiter, 1997).

Three one-sample *t* tests were conducted to assess if the Maslach Burnout Inventory (MBI) subscales are significantly different from the healthcare norms. The one sample *t* test will take a variable's average and compare it to a normative average. Occupations represented in the normative samples include 1,101 medical workers (physicians, nurses), and is noted in the MBI manual (Maslach et al., 1996). The three variables of interest are the MBI subscales: emotional exhaustion, personal accomplishment, and depersonalization. The three healthcare norms are: 22.19 for

emotional exhaustion, 36.53 for personal accomplishment, and 7.12 for depersonalization (Alsawalmeh & Feldt, 1999). The scores from the United States Chiropractors were compared to the three healthcare norms. The assumption of normality was assessed prior to analysis with Kolmogorov Smirnov tests.

Spearman correlations were conducted to evaluate associations between the MBI subscales (EE, DP, and PA) and sociodemographic variables (age, years in profession, time dedicated to clinical care, time dedicated to administrative duties, hours worked per week, average patients per day, and average patients per week). ANOVAs and *t*-tests were conducted to evaluate differences in the MBI subscales (EE, DP, PA) across sociodemographic attribute variables (gender, marital status, current professional status, primary practice setting/type, primary practice reimbursement, chiropractic focus, school focus, location of college, having burnout, insurance companies increasing burnout, work-related injury increasing burnout, philosophical views increasing burnout, public perception increasing burnout, and state of practice). Prior to analysis of the ANOVAs, Levene's tests were conducted to assess the assumption of equality of variance.

In the event that an ANOVA was significant, pairwise comparisons were run with a Bonferroni correction to determine which of the groups were significantly different from each other. The MBI (EE, DP, PA) "dependent" variables are interval (Gencay & Gencay, 2011; Higashiguchi et al., 1999; Koustelios, 2010). Therefore, as per the calculation instructions described in the MBI manual (Maslach et al., 1996), both sets of analyses used the calculated raw scores for emotional exhaustion, personal accomplishment, and depersonalization.

Chapter IV.

RESULTS

Of the 1408 DC's that volunteered to participate in the study by accessing the survey, only data from 1162 DCs were analyzed and reported on in this study. The 246 surveys not analyzed were incomplete and thus excluded from the data analysis. Of that, approximately six percent (6.2%) of the surveys returned indicated that the respondent was not currently in practice. As a result, the relative return rate of this study was 16.06%. In the social sciences, the typical rate of return on email/web-based surveys is noted in the literature as between 11-15.4% (Blumberg & Luke, 2009; Keeter, Kennedy, Clark, Tompson, & Mokrzycki, 2007).

Demographic Profile

Most of the participants were male (943, 82%) and the largest age cohort was 51 – 60 years old (387, 34%). The number of total years in their profession was spread fairly evenly from 0 years up to 30 years, with the most-common selection being 11 – 15 years (197, 17%). Most of the participants were married (925, 81%). Frequencies and percentages for participant demographics are presented in Table 3. As noted in Table 3, the percentage distribution of gender and the number of years in the profession found in this study was reflective of current industry data (Christensen, Kollasch, & Hyland, 2010).

Frequencies and percentages for work characteristics are presented in Table 4. Most of the participants were sole-practitioners (761, 66%) and owned their business/practice (977, 89%). Many of the participants dedicated either 51 – 75% (428, 39%) or greater than 76% (477, 41%) of their time to clinical care and dedicated less than

25% of their time to administrative duties (533, 50%). Most of the participants work 21 – 40 hours per week (666, 61%). Many of the participants claimed to treat 11 – 20 patients per day (333, 30%) and 51 – 100 patients per week (440, 40%). Current study findings support recent industry data which suggests (Christensen et al., 2010) that direct patient care and education consumes 57.4% of practice time, with the remaining time being used for business management and marketing. In addition, participants in this study noted that the typical practitioner spent more than a quarter (25.2%) of his or her work time documenting patient care and approximately 38.8% treating between 50 and 99 individual patients each week.

Frequencies and percentages for chiropractic characteristics are presented in Table 5. The most-common practice setting/types were categorized as acute (377, 33%) and subacute (279, 24%). Major medical was the primary reimbursement for services for the majority of the participants (641, 56%). Most of the participants classify their chiropractic work as musculoskeletal (839, 82%) and most graduated from a musculoskeletal focused school (729, 71%). Only 30 participants (3%) graduated from a chiropractic college in Canada, and 14 from an international college (1%). When provided with Maslach's definition of burnout (Schaufeli & Enzmann, 1998), most of the participants did not classify themselves as having burnout (801, 70%), but most of them thought that dealing with insurance companies increased their sense of burnout (891, 88%). Interestingly, most of the participants did not think that having a work-related injury increases burnout (968, 85%), nor did varying philosophical perspectives (814, 72%). More than half of the participants did not think that public perception increased burnout (641, 56%). When participants were asked what state(s) they practiced in the

most-common state to practice in was California (110, 10%), which is representative of the chiropractic profession's licensure statistics at large (Federation of Chiropractic Licensing Boards, 2012). Only one participant practiced in District of Columbia (0.1%) and Wyoming (0.1%), which were the least-common states. Fifteen participants (1%) practiced in more than one state. Frequencies and percentages for state of practice are presented in Table 6.

Using the open-ended question, participants were asked what factors they believed that influenced the risk of burnout. The most-common responses (emergent themes) were insurance reimbursement (366, 37%) and MCO regulation (310, 31%). Frequencies and percentages for all the themes found are presented in Table 7.

RQ 1: Prevalence of Burnout

Reliability was conducted on the three subscales MBI subscales for this study. Reliability for emotional exhaustion was Chronbach $\alpha = .93$. Reliability for personal accomplishment was $\alpha = .76$. Reliability for depersonalization was $\alpha = .74$. All reliabilities were above the .70 level, which represents an acceptable reliability (George & Mallery, 2003). Reliabilities for the three subscales are presented in Table 8.

Frequencies and percentages were calculated on the groupings of scores based on values provided by Maslach burnout inventory manual (Maslach et al., 1996). Based on the groupings, 21% of the participants (242) had high emotional exhaustion, 8% of the participants (94) had low personal accomplishment, and 8% (98) had high depersonalization. In total, only twenty participants (2%) had high burnout while 539 participants (46%) had low burnout. Table 9 shows the breakdown of categorizations of the subscales for the participants. Although the emotional exhaustion values raise reason

for concern, collectively the data suggests a very low prevalence (low level) of burnout within the chiropractic profession.

RQ 2: DC MBI versus Medical Norm MBI values

Three one-sample t tests were conducted to compare the three MBI subscales to the norms based on the medicine group. Results of the one-sample t test for emotional exhaustion were significant, $t(1160) = -16.69, p < .001$, suggesting that the chiropractors' scores were significantly lower than the norm of 22.19. Results of the test for personal accomplishment were significant, $t(1160) = 25.52, p < .001$, suggesting that the chiropractor's scores were significantly higher than the norm of 36.53. Results of the test for depersonalization were significant, $t(1160) = -17.38, p < .001$, suggesting that the chiropractor's scores were significantly smaller than the norm of 7.12. Results of the one-sample t tests are presented in Table 10. By-and-large, these values are significantly lower than what is expressed in the medical, nursing and physical therapy literature (Balogun et al., 2002; Gingras, de Jonge, & Purdy, 2010; Maslach et al., 1996; Shanafelt et al., 2012).

Factors Associated with DC Burnout

Spearman correlations between .10 and .30 is typically considered "small"; however, once you get to .30 it's "medium" in strength (Field, 2005; Hair, Black, Babin, Anderson, & Tatham, 1995; Howell, 2007). Therefore, while a significant correlation at .15 would be considered "small," it still seems worth noting/reporting (Kelly & Maxwell, 2003). In contrast, any Spearman correlation found significant, but below .15 was not discussed, as the correlation was considered extremely low.

It was shown that emotional exhaustion was significantly positively related to

time dedicated to administrative duties ($r = .25, p < .001$) and hours worked per week ($r = .15, p < .001$), but was significantly negatively correlated with time dedicated to clinical care ($r = -.15, p < .001$). This suggests that as time dedicated to administrative duties and hours worked per week increased, emotional exhaustion also increased. As time dedicated to clinical care increased, emotional exhaustion decreased. Personal accomplishment was significantly positively correlated with time dedicated to clinical care ($r = .15, p < .001$), but was significantly negatively correlated with time dedicated to administrative duties ($r = -.22, p < .001$). As time dedicated to clinical care increased, personal accomplishment increased. As time dedicated to administrative duties increased, personal accomplishment was apt to decrease.

Depersonalization was significantly positively correlated with time dedicated to administrative duties ($r = .17, p < .001$). This suggests that as the time dedicated to administrative duties increased, depersonalization increased. Results of the Spearman correlations are presented in Table 11.

Independent sample t tests were conducted for the dichotomous sociodemographic factors while ANOVA's were conducted when there were more than two nominal categories on the EE, PA, and DP sub-scores. Results of the t tests showed that personal accomplishment $\{t(1147) = 2.28, p = .023\}$ and depersonalization $\{t(1147) = 3.42, p = .001\}$ was related to gender. Females had higher personal accomplishment scores and lower depersonalization scores compared to males' personal accomplishment and depersonalization scores. Owning the business/practice was significantly related to depersonalization $\{t(1096) = 3.32, p = .001\}$. Those who owned their business had significantly lower depersonalization scores compared to those who did not. Emotional

exhaustion $\{t(1022) = 6.48, p = .001\}$, personal accomplishment $\{t(1022) = 3.45, p = .001\}$, and depersonalization $\{t(1022) = 4.16, p = .001\}$ were also related to chiropractic focus. Those with a musculoskeletal focus had significantly higher emotional exhaustion and depersonalization scores compared to those that focused on subluxation-based. Those with a subluxation-based focus had significantly higher personal accomplishment scores compared to those who were musculoskeletal.

Having signs of burnout was found to be significantly related to emotional exhaustion $\{t(1135) = 31.04, p = .001\}$, personal accomplishment $\{t(1135) = 12.52, p = .001\}$, and depersonalization $\{t(1135) = 17.72, p = .001\}$. Those who had symptoms of burnout had significantly higher emotional exhaustion and depersonalization scores, and significantly lower personal accomplishment scores compared to those who did not have symptoms of burnout. Dealing with insurance companies increasing burnout was significantly related to emotional exhaustion $\{t(1096) = 6.05, p = .001\}$ and depersonalization $\{t(1096) = 3.32, p = .001\}$. Those who said it did increase burnout had significantly higher emotional exhaustion and depersonalization scores.

Having a work-related injury was significantly related to emotional exhaustion $\{t(1135) = 8.30, p = .001\}$, personal accomplishment $\{t(1135) = 4.05, p = .001\}$, and depersonalization scores $\{t(1135) = 6.98, p = .001\}$. Those who said a work-related injury could increase their sense of burnout had significantly higher emotional exhaustion and depersonalization scores, and significantly lower personal accomplishment scores compared to those who did not think a work-related injury increased burnout.

As per the potential unique causes of burnout for chiropractic professionals, those who thought that varying philosophical perspectives (straight versus mixer) within the

chiropractic profession could increase burnout had significantly higher EE and DP scores, and significantly lower PA scores compared to those who did not think so (Figure 2).

Additionally, those who thought that the public perception of chiropractic could increase burnout, also had significantly higher EE and DP scores, and significantly lower PA scores compared to those who did not think so (Figure 3). Results of all of the independent sample *t* tests are presented in Table 12.

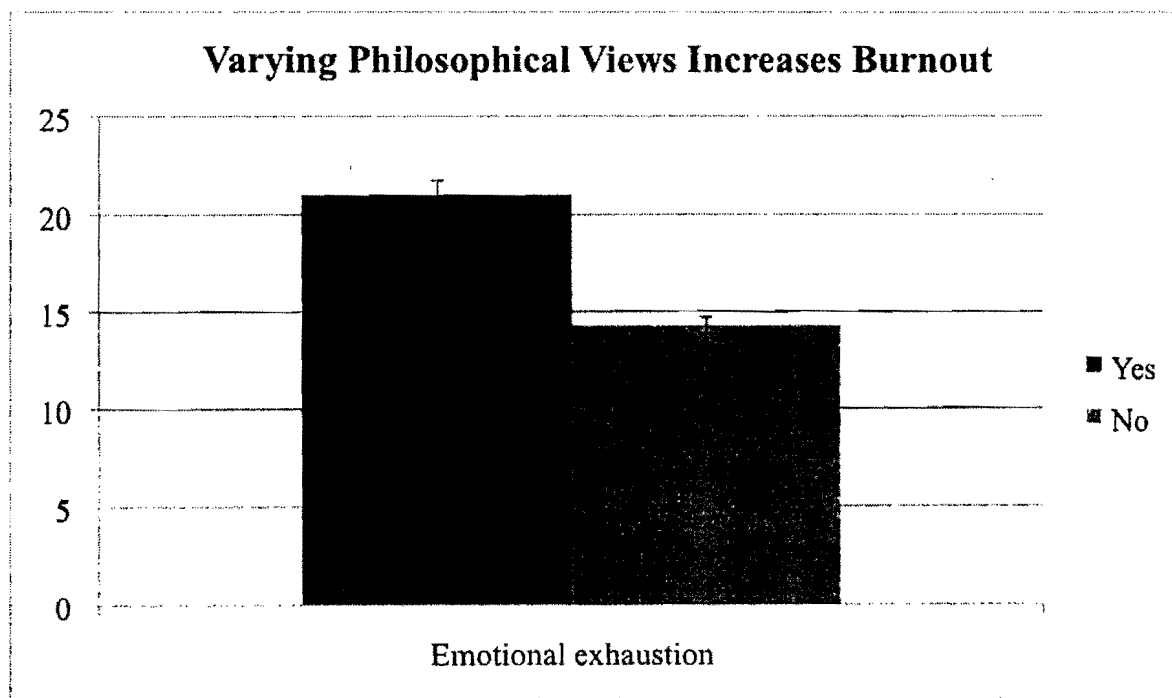


Figure 2a. Means and standard deviation for emotional exhaustion by varying philosophical views increases burnout.

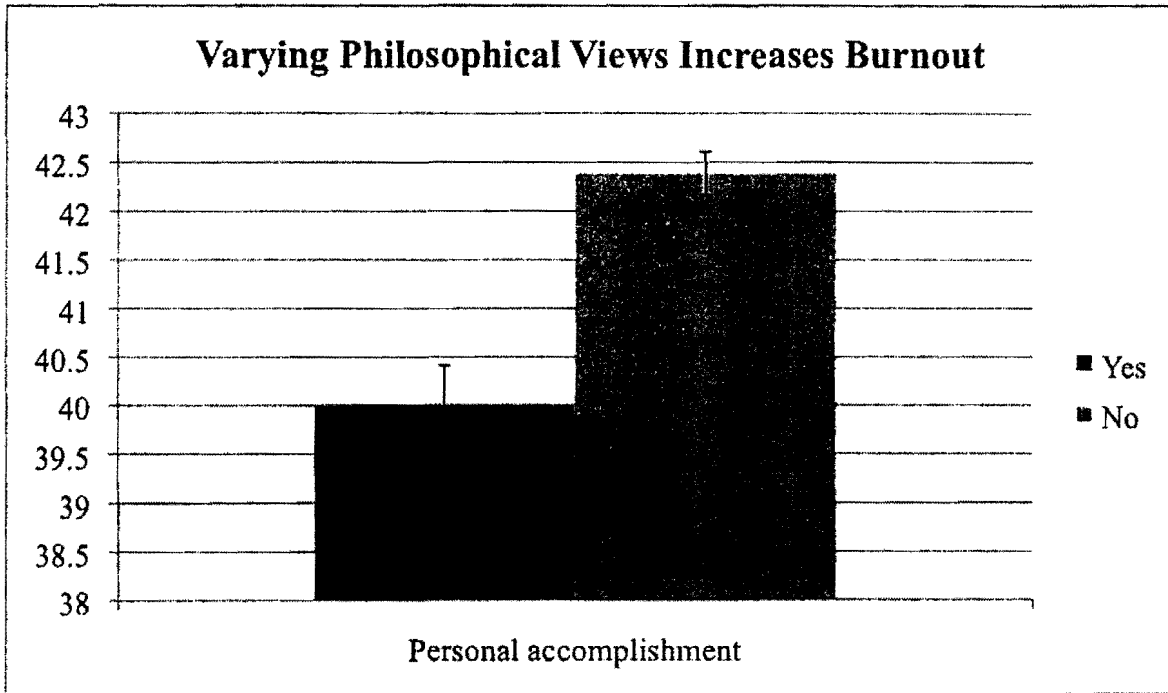


Figure 2b. Means and standard deviation for personal accomplishment by varying philosophical views increases burnout.

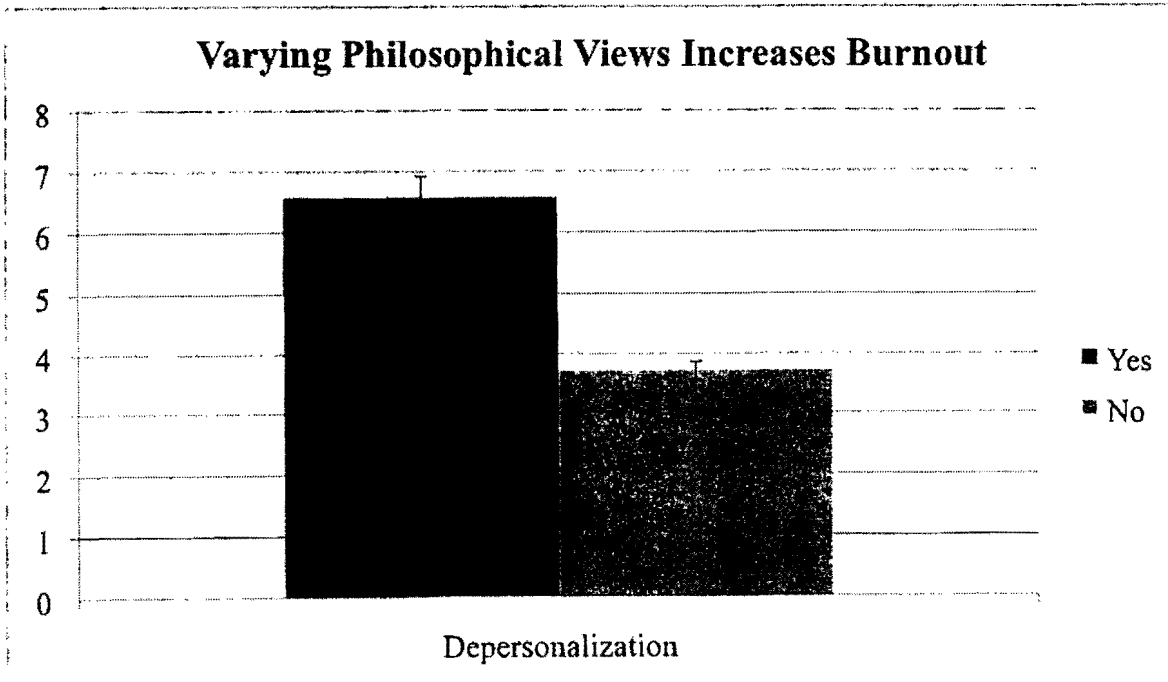


Figure 2c. Means and standard deviation for depersonalization by varying philosophical views increases burnout.

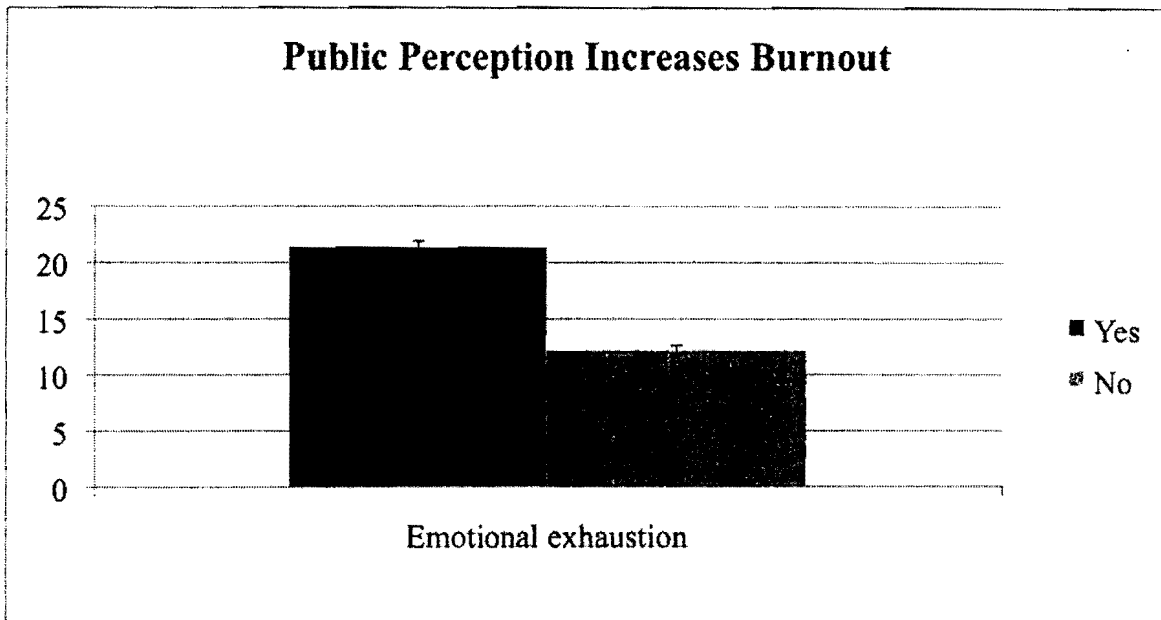


Figure 3a. Means and standard deviation for emotional exhaustion by public perception views increases burnout.

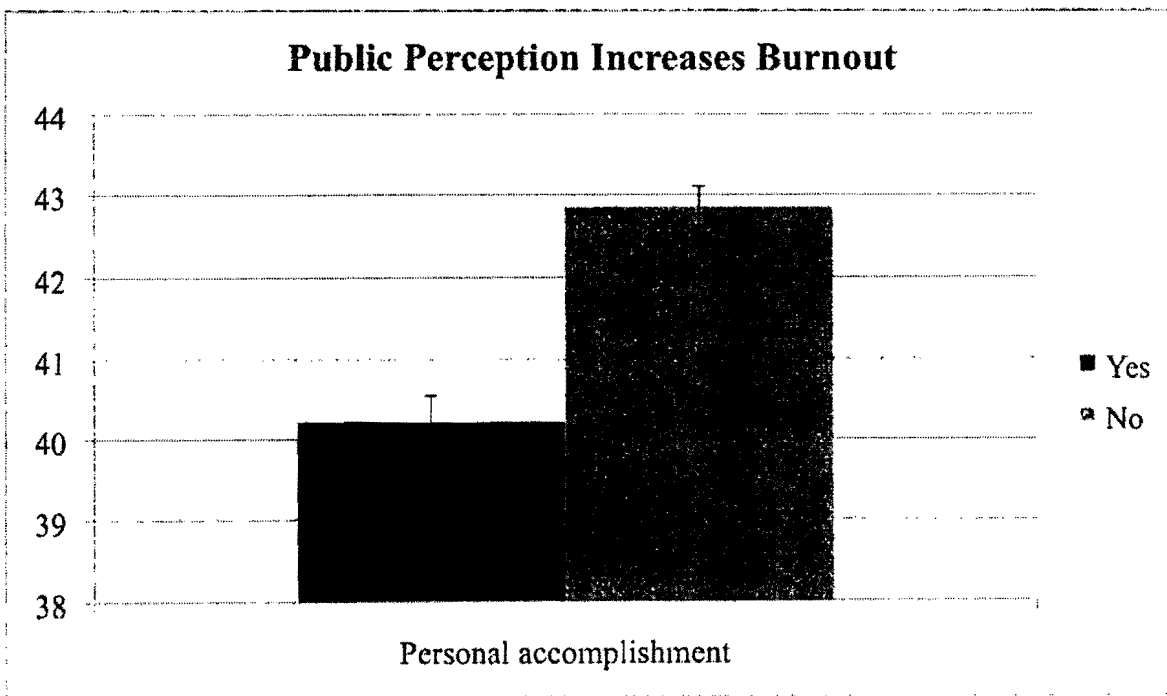


Figure 3b. Means and standard deviation for personal accomplishment by public perception views increases burnout.

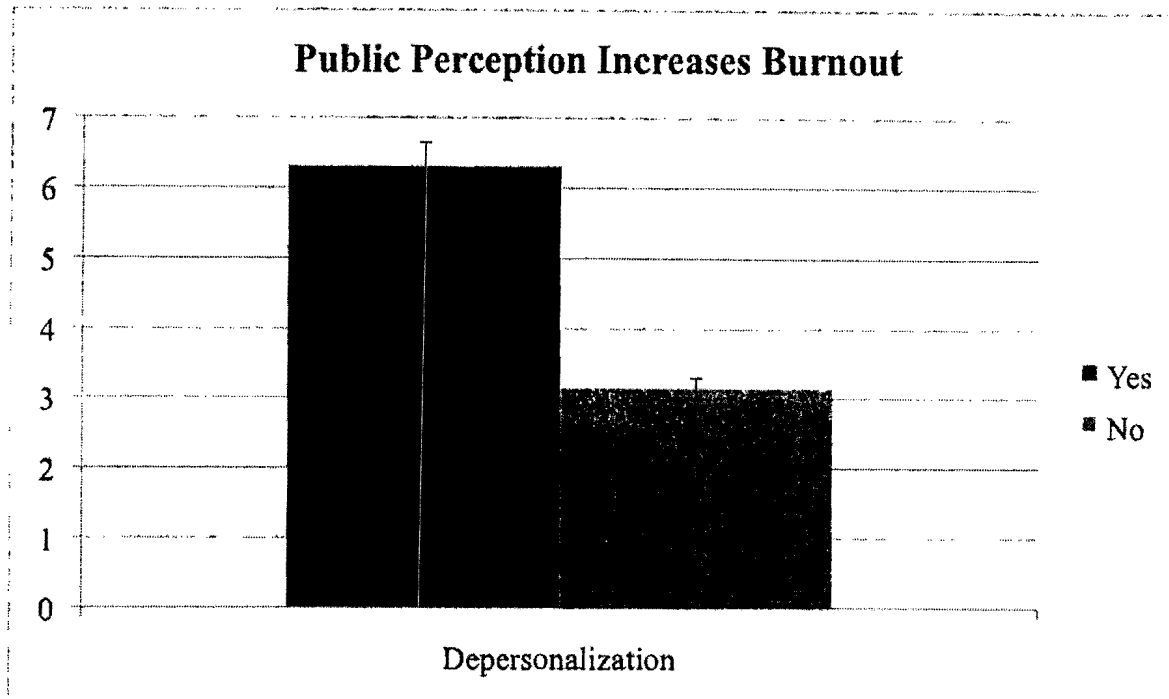


Figure 3c. Means and standard deviation for depersonalization by public perception views increases burnout.

ANOVAs were conducted to assess if the three MBI subscales were significantly different based upon the nominal demographic variables. Many of the ANOVAs were very significant as revealed by their F-values. By examining only the ANOVAs that were significant at the .01 level – the risk for Type I error was reduced. In the event that an ANOVA was significant, pairwise comparisons were run with a Bonferroni correction to determine which of the comparisons were significant. Marital status was related to personal accomplishment scores ($F(4, 1144) = 2.73, p = .028$), however during pairwise comparisons (Bonferroni) no significant differences were found. Professional status was related to personal accomplishment ($F(4, 1144) = 3.86, p = .004$) and depersonalization ($F(4, 1144) = 3.97, p = .003$). No differences were found in the pairwise comparisons (Bonferroni) for personal accomplishment, but associates had significantly higher

depersonalization scores compared to independent contractors, sole-practitioners, and group practitioners.

Practice setting was significantly related to emotional exhaustion ($F(4, 1139) = 11.84, p = .001$), personal accomplishment ($F(4, 1139) = 5.89, p = .001$), and depersonalization ($F(4, 1139) = 4.72, p = .001$). The DCs that predominantly provided “wellness care” to patients had significantly lower emotional exhaustion and depersonalization scores than those DCs that primarily provided treatment to patients suffering with acute, subacute, and chronic ailments. Additionally, wellness care DCs had significantly higher personal accomplishment scores than DCs who treat acute, subacute and chronic patients.

Reimbursement type was significantly related to emotional exhaustion ($F(3, 1140) = 17.60, p = .001$), personal accomplishment ($F(3, 1140) = 11.98, p = .001$), and depersonalization ($F(3, 1140) = 13.88, p = .001$). Those who received workers’ compensation had significantly higher emotional exhaustion scores compared to those who practiced in a cash-fee setting. Those who engaged in cash-fee reimbursement types had significantly lower emotional exhaustion scores compared to those who had major medical as their primary reimbursement type. Those who had workers’ compensation as their primary reimbursement had significantly lower personal accomplishment compared to those who practiced in a cash-fee and major medical reimbursement types. Those who had workers’ compensation or other major medical third party as their primary reimbursement type had significantly higher depersonalization compared to those who practiced in a cash-fee and major medical reimbursement types.

Interestingly, location of college was significantly related to depersonalization ($F(2, 1141) = 8.65, p = .001$). Those who attended international colleges had significantly higher depersonalization scores compared to those who attended college in the US and Canada. Surprisingly, college attended was also related to emotional exhaustion ($F(22, 1019) = 2.30, p = .001$) and depersonalization ($F(22, 1019) = 1.63, p = .034$). Those who went to the Northwestern Health Sciences University had higher emotional exhaustion compared to those who went to National University of Health Sciences, Palmer College of Chiropractic (Davenport, IA), Palmer College of Chiropractic West, Texas Chiropractic College, University of Bridgeport, College of Chiropractic, and the Western States Chiropractic College. Those who went to the Institut Francais de Chiropractique had significantly higher depersonalization compared to those who went to the Canadian Memorial Chiropractic College, Cleveland Chiropractic College (Kansas City and Los Angeles), Life University School of Chiropractic, Life Chiropractic College West, Logan College of Chiropractic, Southern California University of Health Sciences, National University of Health Sciences, New York Chiropractic College, Palmer College of Chiropractic (Davenport, IA), Palmer College of Chiropractic West, Parker College of Chiropractic, Sherman College of Straight Chiropractic, Texas Chiropractic College, University of Bridgeport College of Chiropractic, and Western States Chiropractic College. Results of all of the ANOVAs are presented in Table 13. Table 14 presents the means and standard deviations for all of the sociodemographic factors for emotional exhaustion, personal accomplishment, and depersonalization scores.

Chapter V.

DISCUSSION

The primary objective of this study was to explore the prevalence of burnout amongst DCs in the United States. These findings are largely consistent with the pilot findings (Williams et al., 2013) on 90 DCs in the northeastern region of the United States. In the current exploratory study, nearly forty percent of the respondents recorded moderate (19%) to high (21%) levels of emotional exhaustion; while the majority of respondents scored a high (76%) level of personal accomplishment. This finding is significant because it may indicate that while many chiropractors may be feeling emotionally exhausted, their exhaustion doesn't appear to affect their personal accomplishment and the way they treat their patients (Kumar et al., 2007), given the relatively high rate (75%) levels of low depersonalization scores. This inference is based on Maslach and Jackson's operational definitions of the burnout dimensions (Maslach et al., 1996), which defined 'emotional exhaustion' as a feeling of being emotionally over-extended and exhausted by one's work; 'depersonalization' as a negative and/or cynical attitude that provokes impersonal feelings towards one's clients; and 'reduced personal accomplishment' as a sense that one is achieving little – hence having low productivity. Therefore, the higher the EE and DP and the lower the PA, the more likely a caring practitioner will suffer from burnout (Maslach et al., 1996). In the case of US chiropractors it appears that to some extent the higher levels of PA and lower levels of DP may compensate for the potential negative consequences that are normally associated with higher levels of EE. Furthermore, the markedly reduced DP scores and elevated PA score may have some association with the high levels of satisfaction reported by patients

of chiropractic (Beattie, Nelson, & Murphy, 2011; Butler & Johnson, 2008; Carlesso, Cairney, Dolovich, & Hoogenes, 2011; Eriksen, Rochester, & Hurwitz, 2011; Gaumer, 2006; Hawk & Long, 2007; Rowell & Polipnick, 2008).

Surprisingly, the percentage of DCs with high EE were lower in this study when compared to the findings of other studies (Balogun et al., 2002; Balogun et al., 2002; Donohoe et al., 1993; Li Calzi et al., 2006; Ogiwara & Hayashi, 2002; Osborne & Croucher, 1994; Painter et al., 2003; Painter et al., 2003; Rogers & Dodson, 1988; Schlenz, Guthrie, & Dudgeon, 1995; Schuster et al., 1984; Shanafelt et al., 2012; H. Te Brake et al., 2007; Wandling & Smith, 1997). Despite the present studies observed lower EE amongst DCs, the presence of high EE observed in other similar professions raises the relevance of EE as a concern for chiropractors, as it may ultimately increase the incidence of burnout (Maslach and Jackson's (1996), attrition, and unprofessionalism; and have a negative impact on the patient-practitioner relationship (Munn-Giddling et al., 2005; H. Te Brake et al., 2007).

Emotional exhaustion is considered to be the core element of burnout (Cordes & Dougherty, 1993); and according to Maslach et al. (1984), the EE subscale primarily reflects the organizational and the social climate of the work environment (Maslach & Jackson, 1984). Interestingly, the DCs in this study showed moderate levels of EE when questioned about organizational (practice setting/type, reimbursement/regulation, therapeutic focus and physical demands of practice) and social stressors (perception, public opinion and varying philosophical views) that appear to hamper the profession (Figures 3, 4). Given the negative consequences of high EE levels on individual health and job performance (Maslach et al., 2001; Shanafelt et al., 2012), the present study

reveals that creating conditions to prevent or minimize EE among DCs is important not only for chiropractors, but also the clients they serve and the organizations in which they are employed.

The second objective of this study was to compare burnout subscale values with medical normative values. Overall this sample of DCs reported lower EE and DP scores and higher PA scores than their medical (Dyrbye et al., 2008; Edwards et al., 2002; Grembowski et al., 2005; Linzer et al., 2001; Maslach & Jackson, 1981; Shanafelt et al., 2012; Ybema et al., 2011), nursing (Akhtar & Lee, 2010; Dickinson & Wright, 2008; Ilhan et al., 2008; Janssen et al., 1999; Piko, 2006), physical therapy (Balogun et al., 2002; Donohoe et al., 1993; Schlenz et al., 1995; Schuster et al., 1984), occupational therapy (Balogun et al., 2002; Painter et al., 2003; Rogers & Dodson, 1988; Schlenz et al., 1995) and dentistry (Humphris, 1998; Osborne & Croucher, 1994; H. Te Brake et al., 2007) colleagues who have been evaluated using the MBI-HSS. As a result this group of DCs fared more favorably than the subset of other health professionals on all three dimensions of burnout. Therefore, the findings from this study may serve as catalyst for further conversation (intra and inter-professional) on the prevention and/or management of burnout amid similar professions.

This research also explored the sociodemographic and work-related factors that may mediate DC burnout. The findings from this current study shared similarities with others (Gingras et al., 2010; Gorter et al., 1999; Li Calzi et al., 2006; Murtooma et al., 1990; Pavlakis et al., 2010; Wandling & Smith, 1997), such that some of the sociodemographic and work-related variables (caseload size, age, years of experience) that were thought to be predictors of burnout subscales, did not find sufficient

information to quantify any critical level of stressors. For example, correlations between burnout subscales and age, experience, time dedicated to clinical care, hours worked per week and patients treated per day were all rather weak (coefficients range from -0.07 , $p < 0.05$, to 0.15 , $p < 0.01$) but statistically significant.

In the literature, age is the demographic variable that is most consistently correlated with burnout, with higher levels seen among workers less than 30-40 years old (Gingras et al., 2010; Maslach et al., 2001). In the present study, with 76% of respondents were over the age of 40 years it is plausible that the under-representation of younger chiropractors may have resulted in lower levels of reported burnout on EE and DP and/or inability to see the true effect of age on burnout. However, the moderate association noted between age and subscale scores is consistent with several studies of physical and occupational therapists (Donohoe et al., 1993; Rogers & Dodson, 1988; Schlenz et al., 1995; Shanafelt et al., 2012; Wandling & Smith, 1997). Maslach & Jackson (1982) hypothesized that age reflects more than just the length of time on the job. With increased age, people tend to demonstrate more stability and maturity, have a more balanced perspective on life, and are less prone to excesses of burnout. In the current study, it was shown that EE and DP were significantly negatively correlated with age; such that as age increased, EE & DP tended to decrease.

It was encouraging to see that longer durations in practice (experience) was associated with lower levels of EE – a finding similar to those reported by previous authors (Kumar et al., 2007; Wandling & Smith, 1997). In the current study, as DCs practice experience increased, emotional exhaustion tended to decrease. These findings are further supported by previous studies that found higher levels of emotional exhaustion

and depersonalization, as measured by MBI-HSS in more recent graduates than those who had a longer work history (Donohoe et al., 1993; Lindsay et al., 2008; Wandling & Smith, 1997). In fact, Maslach et al., 2001 suggests that age is confounded with work experience, so burnout appears to be more of a risk earlier in one's career. The reasons for such an interpretation have not been studied, but should be viewed with caution because of the problem of survival bias—i.e. those who burn out early in their careers are likely to quit their jobs, leaving behind the survivors who consequently exhibit lower levels of burnout (Maslach et al., 2001).

The demographic variable of gender has not been a strong predictor of burnout (despite some arguments that burnout is more of a female experience) (Maslach et al., 2001); however, it does play a significant role in the perception and origin of stress (Kumar et al., 2007). In the current study, female chiropractors had higher PA scores and lower DP scores compared to males' PA and DP scores; however, these results may also be reflective of the fact that DC's is a male dominate profession.

As would be expected a large percentage (89%) of the DCs surveyed indicated that they owned their business/practice. Those DCs who did own their business had significantly lower depersonalization scores compared to those who did not. Being entrepreneurs, the typical working conditions and responsibilities of chiropractors (like dentists) are likely to differ from that of other helping professionals who primary care duties are traditionally hospital or clinic based. Te Brake et al. argues that certain specific aspects of entrepreneur-like occupations are reflective in deviating responses to the MBI (J. H. Te Brake et al., 2008). However, the impact of these responsibilities didn't seem to have a major influence on this group of DCs overall DP scores; suggesting

that despite the hardships which may be associated with operating a business, DCs seemed to avoid distancing themselves from those receiving care, their clients.

It was expected that the primary reimbursement type, practice setting and therapeutic focus would affect burnout levels. DCs who primarily worked in wellness-focused facilities, were subluxation-based, and relied on cash-for-services rendered had significantly lower emotional exhaustion and depersonalization scores and higher personal accomplishment scores compared to those practitioners that worked in acute, subacute, and/or chronic setting, with a musculoskeletal focus, and who relied on either Workers Compensation /Personal Injury or major medical as the primary source of reimbursement for services rendered. This relationship is perhaps the combined end product of caring for a healthier population of clients (as opposed to ill) and the elimination of stressors that tend to co-exist with the administrative challenges of billing and collections. Upon further reflection, another possible reason for this symbiotic relationship could be a result of the intrinsic uncertainties about reimbursement which is ultimately influenced by changes in the external environment such as changes in the economy, managed care regulations and the social climate. Yet, it should be dually noted and cited as a limitation that providing only two options (subluxation-based/straight versus musculoskeletal/mixer) for focus of chiropractic work question may be argued as being limited. As such, present-day chiropractic has evolved to tolerate several other contentious and polar aspects of practice such as: patient-centered versus self (doctor) centered practice, evidence-based vs. belief-based practice, holistic-wellness vs. symptom-relief practice, marketing-based practice management vs. referral-based

practice, and separate and distinct profession vs. integrative, health care team profession amongst many others.

An *a priori* assertion was proposed which predicted a correlation between burnout subscales and the effect of legal scope of practice (restrictive or expansive) and the graduating college's academic focus (beyond accreditation mandates). Using literature compiled from the American Chiropractic Association websites, the Chiropractic Resources Organization (<http://www.chiro.org/main/>), the nineteen chiropractic colleges located in the US were categorized as either a straight/objective or mixer/reform by the PI based upon a sample of contemporary chiropractic material (Murphy, 2008; Johnson, 2012; DeVocht, 2006; Zhang, 2003; Coulter, 1998). For the first assumption, the one-way analysis of variance showed no statistical difference, thereby confirming that levels of burnout do not differ per geographical state. However because there was one grouping variable that included all the states (separated), it was unlikely that any statistical differences would be found to begin with. For the second assumption, statistically significant but weak differences emerged (Table 13), but there didn't appear to be much of a difference of overall burnout values

Self-perception and/or identifying with the operational definition of burnout were notably the strongest association witnessed in this study. In fact, table 12 and table 14 demonstrate the large statistical differences between those DCs who acknowledged they had burnout versus those who noted they did not have burnout. Here, respondents were first provided with Maslach's definition of burnout (Maslach et al., 1996; Maslach et al., 2001) and then asked to identify if they could identify with having symptoms of burnout presently. Those DCs who had symptoms of burnout (as per Maslach's definition) had

significantly higher EE and DP scores, and significantly lower PA scores compared to those who did not have symptoms of burnout. Amongst many possible explanations (extraneous and confounding), this relationship may support the notion of construct validity and the application of MBI-HSS (Montero-Marin, Skapinakis, Araya, Gili, & Garcia-Campayo, 2011) to the chiropractic profession.

Perhaps the most compelling aspects of the results were in the unique DC stressors category. DCs reported negative tendencies toward the varying philosophical perspectives within the profession and the negative public opinion of the chiropractic profession. Opposing DC view and public perception also emerged as a repeating theme(s) (14% and 17% respectively) in the open-ended question analysis. These findings support the theoretical rational proposed which merges JD-R model and Maslach Tripartite theory and thus warrants further investigation into their effects on job stress, attrition and burnout within the chiropractic profession.

Study Limitations and Future Studies

Several limitations must be kept in mind concerning the implications based upon the results of this study. First, the fact that this study was exploratory in nature and utilized a convenience sample of DCs must be recognized. In addition, the cross sectional nature of this study means that causal relation cannot be established. The sampling methodology involved a random selection of DCs from an email directory; therefore, those DCs that were not included in the database and/or those that may have left the profession as a result of burnout would not have been invited to participate in the study. In fact, approximately six percent of the surveys returned indicated that the respondents were not currently in practice.

While the response rate of this study was consistent with what is expected in the social sciences (Blumberg & Luke, 2009; Keeter et al., 2007), it might be that those suffering with burnout would not consider including such a survey in their paperwork tasks. The modest rate (17.4%) of incomplete surveys, also may suggest the need for survey modification (question design, reducing the number of items), completion incentives (monetary, prizes or non-monetary) survey program software updates if used in the future. It should also be noted that the demographic questions developed by the PI have not been subjected to a formal analysis, and therefore may pose reliability and validity concerns. Additionally, because of its patient-practitioner emphasis, the use of the MBI-HSS may become invalid when a non-direct care DC completes it (about 4% of the respondents were DCs involved in chiropractic academics, administrative and/or research). Because of its more general approach, the MBI-General Survey or MBI-Educators Survey may have served as an appropriate alternative measure of burnout for the non-direct care DCs that participated.

To our knowledge, this is the first nationwide research in the field – and information gathered could be used for the development of a national action plan for the management of burnout in US chiropractors. Replication of the study among other samples of licensed DCs is recommended to support the current findings. Also it is imperative to assess those individuals who were trained as chiropractors but, for whatever reason, have left the profession. This avenue of exploration may provide valid insights on the nature and impact of chiropractic as it pertains to burnout and attrition. However, it is important to recognize that thorough empirical and theoretical research into burnout among chiropractors sets a foundational understanding of influences that may affect DCs'

practices and thus provide a basis for effective consultancy and preventative measures. Underestimating the risk of burnout may have serious negative implications for chiropractors personally, the patient, the quality of work, and the professional image in general.

Chapter VI.

CONCLUSION

Collectively, the findings from this study indicate that (1) the prevalence of burnout among US chiropractors is remarkably low, and (2) this group of DCs presented with lower levels of burnout compared to other healthcare professionals. However, although this group of DCs had lower levels of burnout compared to other healthcare professionals, their moderate levels of emotional exhaustion remain a paramount workplace issues for this professional group. It is expected that much can be learned from a variety of variables that may correlate with the three dimensions of burnout.

In this current study, many variables thought to be associated with burnout were significant but in reality the demographics explained very little of the MBI subscale values. Yet, those DC's who spent more time dedicated to administrative duties and less time to clinical care, had a greater tendency toward higher burnout subscores. In addition, those DC's that owned their business, worked primarily in an acute, subacute and/or chronic care environment, and depended on workers' compensation/personal injury as a primary source of payment for services render - also had predisposition toward higher burnout subscores. Adding to these challenges, there were other chiropractic-specific variables that appeared to have a negative effect on burnout subscores including: having a musculoskeletal focused practice (as opposed to subluxation based), having a work related injury (perhaps from the physical demands performing manual therapy), witnessing the opposing philosophical perspectives within the chiropractic profession, and dealing with the inconsistent public opinion of the chiropractic profession. The results from this present study begin to fill the void that exists within the chiropractic

literature in relation to understanding the prevalence of burnout and its potential impact on the profession.

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Table 1

The prevalence and determinant of burnout in physical therapy and occupational therapy professions: A literature synthesis.

Author(s)	Sample (n)	Recruitment methods	Instrument (Return Rate)	Prevalence*	Findings
Schuster et al., 1984	PT N = 160	Mailing list; APTA* (randomized sample)	Burnout Inventory (Quisling, 1980) (78%)	53% reported burnout	Primary causes of burnout include a lack of adequate peer and/or supervisor feedback, excessive demands and work overload
Donohoe et al., 1993	PT N = 129	Handed questionnaire; Rehabilitation hospitals in MA, USA	MBI (52%)	MODERATE 46% percent of the respondents scored high on EE; 20% scored high on DP; 60% scored low PA	Lack of connectedness and communication with people in the workplace A sense of diminished professional achievement Feeling a lack of control over daily events.
Wandling & Smith, 1997	Orthopedic PTs (n=387)	Mailing list; Orthopedic section of APTA – NE Region, USA (Randomized sample)	MBI (38.7%)	LOW to moderate degree of burnout	Weak associations PA scores increased (showing lower burnout) as years at the job increased
Balogun et al., 2002	PTs and OTs (n=307)	Various clinical settings in NYC, USA	MBI (61%)	HIGH 58% of the sample reporting	Support from a supervisor, support from colleagues, the number of children, and

* MBI prevalence scores were categorized as high, moderate, or low according to the instructions provided by the Consulting Psychologists Press

Ogiwara & Hayashi, 2002	PT's (n=136)	Ishikawa Prefecture, Japan (Convenience sample)	MBI (Japanese version) (67.1%)	high EE; 94% of sample reporting high DP; 97% reporting low PA MODERATE Notable Low PA scores	religious affiliation, may serve as predictors of burnout Negative interpersonal relationships → communication problems & physical exhaustion due to staff shortage
Painter et al., 2003	OT (n=1118)	Members of AOTA* (Randomized sample) USA	MBI (37%)	HIGH levels of EE, and low levels of DP and PA	Bureaucratic constraints, heavy workloads, limited resources and the oftentimes-complicated co-morbidity of conditions found in chronic care patients.
Li Calzi et al., 2006	PTs, speech therapists, nurses, MDs and technicians (n=124)	Physical rehabilitation ward in an Italian hospital	MBI (Questionnaires were individually handed out to all subjects)	LOW-MODERATE levels of burnout and	Weak correlations
Pavlaklis et al., 2010	PT (n=172)	Cyprus	MBI (Subjects were approached by the researchers and were given a brief Explanation of the purpose and aim of the study)	LOW-MODERATE level of burnout	Therapists that believed that their job was too stressful or that their salary was too low were at greater risk for suffering with high emotional exhaustion

Table 2.

The prevalence and determinant of burnout in the dentistry profession: A literature synthesis.

Author(s)	Sample (n)	Recruitment Method	Instrument (Return rate)	Prevalence	Findings
Muromma et al. (1990)	N = 232 (Stratified sample)	Finnish Dental Associate	MBI (58% male & 68% female)	Low-to-moderate	Physical environment
Ahola (2007)	N= 3035	Longitudinal study; members of Finnish Dental Association	MBI & Beck Depression Inventory	Moderate	Correlation with job strain & depression constructs
Osborne et al. (1994)	N = 340	British Postgraduate Medical Association Graduate educational meetings	MBI (77%)	High	Time on job; NHS vs. private practice
Croucher et al. (1998)	N = 325	Cross sectional- UK directory	MBI (76.6%)	Moderate	Social support in the workplace
Gorter et al. (1999)	N = 709	Dutch Dentists - mail	MBI (75%)	Low-to-moderate	Isolated/private practices while managing and/or leading staff members
Te Brake et al. (2007)	N = 990	Netherlands - approached	MBI	Moderate	COR model

Table 3

Reliability for Subscales

Subscale	α	Number of items
Emotional exhaustion	.93	9
Personal accomplishment	.76	8
Depersonalization	.74	5

Table 4

Frequencies and Percentages for Participant Demographics

Demographic	<i>N</i>	%	NBCE (%) ^a
Gender			
Female	206	18	22.4%
Male	943	82	
Age			
20 – 30	61	5	
31 – 40	220	19	
41 – 50	309	27	
51 – 60	387	34	
61 – 70	148	13	
71+	24	2	
Years in profession			
0 – 5	88	8	
6 – 10	127	11	
11 – 15	197	17	
16 – 20	137	12	51%
20 – 25	169	15	
25 – 30	176	15	
31+	255	22	
Marital status			
Married	925	81	
Widowed	9	1	
Divorced	108	9	
Separated	13	1	
Never married	94	8	

Note. Percentages may not total 100 due to rounding error.

Table 5

Frequencies and Percentages for Working Characteristics

Characteristic	<i>n</i>	%	NBCE 2010
Professional status			
Associate	57	5	47.9%
Independent contractor	53	5	
Sole-practitioner	761	66	
Group practice	232	20	
Not a direct care provider	46	4	
Own practice/business			
Yes	977	89	
No	121	11	
Time dedicated to clinical care			
Less than 25%	46	4	
25% - 50%	177	16	
51% - 75%	428	39	
Greater than 76%	447	41	
Time dedicated to administrative duties			
Less than 25%	553	50	25.2%
25% - 50%	432	39	
51% - 75%	72	7	
Greater than 76%	41	4	
Hours worked per week			
Less than 20 hours	60	6	
21 - 40 hours	666	61	
Greater than 40 hours	372	34	4.9%
Patients treated per day			
0 - 10	130	12	
11 - 20	333	30	
21 - 30	298	27	
31 - 40	145	13	
41 - 50	81	7	
Greater than 50	110	10	
Patients treated per week			
0 - 50	241	22	
51 - 100	440	40	
Greater than 100	417	38	

Note. Percentages may not total 100 due to rounding error.

* Industry data provided by National Board of Chiropractic Examiners, *Practice Analysis of Chiropractic*

Table 6

Frequencies and Percentages for Chiropractic Characteristics

Characteristic	<i>n</i>	%
Primary practice setting/type		
Acute	377	33
Subacute	279	24
Chronic	216	19
Wellness	228	20
Not direct care provider	44	4
Primary reimbursement		
Workers' compensation/Personal injury	125	11
Cash-fee services	315	28
Major medical	641	56
Other	63	6
Focus of chiropractic work		
Subluxation-based	185	18
Musculoskeletal	839	82
Focus of chiropractic college		
Subluxation-based	296	29
Musculoskeletal	729	71
Location of chiropractic college		
US	1100	96
Canada	30	3
International	14	1
Have symptoms of burnout		
Yes	336	30
No	801	70
Dealing with insurance companies increases burnout		
Yes	891	88
No	127	13
Work-related injuries increase burnout		
Yes	169	15
No	968	85
Varying philosophical philosophies increases burnout		
Yes	323	28
No	814	72
Public perception increases burnout		
Yes	496	44

No	641	56
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Note. Percentages may not total 100 due to rounding error.

Table 7

Frequencies and Percentages for State of Practice

State	<i>n</i>	%
Alabama	5	1
Alaska	4	0
Arizona	13	1
Arkansas	6	1
California	110	10
Colorado	26	2
Connecticut	25	2
Delaware	5	1
DC	1	0
Florida	47	4
Georgia	32	3
Idaho	8	1
Illinois	50	5

Indiana	29	3
Iowa	15	1
Kansas	8	1
Kentucky	6	1
Louisiana	7	1
Maine	5	1
Maryland	11	1
Massachusetts	23	2
Michigan	26	2
Minnesota	20	2
Mississippi	3	0
Missouri	16	2
Montana	6	1
Nebraska	8	1
Nevada	6	1
New Hampshire	5	1
New Jersey	60	6
New Mexico	11	1
New York	89	8
North Carolina	35	3
North Dakota	8	1
Ohio	58	5
Oklahoma	12	1
Oregon	21	2
Pennsylvania	93	9
Rhode Island	4	0
South Carolina	6	1
South Dakota	12	1
Tennessee	11	1
Texas	45	4
Utah	6	1
Vermont	4	0
Virginia	11	1
Washington	27	3
West Virginia	5	1
Wisconsin	12	1
Wyoming	1	0
Multiple	15	1

Note. Percentages may not total 100 due to rounding error.

Table 8

Frequencies and Percentages for Open-Ended Factors

Factor	<i>n</i>	%
Business and administrative	171	17
Insurance reimbursement	366	37
Isolation	32	3
Lack of vacation	25	2
MCO regulation	310	31
Opposing DC views	142	14
Patients	96	9
Public perception	175	17
Self-perception (purpose)	171	17
Student loan debt	33	3
Economy (money)	90	9
Other	80	8
Physical demands	22	2
Working too hard	59	6

Note. Percentages may not total 100 due to rounding error.

Table 9

Frequencies and Percentages of Subscale Categorizations

Subscale	<i>n</i>	%
Emotional exhaustion		
Low	696	60
Average	223	19
High	242	21
Personal accomplishment		
High	887	76
Average	180	16
Low	94	8
Depersonalization		
Low	873	75
Average	190	16
High	98	8
Overall Burnout		
Low Burnout	539	46
Mixed	602	52
High Burnout	20	2

Table 10

*Results for One-Sample *t* Tests for MBI Scores against Medicine Norms*

Subscale	<i>M</i>	<i>SD</i>	Norm <i>M</i>	<i>t</i> (1160)	<i>p</i>
Emotional exhaustion	16.16	12.30	22.19	-16.69	.001
Personal accomplishment	41.63	6.82	36.53	25.52	.001
Depersonalization	453	5.07	7.12	-17.38	.001

Table 11

Spearman Correlations between Emotional Exhaustion, Personal Accomplishment, and Depersonalization by Ordinal Sociodemographic Factors

	Emotional Exhaustion	Personal Accomplishment	Depersonalization
Age	-.10**	.04	-.07*
Experience	-.09**	.05	-.06
Time dedicated to clinical care	-.15**	.15**	-.11**
Time dedicated to administrative duties	.25**	-.22**	.17**
Hours worked per week	.15**	-.03	.10**
Patients treated per day	-.09**	.09**	.01

Note. * $p < .05$. ** $p < .01$.

Table 12

Independent Sample t Test Results for Emotional Exhaustion, Personal Accomplishment, and Depersonalization Scores by Dichotomous Sociodemographic Factors

Source	df	EE		PA		D	
		t	p	t	p	t	p
Gender	1147	0.96	.339	2.28	.023	3.42	.001
Own practice/business	1096	1.80	.072	1.30	.193	3.32	.001
Have associate DC	1096	0.93	.355	0.00	.999	0.22	.826
Own focus	1022	6.48	.001	3.45	.001	4.16	.001
College focus	1023	1.59	.112	0.91	.365	0.00	.998
Have burnout	1135	31.04	.001	12.52	.001	17.72	.001
Dealing with insurance	1096	6.05	.001	0.30	.770	3.32	.001
Work-related injury	1135	8.30	.001	4.05	.001	6.98	.001
Varying philosophical perspectives	1135	8.56	.001	5.48	.001	8.84	.001
Public perception	1135	13.33	.001	6.65	.001	10.87	.001

Table 13

*ANOVA Results for Emotional Exhaustion, Personal Accomplishment, and
Depersonalization Scores by Nominal Sociodemographic Factors*

Source	df	EE		PA		D	
		F	p	F	p	F	p
Marital status	4, 1144	0.65	.630	2.73	.028	0.47	.759
Professional status	4, 1144	1.22	.301	3.86	.004	3.97	.003
Practice setting	4, 1139	11.84	.001	5.89	.001	4.72	.001
Reimbursement type	3, 1140	17.60	.001	11.98	.001	13.88	.001
Location	2, 1141	1.45	.235	0.04	.957	8.65	.001
College	22, 1019	2.30	.001	0.64	.897	1.63	.034
State of practice	50, 1021	1.18	.183	0.98	.507	0.91	.651

Note. EE = emotional exhaustion. PA = personal accomplishment. D = depersonalization

Table 14

Means and Standard Deviations for Emotional Exhaustion, Personal Accomplishment, and Depersonalization Scores by Nominal Sociodemographic Factors

Sociodemographic	Emotional Exhaustion		Personal Accomplishment		Depersonalization	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Gender						
Female	15.42	11.32	42.65	6.12	3.44	4.15
Male	16.33	12.50	41.45	6.94	4.77	5.24
Marital status						
Married	16.08	12.25	41.51	6.94	4.56	5.18
Widowed	12.67	11.78	42.78	6.53	4.11	5.84
Divorced	16.31	12.09	43.31	5.68	4.09	4.52
Separated	20.62	16.27	44.46	4.75	5.92	6.30
Never married	16.55	12.55	40.77	6.74	4.59	4.58
Professional status						
Associate	18.93	13.12	40.18	7.73	6.88	5.64
Independent contractor	15.08	11.86	39.60	10.13	4.00	3.83
Sole-Practitioner	16.25	12.38	41.82	6.58	4.37	4.97
Group Practice	15.90	12.21	42.41	5.73	4.39	5.32
Not direct care provider	14.00	10.52	39.52	8.75	5.61	5.67
Own practice/business						
Yes	16.04	12.28	41.84	6.65	4.32	4.97
No	18.18	12.99	41.00	7.27	5.93	5.60
Associate DC present						
Yes	15.58	12.60	41.75	7.15	4.43	5.37
No	16.44	12.32	41.75	6.62	4.51	4.99
Primary practice setting						
Acute	17.94	12.84	41.31	7.20	4.81	5.12
Subacute	17.62	12.66	41.49	6.92	4.77	5.34
Chronic	16.69	11.95	40.81	7.12	5.02	5.47
Wellness	11.67	10.45	43.52	5.19	3.25	4.13
Not direct care	12.89	10.03	40.30	7.35	5.11	5.04
Primary reimbursement						
Workers' Compensation / Personal Injury	20.32	13.02	38.52	7.46	6.57	5.86
Cash-Fee for Services	12.59	11.18	42.59	6.31	3.29	4.36
Major Medical	17.41	12.41	41.93	6.77	4.71	5.12

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Other	13.38	10.37	40.56	6.74	5.11	5.12
Chiropractic focus						
Subluxation-Based	10.94	10.37	43.22	5.67	3.18	4.38
Musculoskeletal	17.33	12.48	41.36	6.81	4.90	5.22
College focus						
Subluxation-Based	15.20	12.80	42.00	6.95	4.59	5.42
Musculoskeletal	16.55	12.18	41.58	6.53	4.59	4.99
Location						
U.S.	16.19	12.27	41.67	6.79	4.51	5.06
Canada	13.87	10.95	41.47	8.44	3.30	2.97
International	20.64	17.43	41.21	6.02	9.86	7.95
Have burnout						
Yes	29.10	11.49	38.07	7.90	8.19	6.44
No	10.79	7.84	43.23	5.56	3.00	3.39
Dealing with insurance increases burnout						
Yes	17.06	12.41	41.78	6.42	4.77	5.13
No	10.07	10.45	41.60	7.60	3.17	4.79
Work-related injury increases burnout						
Yes	23.26	13.88	39.78	7.89	7.00	6.37
No	14.97	11.62	42.05	6.49	4.10	4.71
Varying philosophical views increases burnout						
Yes	21.02	12.86	39.99	7.61	6.58	6.18
No	14.29	11.58	42.39	6.26	3.72	4.33
Public perception increases burnout						
Yes	21.36	12.69	40.22	7.28	6.31	5.87
No	12.21	10.43	42.86	6.09	3.15	3.88

Appendix A



Letter of Invitation - Occupational Characteristics Unique to the Chiropractic Profession.

Dear Doctor,

My name is Shawn Williams, DC and I am a Doctoral Candidate in the School of Health and Medical Sciences program at Seton Hall University South Orange, NJ.

You have been randomly selected to complete a survey looking at various individual, client, and organizational characteristics involved in the practice of Chiropractic. The data from this research is being collected in an attempt to better understand chiropractic practitioners and their everyday work-environments. This research is being performed under the guidance of Dr. Genevieve Pinto Zipp, Seton Hall University School of Health and Medical Sciences (New Jersey).

If you agree to participate in this study, you will be asked to complete 2 anonymous questionnaires containing demographic questions, open-ended questions about your thoughts on the status of the chiropractic profession, and questions pertaining to your view on the nature of your work. These questionnaires include:

1. Maslach Burnout Inventory (MBI), tool
2. Demographic Questionnaire

The surveys will require approximately 15-20 minutes completing.

Instrument URL link:

<https://www.surveymonkey.com/s/shuchiropractorstudy>

Participation in this study may involve moments of self-reflection. These reflections may result in feeling uncomfortable when answering some questions. You may take a break, end your participation, or skip any questions that you may feel uncomfortable answering. You may withdraw from participating in this study at any time.

There is also a low risk of loss of confidentiality. We have taken significant steps to protect your confidentiality including the use of a secure website, the use of a Secure Sockets Layer (SSL) encryption, the disabling of IP address collection, and no use of any identifying tags or markers. Research records will be kept confidential to the extent provided by law. All records and documents pertained to your participation in this study will be held strictly confidential and your responses cannot be matched to your identity. You will not be identified in any reports or publications resulting from this study all data will be reported in aggregate form. This project has been approved by the SHU IRB (July 2012). The University will not provide any other form of compensation to you.

Please note while you do not personally benefit from participating in this study, your participation has the potential for making a significant contribution to the Chiropractic profession. If you have other questions or research-related problems, please do not hesitate to contact my research advisor, Dr. Genevieve Pinto Zipp (Genevieve.zipp@shu.edu) or myself at any time.

Once again, I thank you for your time and commitment to the chiropractic profession and remind you that by completing these surveys, you are voluntarily agreeing to your participation in this study.

Your participation is greatly appreciated!

Sincerely,
Dr. Shawn Williams, Chiropractor, Doctoral Candidate

Seton Hall University
School of Health and Medical Sciences
Seton Hall University
400 South Orange Avenue
South Orange, NJ 07079

williasd@shu.edu

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**Maslach Burnout Inventory
Instruments and Scoring Guides
Forms: General, Human Services,
& Educators**

Christina Maslach
Susan E. Jackson
Michael P. Leiter
Wilmar B. Schaufeli
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**Maslach Burnout Inventory
Manual and
Non-Reproducible
Instrument and Scoring Guides**

**Forms included: General (MBI-GS),
Human Services (MBI-HSS),
& Educators (MBI-ES)**

Christina Maslach (Manual, and MBI-GS, MBI-HSS, MBI-ES)
Susan E. Jackson (Manual, and MBI-GS, MBI-HSS, MBI-ES)
Michael P. Leiter (Manual, and MBI-GS)
Wilmar B. Schaufeli (MBI-GS)
Richard L. Schwab (MBI-ES)

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Appendix C

Qualification

*** 1. Are you a licensed Doctor of Chiropractic?**

Yes

No

***2. Does your primary occupation involve something related to the chiropractic profession (clinical, academic, administrative, and/or research)?**

YES

NO

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*** 15. On average, how many patients do you treat per week?**

- 0-50
- 51-100
- greater than 100

*** 16. What is your primary practice setting/type?**

- Acute
- Subacute
- Chronic
- Wellness
- Not a direct care provider (academic and/or administrative position that pertains to the chiropractic profession)

*** 17. What is your primary reimbursement for services rendered?**

- Workman Compensation / Personal Injury
- Cash-Fee for Services
- Major Medical
- Other

*** 18. How would you categorize the focus of your chiropractic work?**

- Subluxation-Based (Straight)
- Musculoskeletal (Mixer)

*** 19. How would you categorize the academic focus of the chiropractic college you graduated from?**

- Subluxation-Based (Straight)
- Musculoskeletal (Mixer)

*** 20. What was the location of Chiropractic College you earned your degree from?**

- U.S.
- Canada
- International

21. What Chiropractic College did you earned your degree from?

- Anglo-European College of Chiropractic
- Barcelona College of Chiropractic
- Canadian Memorial Chiropractic College
- Cleveland Chiropractic College - (Kansas City MO)
- Cleveland Chiropractic College - (Los Angeles CA)
- D'Youville College
- Institut Francais de Chiropractique (in French)
- Life Chiropractic College West (San Lorenzo CA)
- Life University, School of Chiropractic (Marietta GA)
- Logan College of Chiropractic
- Macquarie University - Dept of Chiropractic - Australia
- Murdoch University - School of Chiropractic
- National University of Health Sciences
- New York Chiropractic College
- New Zealand College of Chiropractic
- Northwestern Health Sciences University
- Palmer College of Chiropractic (Davenport IA)
- Palmer College of Chiropractic (Florida)
- Palmer College of Chiropractic West (San Jose CA)
- Parker College of Chiropractic
- Royal Melbourne Institute of Technology - Australia Unit
- Royal Melbourne Institute of Technology - Japanese Unit
- Sherman College of Straight Chiropractic (Spartanburg SC)
- Southern California University of Health Sciences: Formerly Los Angeles College of Chiropractic (Whittier CA)
- Texas Chiropractic College (Pasadena TX)
- Université du Québec Trois-Rivières Chiropractic Program
- University of Bridgeport, College of Chiropractic (Bridgeport CT)
- Western States Chiropractic College (Portland OR)

***22.**

Burnout is defined as a syndrome that involves a loss of enthusiasm for work (emotional exhaustion), feelings of cynicism (depersonalization), and a low sense of personal accomplishment.

Would you identify yourself as having symptoms of burnout presently?

- Yes
- No

***23. In your opinion, do you think that dealing with insurance companies can impact your sense of burnout?**

- Yes
- No

***24. Has obtaining a work related injury increased your sense of burnout?**

- Yes
- No

***25. Has the varying philosophical perspectives (straight versus mixer) within the chiropractic profession increased your sense of burnout?**

- Yes
- No

***26. Has public perception of the chiropractic profession increased your sense of burnout?**

- Yes
- No

27. In what geographic territory are you involved in your chiropractic work?

- Australia or New Zealand
- Canada
- Japan
- UK & Europe
- United States

28. In what state or U.S. territory do you practice chiropractic?

- | | | |
|--|---|---|
| <input type="checkbox"/> Alabama | <input type="checkbox"/> Kentucky | <input type="checkbox"/> Ohio |
| <input type="checkbox"/> Alaska | <input type="checkbox"/> Louisiana | <input type="checkbox"/> Oklahoma |
| <input type="checkbox"/> American Samoa | <input type="checkbox"/> Maine | <input type="checkbox"/> Oregon |
| <input type="checkbox"/> Arizona | <input type="checkbox"/> Maryland | <input type="checkbox"/> Pennsylvania |
| <input type="checkbox"/> Arkansas | <input type="checkbox"/> Massachusetts | <input type="checkbox"/> Puerto Rico |
| <input type="checkbox"/> California | <input type="checkbox"/> Michigan | <input type="checkbox"/> Rhode Island |
| <input type="checkbox"/> Colorado | <input type="checkbox"/> Minnesota | <input type="checkbox"/> South Carolina |
| <input type="checkbox"/> Connecticut | <input type="checkbox"/> Mississippi | <input type="checkbox"/> South Dakota |
| <input type="checkbox"/> Delaware | <input type="checkbox"/> Missouri | <input type="checkbox"/> Tennessee |
| <input type="checkbox"/> District of Columbia (DC) | <input type="checkbox"/> Montana | <input type="checkbox"/> Texas |
| <input type="checkbox"/> Florida | <input type="checkbox"/> Nebraska | <input type="checkbox"/> Utah |
| <input type="checkbox"/> Georgia | <input type="checkbox"/> Nevada | <input type="checkbox"/> Vermont |
| <input type="checkbox"/> Guam | <input type="checkbox"/> New Hampshire | <input type="checkbox"/> Virgin Islands |
| <input type="checkbox"/> Hawaii | <input type="checkbox"/> New Jersey | <input type="checkbox"/> Virginia |
| <input type="checkbox"/> Idaho | <input type="checkbox"/> New Mexico | <input type="checkbox"/> Washington |
| <input type="checkbox"/> Illinois | <input type="checkbox"/> New York | <input type="checkbox"/> West Virginia |
| <input type="checkbox"/> Indiana | <input type="checkbox"/> North Carolina | <input type="checkbox"/> Wisconsin |
| <input type="checkbox"/> Iowa | <input type="checkbox"/> North Dakota | <input type="checkbox"/> Wyoming |
| <input type="checkbox"/> Kansas | <input type="checkbox"/> Northern Mariana Islands | |

29. For the question below please briefly provide a narrative response or list your thoughts:

What factors do you feel influence the risk for burnout in chiropractic practitioners?

▲
▼

Appendix D



July 24, 2012

Shawn Williams
29 Newell Dr.
Bloomfield, NJ

Dear Mr. Williams,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "The Prevalence of Burnout Among Chiropractic Practitioners." Your research protocol is hereby approved as revised through exempt review. The IRB reserves the right to recall the proposal at any time for full review.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

A handwritten signature in cursive script that reads "Mary F. Ruzicka, Ph.D.".

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

REQUEST FOR APPROVAL OF RESEARCH, DEMONSTRATION OR RELATED ACTIVITIES INVOLVING HUMAN SUBJECTS

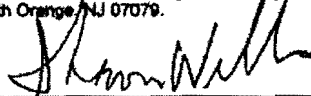
All material must be typed.

PROJECT TITLE:

The Prevalence of Burnout among Chiropractic Practitioners

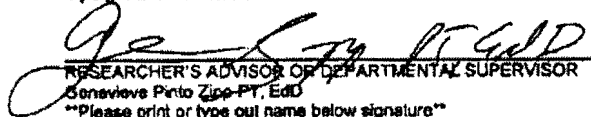
CERTIFICATION STATEMENT:

In making this application, I (we) certify that I (we) have read and understand the University's policies and procedures governing research, development, and related activities involving human subjects. I (we) shall comply with the letter and spirit of those policies. I (we) further acknowledge my (our) obligation to (1) obtain written approval of significant deviations from the originally-approved protocol BEFORE making those deviations, and (2) report immediately all adverse effects of the study on the subjects to the Director of the Institutional Review Board, Seton Hall University, South Orange, NJ 07079.


 Shawn Williams _____ 5/29/12
 RESEARCHER(S) OR PROJECT DIRECTOR(S) DATE

****Please print or type out names of all researchers below signature. Use separate sheet of paper, if necessary.****

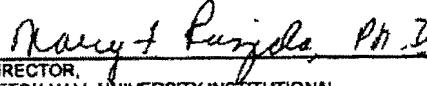
My signature indicates that I have reviewed the attached materials and consider them to meet IRB standards.


 RESEARCHER'S ADVISOR OR DEPARTMENTAL SUPERVISOR _____ 5/29/12
 Genevieve Pinto Zipp PT, EdD DATE

****Please print or type out name below signature****

The request for approval submitted by the above researcher(s) was considered by the IRB for Research Involving Human Subjects Research at the _____ June 2012 meeting.

The application was approved not approved _____ by the Committee. Special conditions were _____ were not set by the IRB. (Any special conditions are described on the reverse side.)


 DIRECTOR, _____ 7/24/13
 SETON HALL UNIVERSITY INSTITUTIONAL DATE
 REVIEW BOARD FOR HUMAN SUBJECTS RESEARCH

Please review Seton Hall University IRB's Policies and Procedures on website (<http://www.provost.shu.edu/IRB>) for more information. Please note the following requirements:

Adverse Reactions: If any untoward incidents or adverse reactions should develop as a result of this study, you are required to immediately notify in writing the Seton Hall University IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Amendments: If you wish to change any aspect of this study, please communicate your request in writing (with revised copies of the protocol and/or informed consent where applicable and the Amendment Form) to the IRB Director. The new procedures cannot be initiated until you receive IRB approval.

Completion of Study: Please notify Seton Hall University's IRB Director in writing as soon as the research has been completed, along with any results obtained.

Non-Compliance: Any issue of non-compliance to regulations will be reported to Seton Hall University's IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Renewal: It is the principal investigator's responsibility to maintain IRB approval. A Continuing Review Form will be mailed to you prior to your initial approval anniversary date. Note: No research may be conducted (except to prevent immediate hazards to subjects), no data collected, nor any subjects enrolled after the expiration date.



June 27, 2012

Shawn Williams
29 Newell Dr.
Bloomfield, NJ 07003

Dear Mr. Williams,

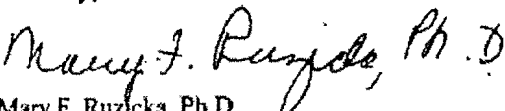
The Seton Hall University Institutional Review Board reviewed your research proposal entitled "The Prevalence of Burnout Among Chiropractic Practitioners." The IRB has raised the following concern about the study:

If the researcher is a full time employee of Manhattan Spine & Sports Therapy, he must submit IRB approval from that institution.

Since the IRB office is closed for the month of August, please address these issues in a memo sent to the IRB, c/o Mary F. Ruzicka, Ph.D., Office of the IRB, Presidents Hall, Seton Hall University, South Orange, NJ 0707 by September 4, 2012.

The IRB looks forward to your response. Be aware that your proposal is not approved and you are not to initiate the research until formal written approval has been received from the IRB. Thank you for your cooperation.

Sincerely,


Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

Office of Institutional Review Board
Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • www.shu.edu

H O M E F O R T H E M I N D . T H E H E A R T A N D T H E S P I R I T

Appendix E

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**Maslach Burnout Inventory
Instruments and Scoring Guides
Forms: General, Human Services,
& Educators**

Christina Maslach
Susan E. Jackson
Michael P. Leiter
Wilmar B. Schaufeli
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MBI-Human Services Survey

Christina Maslach & Susan E. Jackson

The purpose of this survey is to discover how various persons in the human services, or helping professionals view their job and the people with whom they work closely.

Because persons in a wide variety of occupations will answer this survey, it uses the term *recipients* to refer to the people for whom you provide your service, care, treatment, or instruction. When answering this survey please think of these people as recipients of the service you provide, even though you may use another term in your work.

Instructions: On the following pages are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about *your* job. If you have *never* had this feeling, write the number "0" (zero) in the space before the statement. If you have had this feeling, indicate *how often* you feel it by writing the number (from 1 to 6) that best describes how frequently you feel that way. An example is shown below.

Example:

How often:	0	1	2	3	4	5	6
	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

How Often 0-6	Statement:
1. _____	I feel depressed at work.

If you never feel depressed at work, you would write the number "0" (zero) under the heading "How Often." If you rarely feel depressed at work (a few times a year or less), you would write the number "1." If your feelings of depression are fairly frequent (a few times a week but not daily), you would write the number "5."

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MBI—Human Services and Educators Scoring Key Emotional Exhaustion (EE) Subscale

Directions: Line up the item numbers on this key with the same numbers on the survey form. Looking at the unshaded items only, add the scores in the "How Often" column and enter the total in the "EE" space at the bottom of the survey form.

How Often 0-6	
1.	_____
2.	_____
3.	_____
6.	_____
8.	_____
13.	_____
14.	_____
16.	_____
20.	_____

Categorization: Emotional Exhaustion, Human Services & Educators Forms	
	Frequency
High	27 or over
Moderate	17-26
Low	0-16

Note to Researchers: Research reports using the MBI—Human Services & Educators Forms usually report the average rating rather than the total. To determine the average rating for each subscale, divide the total by the number of items responded to. The Emotional Exhaustion scale contains 9 items.

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MBI—Human Services and Educators Scoring Key Depersonalization (DP) Subscale

Directions: Line up the item numbers on this key with the same numbers on the survey form. Looking at the unshaded items only, add the scores in the "How Often" column and enter the total in the "DP" space at the bottom of the survey form.

How Often 0-6
5. _____
10. _____
11. _____
15. _____
22. _____

Categorization: Depersonalization, Human Services Form		Categorization: Depersonalization, Educators Form	
	Frequency		Frequency
High	13 or over	High	14 or over
Moderate	7-12	Moderate	9-13
Low	0-6	Low	0-8

Note to Researchers: Research reports using the MBI—Human Services & Educators Forms usually report the average rating rather than the total. To determine the average rating for each subscale, divide the total by the number of items responded to. The Depersonalization scale contains 5 items.

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MBI—Human Services and Educators Scoring Key Personal Accomplishment (PA) Subscale

Directions: Line up the item numbers on this key with the same numbers on the survey form. Looking at the unshaded items only, add the scores in the "How Often" column and enter the total in the "PA" space at the bottom of the survey form.

How Often 0-6
4. _____
7. _____
9. _____
12. _____
17. _____
18. _____
19. _____
21. _____

Categorization: Personal Accomplishment,* Human Services Form		Categorization: Personal Accomplishment,* Educators Form	
	Frequency		Frequency
Higher Burnout	0-31	High	0-30
Moderate Burnout	32-38	Moderate	31-36
Lower Burnout	39 or over	Low	37 or over

*Interpreted in opposite direction from EE and DP.

Note to Researchers: Research reports using the MBI—Human Services & Educators Forms usually report the average rating rather than the total. To determine the average rating for each subscale, divide the total by the number of items responded to. The Personal Accomplishments scale contains 8 items.