FACTORS RELATED TO SATISFACTION, PAIN AND AFFECT OUTCOMES IN MASSAGE THERAPY CLIENTS

by

Karen Therese Boulanger

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Community and Behavioral Health
in the Graduate College of
The University of Iowa

May 2012

Thesis Supervisors: Associate Professor Michelle L. Campo
Professor John B. Lowe

ABSTRACT

Massage therapy is often used to treat musculoskeletal symptoms and to promote wellness. While evidence regarding its effectiveness is increasing, research related to actual practice and studies seeking to understand the mechanisms of massage therapy are needed. The purpose of this research was to describe the characteristics of massage therapists and their clients and to understand the role of communication in massage therapy outcomes. The first study examined the outcome expectations, expectancies, and behaviors of a random sample of massage therapists in Iowa (n=151) using a cross-sectional survey. The second study used a practice-based research design incorporating two samples of massage therapy clients (n=320 and n=321) to develop and validate a measure of client expectations of massage, the Client Expectations of Massage Scale (CEMS). The third study examined the influence of client expectations and massage therapists' interpersonal attractiveness on pain and satisfaction following massage. Social Cognitive Theory and Expectancy Violation Theory were used as frameworks to demonstrate how health behavior and communication theories can provide insight to massage therapy research. Results indicated that massage therapists had high expectations regarding the benefits of massage therapy and engaged in a variety of behaviors that reflect the clinical, educational, and interpersonal nature of massage therapy. In addition to using a variety of manual therapies, the massage therapists educated their clients in areas such as diet, stress management, and exercise to improve client health. Similarly, clients had positive expectations as measured by the outcome, clinical, educational, and interpersonal subscales of the CEMS. Positive outcome expectations predicted significant improvements in pain and serenity. High interpersonal expectations were related to negative changes in serenity. The third study revealed that high satisfaction was influenced by positive interpersonal attractiveness but more research is needed to understand the influence of client expectations being met on

satisfaction. Initially high educational expectations, exceeded educational expectations, violated interpersonal expectations, and positive interpersonal attractiveness were related to less pain following massage. In conclusion, this research demonstrated that client expectations and massage therapist interpersonal attractiveness are important constructs to consider when evaluating the effects of massage therapy.

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PH.D. THESIS

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To Lexi

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ABSTRACT

Massage therapy is often used to treat musculoskeletal symptoms and to promote wellness. While evidence regarding its effectiveness is increasing, research related to actual practice and studies seeking to understand the mechanisms of massage therapy are needed. The purpose of this research was to describe the characteristics of massage therapists and their clients and to understand the role of communication in massage therapy outcomes. The first study examined the outcome expectations, expectancies, and behaviors of a random sample of massage therapists in Iowa (n=151) using a cross-sectional survey. The second study used a practice-based research design incorporating two samples of massage therapy clients (n=320 and n=321) to develop and validate a measure of client expectations of massage, the Client Expectations of Massage Scale (CEMS). The third study examined the influence of client expectations and massage therapists' interpersonal attractiveness on pain and satisfaction following massage. Social Cognitive Theory and Expectancy Violation Theory were used as frameworks to demonstrate how health behavior and communication theories can provide insight to massage therapy research. Results indicated that massage therapists had high expectations regarding the benefits of massage therapy and engaged in a variety of behaviors that reflect the clinical, educational, and interpersonal nature of massage therapy. In addition to using a variety of manual therapies, the massage therapists educated their clients in areas such as diet, stress management, and exercise to improve client health. Similarly, clients had positive expectations as measured by the outcome, clinical, educational, and interpersonal subscales of the CEMS. Positive outcome expectations predicted significant improvements in pain and serenity. High interpersonal expectations were related to negative changes in serenity. The third study revealed that high satisfaction was influenced by positive interpersonal attractiveness but more research is needed to understand the influence of client expectations being met on

satisfaction. Initially high educational expectations, exceeded educational expectations, violated interpersonal expectations, and positive interpersonal attractiveness were related to less pain following massage. In conclusion, this research demonstrated that client expectations and massage therapist interpersonal attractiveness are important constructs to consider when evaluating the effects of massage therapy.

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CHAPTER 1

REVIEW OF THE LITERATURE

Overview of Dissertation

Massage therapy is a popular form of complementary and alternative medicine (CAM) (American Massage Therapy Association (AMTA), 2011; Barnes & Bloom, 2008; Eisenberg et al., 1998; Tindle, Davis, Phillips, & Eisenberg, 2005) that is commonly used to relieve musculoskeletal symptoms and for relaxation (AMTA, 2011; Sherman et al., 2005). Although the evidence for its effectiveness for both children and adults is growing (Beider & Moyer, 2006; Moyer, Rounds, & Hannum, 2004; Moyer, Dryden, & Shipwright, 2009), there is a lacuna in the research regarding massage therapists, massage therapy clients and the communication constructs that affect massage therapy outcomes.

The overall goal of this research was to understand key factors that influence the outcomes of massage therapy in order to improve the public health service provided by massage therapists. Specifically, the three aims of this dissertation were (1) to examine the outcome expectations, expectancies, and behaviors of massage therapists, (2) to develop and validate a measure of client expectations of massage, and (3) to determine the influence of client expectations of massage on client pain and satisfaction. Social Cognitive Theory (Bandura, 1986, 1998) and Expectancy Violation Theory (Burgoon & Hale, 1988) served as the theoretical frameworks for this research. Chapter 1 of this dissertation is a literature review of the relevant constructs and provides a context in which the assorted variables will be described. Chapters 2, 3, and 4 each present an independent study which corresponds to the three aims of this dissertation. Chapter 5 provides some additional findings not reported in earlier chapters, a discussion of the findings and limitations from the collection of studies, directions for future research, and implications for public health practice. Together these studies address the potential role of massage therapists as members of the public health

workforce via helping people to manage musculoskeletal symptoms and promoting health and wellness.

Introduction

This chapter provides a review which highlights relevant literature from massage therapy, psychotherapy, medicine, provider-patient communication, and complementary and alternative medicine. Following the literature review, a preliminary study conducted to narrow the research questions for this dissertation will be described. Two theories have particular relevance to my proposed studies. They include Social Cognitive Theory and Expectancy Violation Theory.

A Brief History of Massage Therapy in the United States

Although the practice of massage in China has been dated as far back as 3000 B.C., it was not formally brought to the United States until 1858 by a New York physician who studied the Swedish Movement Cure in England. The word *massage* was first introduced to the United States in 1874 by Dr. Douglas Graham of Boston who learned it from Dr. Johann Mezger of Holland, the "founder of scientific massage" (Beck, 1999, p.11). Momentum for massage therapy was augmented in the 1960s due to the popularity of the wellness model and appeal for massage training continued through the 1970s and 80s. A group of massage and bodywork professionals joined together in 1991 to develop standards and legislation. Massage therapy as a healthcare profession reached a peak one year later when the first National Certification Exam for Therapeutic Massage and Bodywork exams were administered (Beck, 1999). Currently, massage therapy is regulated in 43 states and the District of Columbia (http://www.amtamassage.org/about/lawstate.html).

The Effects of Massage Therapy

There are at least two ways that researchers categorize the effects of massage therapy on health outcomes. The first is by specifying physiological, more objective changes (e.g.,

heart rate, blood pressure, and cortisol levels) and psychological, more subjective changes (e.g., mood, well-being, and stress). A second categorization is specific vs. non-specific effects. Specific effects are those intended by the mechanical actions of the therapist or therapy (e.g., decreased pain, increased range of motion, and muscle relaxation). Non-specific effects refer to those constructs that influence the outcome of the therapy, but perhaps unintentionally. For example, the quality of the practitioner-client relationship, expectations, and the personality of the therapist may influence how the client feels after a session or series of sessions. These non-specific effects have puzzled researchers in CAM and spawned much interest (Kaptchuk, 2002; Koshi, & Short, 2007).

In a meta-analysis of 37 studies on massage therapy, the authors concluded that state anxiety, blood pressure, and heart rate improved significantly after one massage and trait anxiety, depression, and delayed assessment of pain improved significantly after a series of massages (Moyer, Rounds, & Hannum, 2004). None of the six moderator variables that they tested (session duration, client age or gender, type of comparison treatment, training of therapist, laboratory effect) were significant. The most common explanations included the gate control theory of pain reduction, activation of the parasympathetic nervous system, influences on body chemistry, mechanical effects, and promotion of restorative sleep. Recent research has provided support for the use of massage therapy in reducing symptoms related to cancer (Kutner, Smith, Corbin, Hemphill, Benton, et al., 2008), chronic back pain (Buttagat, Eungpinichpong, Chatchawan, & Kharmwan, 2011; Cherkin et al., 2011), chronic neck pain (Sherman, Cherkin, Hawkes, Miglioretti, & Deyo, 2009), fibromyalgia (Castro-Sanchez et al., 2011), and coronary artery bypass graft surgery (Nerbass, Feltrim, Souza, Ykeda, & Lorenzi-Filho, 2010) in adults and autism (Lee, Kim, & Ernst, 2010), anxiety (Beider & Moyer, 2006), and cancer (Haun, Graham-Pole, & Shortley, 2009; Hughes, Ladas, Rooney, & Kelly, 2008;) in children.

Lessons from Psychotherapy

In a meta-analysis of 27 component studies in counseling and psychotherapy, Ahn & Wampold (2001) sought to discover whether there was sufficient evidence to support the specific versus the common components of psychological treatments. Examples of specific components include cognitive or behavioral therapy, relaxation skills, and social support. The authors concluded that none of the specific components explained the favorable outcomes of psychotherapy and that the benefits were most likely due to the common factors, such as the healing context, the therapist's and client's belief in the efficacy of the therapy, and the therapeutic alliance. There was a larger difference among the characteristics of the therapists providing the same treatments than among the various types of treatment, suggesting that more focus should be on the therapist than on the specific treatment (Ahn & Wampold, 2001).

If these results translate to massage therapy, then the context in which the massage therapy techniques occur may be more important than the techniques themselves (Moyer, Rounds, & Hannum, 2004). In other words, a caring touch may explain more variance in outcomes than whether trigger point therapy or Swedish massage techniques are used (Hyland, 2005).

The common components referred to in the psychology literature may be discussed by some as a component of the placebo effect. Kaptchuk (2002) argued for a description of placebo as the sum of non-specific effects associated with the formation of therapeutic relationships such as attention, compassionate care, and expectations. He discussed how patient characteristics, practitioner characteristics, patient-practitioner interaction, the nature of illnesses treated, treatment, and setting may influence the placebo effect. Several of his comments are relevant to massage therapy. For example, during consultation with a massage therapist regarding a condition, the client is likely to have their symptoms addressed immediately (e.g., massage to area of reported complaint). In addition to an assessment that may address client uncertainty, therapeutic goals are usually established that actively involve

the client. Lastly, Kaptchuck mentioned that CAM has the advantage of always including an intervention. A massage client receives touch as part of an active intervention or healing ritual. The role of communication in massage therapist-client encounters may be better understood by reviewing studies which examined the health care provider-patient relationship.

Provider – Patient Communication

There is general consensus in the literature that communication is important and central to the provider-patient relationship. Roter & McNeilis (2003) summarized the styles of therapeutic relationships that emerge from different combinations of patient and physician control into four types: default (low physician and patient control), consumerism (low physician and high patient control), paternalism (high physician and low patient control), and mutuality (high physician and patient control). Relationships characterized by active patient participation lead to positive outcomes such as improved health outcomes and enhanced satisfaction (Cegala & Broz, 2003).

Health outcomes

Patient health is influenced by medical providers' helping patients to fully describe their experience, providers' expressing empathy and support, providers' giving patients clear information, and shared decision-making leading to agreement on the course of action (Brown, Stewart, & Ryan, 2003). Outcomes that have been influenced by quality communication include emotional health, symptom improvement, function, physiological measures, and pain control (Stewart, 1995). In addition, data suggest significant relationships between components of the doctor-patient interaction and medical outcomes (Heritage & Maynard, 2006), especially for chronic pain patients (Frantsve & Kerns, 2007).

In psychotherapy, there are numerous studies demonstrating the relationship of the therapeutic alliance with improvement in both adults and children (Martin, Garske, & Davis, 2000; McLeod, 2011). Three themes common to all theoretical definitions of the alliance

between the therapist and client are collaboration, an emotional bond, and mutuality regarding treatment goals and activities. Qualitative research reveals three types of alliance preferences: nurturant, insight-oriented, and collaborative (Bachelor, 1995). Independent of type of alliance preference, clients valued therapist qualities of respect, non-judgmentalness, careful and empathic listening, a trusting atmosphere, and the ability to self-disclose (Bachelor, 1995).

In CAM, the influence of patient-provider interaction on positive outcomes has been recognized as "the most robust component of the placebo effect" (Kaptchuk, Kelley, Conboy, Kerr, Jacobson, et al., 2008). In a randomized controlled trial of sham acupuncture for patients with irritable bowel syndrome, patients who received a "supportive" vs. "limited" patient-practitioner relationship had significant improvements in symptoms and quality of life (Conboy et al., 2009).

Patient Satisfaction

The most influential elements of patient satisfaction with medical providers include a caring and understanding provider, competency, a balanced investigation into psychosocial and medical concerns, continuity in the relationship, and patient and provider expectations (Brown, Stewart, & Ryan, 2003). Non-verbal communication behaviors (e.g., clinician warmth and listening and nurse warmth and negativity) consistently affect patient satisfaction (Henry, Fuhrel-Forbis, Rogers, & Eggly, 2011) as does physician smiling, eye contact, and body language (Griffith, Wilson, Langer, & Haist, 2003).

In a review of patient satisfaction with physical therapists, the process and organization of care, treatment outcomes, and patient expectations were associated with satisfaction, but the characteristics of the physical therapist were the most consistent determinants of high satisfaction (Hush, Cameron, & Mackey, 2011). Specific attributes included a skilled, professional, and friendly physical therapist that was an empathic and effective communicator (Hush, Cameron, & Mackey, 2011).

As opposed to specific clinical techniques used, high patient satisfaction with chiropractors is most likely due to the interpersonal components of the visits, such as good communication (Gaumer, 2006) receiving understandable explanations (Hawk, Long, & Boulanger, 2001; Hertzman-Miller et al., 2002) and self-care advice (Hertzman-Miller et al., 2002) as well as symptom improvement (Breen & Breen, 2003). Chiropractors often validate the patient's complaint, both verbally and nonverbally through palpation, contributing to the patient feeling understood (Jamison, 1997).

Relating Certain Aspects of Health Care Provider- Patient Communication to Massage Therapy

Ong, DeHaes, Hoos, & Lammes (1995), in their review of doctor-patient communication, discuss the different purposes of communication and specific communicative behaviors. The purpose of communication is to create a good interpersonal relationship, to exchange information, and to make medical decisions. Although good relationships are optimal in all health care professions, exchanging information and making decisions may look different in massage therapy. Information exchange is likely more relevant for a complaint-related visit to a massage therapist. However, as is commonly known by massage therapists and has been similarly reported (AMTA, 2011; Cherkin et al., 2002), some massage clients seek massage therapy not due to pain or some other disease-related complaint, but because they want to relax or to improve their level of wellness. The relative importance of information exchange for these clients may be different; they may prefer *less* verbal communication and have a *lesser* need for information sharing. Compared to medicine, decisions in massage therapy have less substantial consequences on clients' health status. The routine decisions that are not related to health status and are made by therapists and clients relate to music, lotion selection, levels of pressure and whether the client prefers more relaxing or specific massage procedures. Decisions for clients with health complaints are more specialized; thought must be given to site, pressure, and positioning

restrictions. The outcomes of routine versus therapeutic decisions are likely different from the patient perspective.

Ong, DeHaes, Hoos, & Lammes (1995) also described specific communicative behaviors such as instrumental versus affective behaviors, privacy behaviors, and medical versus everyday language vocabulary. There are some similarities and differences between physicians and massage therapists in these components as well. The instrumental behaviors relevant to massage therapists include giving information, asking questions, giving directions, and discussing side effects of treatment. Massage therapists do not diagnose, although they may assess such parameters as posture, joint range of motion, and muscle tone (Sherman et al., 2006). Most take a health history to screen for contraindications such as blood clots, infectious disease, or varicose veins. Sherman et al. (2006) found that about 85% of massage therapists surveyed in two states gave self-care recommendations to clients, most often consisting of exercise, increased water intake, and body awareness. These differences in types of specific instrumental behaviors may shift the focus to the quality of the massage therapist's personal touch. Affective behaviors, such as being friendly and providing verbal support, would seem to be equally or more relevant to massage therapists.

Elements of non-verbal communication such as physical privacy (Ong, DeHaes, Hoos, & Lammes, 1995) and the physical distance between people that are communicating (Hall, Harrigan, & Rosenthal, 1995) may have a considerable influence on the clinician-patient relationship. Massage clients are often close to or completely nude during the application of therapy. Because the typical visit length is 60 minutes (Beck, 1999) during which the client is being physically touched by the therapist, perhaps trust is more essential.

A final behavior shared by physicians and massage therapists is medical versus everyday language vocabulary. Physicians have a wider specialized vocabulary, but massage therapists share the need to communicate information in a language understood by clients.

In medicine, the gender of the provider is related to provider-patient communication and patient satisfaction (Burgoon, Birk, & Hall, 1991; Schmid Mast, Hall, & Roter, 2007;

Street, 2002, Teutsch, 2003). For example, female patients are more satisfied with a caring physician whereas male patients have no such preferences (Schmid Mast, Hall, & Roter, 2007). In addition, patients expect male physicians to be more aggressive than female physicians and are less satisfied when physicians do not behave according to gender stereotypes (Burgoon, Birk, & Hall, 1991). Acknowledging the gender of massage therapists is relevant because unlike medicine, there are far more female providers than male providers and most clients prefer a female therapist (Moyer & Rounds, 2009).

In summary, there appear to be sufficient differences in certain aspects of communication between various types of providers and their clients and the differences may have impact on various types of outcomes. The massage therapist-client relationship appears to have unique attributes that warrant systematic study.

The topic of communication in the massage therapy literature is underrepresented. The importance of communication is acknowledged in the popular text for the profession in only two paragraphs under the heading of "Consultation", stating that "an effective consultation depends on clear communication" (Beck, 1999, p.294). Beck (1999) also suggests that massage therapists should listen carefully and communicate on a level that is understandable to each client. The need for research in this area has been included in the Massage Therapy Foundation's *Massage Therapy Research Agenda.* For example, it advocates for the study of the practitioner/client relationship (Kahn, 2002). Smith, Sullivan, & Baxter (2009) used focus groups to explore the attributes of the massage therapy encounter that were most valued by repeat users in New Zealand. They identified six key elements of the massage encounter, with effective communication as the foundation. They include: (1) time for care and personal attention, (2) an engaging and competent therapist, (3) a trust partnership, (4) holism and empowerment, (5) effective touch, and (6) enhancing relaxation.

Among the massage therapy outcomes studies reviewed (Moyer, Rounds, & Hannum, 2004), the mechanisms by which massage therapy achieves its beneficial effects were either

not mentioned or poorly elucidated. Health behavior theories have been underutilized and are needed.

Social Cognitive Theory

The first of two theories that are most applicable to studying expectations is Social Cognitive Theory (SCT). In 1962, psychologist Albert Bandura began organizing the concepts for Social Learning Theory that would evolve into SCT as he continued to refine the theory for several decades (Baranowski, Perry, & Parcel, 2002). Human behavior is viewed as the result of the dynamic interaction of behavior, personal factors, and the environment. Personal factors include self-efficacy, the belief about one's confidence to perform a specific behavior, outcome expectations, and expectancies (Bandura, 1997). The environment refers to "objective factors that can affect a person's behavior but that are physically external to that person" (Baranowski, Perry, & Parcel, 2002, p. 168).

Studies using SCT as their framework typically include several theoretical constructs. For example, along with outcome expectations, self-efficacy has been addressed to design an intervention and change nutrition behavior in food shoppers (Anderson, Winett, Wojcik, Winett, & Bowden, 2001), to predict physical activity, fruit and vegetable intake, and water consumption among fifth graders (Sharma, Wagner, & Wilkerson, 2006), and to develop a scales measuring self-efficacy and outcome expectations of low-income mothers related to fat intake, physical activity, and stress management (Chang, Brown, & Nitzke, 2008).

Two of the personal factors commonly addressed in SCT are outcome expectations and expectancies. Bandura defines *outcome expectations* as the anticipated consequences of a behavior. They are learned from previous experience, observing or hearing about another's experience, and physiological arousal. In other words, we learn in a variety ways that certain behaviors have certain consequences and we expect these same consequences to occur when we behave similarly in analogous situations. Bandura defines *expectancy* as the value we place on a particular outcome. Consequences of behavior that we perceive as personally

meaningful and positive will motivate us to engage in or repeat that related behavior. In this way, expectations and expectancies guide our behavior.

Bandura (2004) delineated three types of outcome expectations that must be considered independently: physical, social, and self-evaluative. *Physical outcomes* include the positive and negative effects of behaviors and the material losses and benefits that accompany them. *Social expectations* are considerations of how a behavior may affect approval or disproval in our interpersonal relationships. *Self-evaluative* expectations are reflections of how we react to our own behavior and health status. We tend to engage in behavior that is self-satisfying and increases our sense of self-worth. As an example, Wojcicki, White, & McAuley (2009) developed an "expectations for exercise" scale incorporating all three types of outcome expectations. They found that a model treating physical, social, and self-evaluative expectations as separate domains had significantly better fit than a model which treated expectations as a single dimension. In addition, they found a positive and significant relationship in their sample between all three dimensions of exercise expectations and participants who met the public health guidelines for physical activity.

SCT suggests that the personal characteristics of massage therapists (e.g., practice experience), their outcome expectations, their expectancies, and whether they practice alone or with others may be related to their behavior. Studying the characteristics of massage therapists may shed light on their potential to serve in the public health work force.

Expectancy Violation Theory

When Expectancy Violation Theory (EVT) was initially developed in the 1970s, it focused on non-verbal communication behavior (Burgoon, 1978; Burgoon, Stacks, & Woodall, 1979). EVT attempts to explain and predict what happens when people's communication expectations are not met, met, or exceeded. The theory has been commonly used in the context of provider-patient communication in medical encounters (e.g., Burgoon, Birk, & Hall, 1991; Jay, Afifi, & Samter, 2000; McCalman & Madere, 2009), but has not

been used with massage therapy. The main theoretical constructs include expectancies, communicator reward valence, and expectancy violations. These constructs are important because of their relationship to communication outcomes.

Expectancies/Expectations

We have expectations regarding how people will communicate with us, both non-verbally and verbally. These expectations are based on social norms and previous experience with the other person in similar situations. There is a range of acceptability for expectations and we do not tend to notice when our expectations are met. For example, during a typical conversation, people have varying degrees of eye contact. We do not think to ourselves, "this person has appropriate eye contact"; it occurs without us noticing it. However, if a person stares at us or does not look at us at all during a conversation, we tend to take note.

Communicator Reward Valence

When we have interactions with other people, we tend to evaluate the other person; we take notice of such things as their gender, age, physical attractiveness, and conversational style. Communicator reward valence is our "net assessment" of how favorable or rewarding we judge a person to be during a specific interaction (Burgoon, Stern, & Dillman, 1995). It is affected by whether or not and how well we know a person. Although typically measured as a continuous variable, the words "positive" and "negative" reward valences are often used to describe communicators.

Expectancy Violations

When a behavior occurs outside the range of what is considered normal, EVT labels this an expectancy violation. Violations are distracting and cause us to take notice of the communicator and associated behavior and make subsequent interpretations (Burgoon & Hale, 1988). For example, if when you walked into the office of a massage therapist that you are meeting for the first time, she extended her hand to shake yours, you would likely shake

her hand and not pay much attention to what just happened. If, on the other hand, the massage therapist extended her arms and embraced you, your expectations would likely be violated. Depending in part on the massage therapist's reward valence, you will make an evaluation of whether the expectancy violation was positive or negative. For example, if you an affectionate and extroverted person and the massage therapist was genuinely warm, welcoming, and attractive, you may interpret the unusual behavior (hug) as a positive expectancy violation, but someone else may view this encounter as a negative violation. If this was not the first time you had met this provider, you would also interpret this behavior in the context of your previous experiences.

This theory has been applied to numerous studies, including research related to conversational involvement (Burgoon, Newton, Walther, & Baesler, 1989), evaluation of communicators (Burgoon & LePoire, 1993), student motives for interpersonal communication with their instructor (Weiss & Houser, 2007), and the relationship between attitude dissimilarity and interpersonal attraction (Ah Yun, 2011).

Expectancy Violation Theory provides a potential understanding of how initial client expectations, the degree to which expectations are met, how much clients like their massage therapist, and client satisfaction are related.

Expectations in a Variety of Health Care Disciplines

Psychotherapy

In the psychotherapy literature, client expectations are divided into two types: outcome expectations and role expectations. *Outcome expectations* refer to beliefs regarding the helpfulness of therapy, the therapy process, and the length of therapy whereas *role expectations* may include beliefs about the therapist's expertise and nurturance (Glass, Arnkoff, & Shapiro, 2001). Clients' outcome expectations have been shown to be positively related to measures of the therapeutic alliance and therapy outcomes (Glass, Arnkoff, & Shapiro, 2001; Joyce & Piper, 1998; Meyer et al., 2002). On the other hand, findings

regarding the relationship between role expectations and outcomes are equivocal (Glass, Arnkoff, & Shapiro, 2001).

Medicine

In a summary of 62 published articles which included expectations related to primary care, surgery, and non-surgical specialties, two types of expectations emerge: *probability or predictive expectations* and *value or ideal expectations* (Dawn & Lee, 2004). The first is similar to SCT's *outcomes expectations* and refers to patients' beliefs regarding the likelihood of something occurring (e.g., functional outcomes after surgery) and the second is similar to SCT's *expectancies* and refers to "patients' desires, hopes, or wishes concerning clinical events" (Dawn & Lee, 2004, p.515).

Most studies measure multiple categories of expectations; these include: definitional (predictive or value expectations), specificity (expectations regarding a visit, a procedure, or ongoing care), content (physicians' technical and interpersonal skills or outcome), clinical environment, whether the visit was scheduled or unscheduled, and type of instrument (Dawn & Lee, 2004; Kravitz, 1996). Patients have expectations related to medical information, medication, psychosocial support, diagnostic testing, referral, physical examination, health advice, surgery/treatment outcome, therapeutic listening, and waiting time; desires for medical information and psychosocial support are often not met (Dawn & Lee, 2004).

A systematic review of the relationship between patients' recovery expectations and health outcomes (Mondloch, Cole, & Frank (2001) supported the findings of an earlier systematic review (Crow et al., 1999) that there is evidence of a significant and positive relationship. Recent research has described advances in our biological and clinical understanding of placebo effects in which expectations play a dominant role (Enck, Benedetti, & Schedlowski, 2008; Finniss, Kaptchuk, Miller, & Benedetti, 2010; Koshi & Short, 2007).

Physical Therapy

Two studies investigated the expectations of physical therapy outcomes for acute low back pain. Grimmer et al. (1999) examined patient expectations of physiotherapy outcomes using interviews, focus groups and questionnaires at the end of the first treatment session and at the end of care. The most common patient expectations reported were outcomes expectations such as pain relief, being completely cured, receiving advice, and understanding the cause of their problem. Personal guidelines regarding returning for future treatment sessions included symptom relief, the attitude of the physiotherapist, advice from the physiotherapist, and their relationship with the physiotherapist.

George & Hirsh (2005) examined expectations with a one-item measure that asked patients to rate their expectation for "complete symptom relief" with response options ranging from 1 (not at all likely) to 5 (extremely likely). Six months later, patients were asked "whether their expectations for symptom relief had been met" with response options ranging from 1 (definitely not) to 5 (definitely yes). George & Hirsh reported that their measures of patient satisfaction were significantly related to whether expectations were met.

Complementary and Alternative Medicine

Richardson (2004) conducted a qualitative study of the expectations of patients referred to a British National Health Service outpatient clinic that provides acupuncture, osteopathy, and homeopathy. She concluded that expectations included relief of symptoms, a holistic therapeutic approach, information to help understand their condition, and self-care recommendations. Similar patient expectations were found in a study of chiropractic patients (Sigrell, 2002) and higher expectations that chiropractic care would be beneficial were associated with improvements in neck pain (Rubinstein et al., 2008). Furthermore, positive outcome expectations predicted better acupuncture outcomes in four randomized controlled trials (Linde et al., 2007).

Research from physical therapy, psychotherapy, and medicine has demonstrated that expectations are related to treatment outcomes. Measuring expectations may enhance our understanding of the effects of massage therapy and improve its usefulness and client satisfaction. The relationship of expectations to outcomes has implications for training and practice. If expectations are found to be significant predictors of improved outcome, their roles in the therapeutic encounter should be explained and ethically used to promote better outcomes. For example, if the therapist is aware that a client has unrealistic expectations at the start of a session, the therapist can realign the expectations to prevent disappointment in therapy outcome. Finally, a better understanding of the expectations of massage will contribute to the general knowledge of expectations in health care and could inform research in other forms of therapy.

Review and Critique of Existing Instruments that Measure Client Expectations of Massage

There are at least five studies which have examined client expectations of massage. Three were randomized clinical trials in which the relationship of expectations to outcomes was assessed, one was a survey of expectations of five CAM therapies (one of which was massage), and the most recent was a qualitative study of what drives massage therapy clients to continue using massage.

Bowerman Massage Expectations Scale

The first study to measure massage expectations was conducted by Bowerman (1989) as her dissertation project. She measured expectations using a scale she created called the Massage Expectation Scale (MES). This is a 5-point Likert scale consisting of seven items. Sample items included: “How much do you anticipate you will enjoy this procedure?” (extremely - not at all) and “As a result of this treatment, I anticipate that I will be” (extremely relaxed - not at all relaxed).

The MES, along with the Profile of Mood States (POMS) and State-Trait Anxiety Inventory (STAI), were administered to 81 females recruited to receive massage therapy at a clinic in Los Angeles. Participants were then escorted into the therapy room to undress and lie in a prone position covered by a sheet. The massage therapist entered the room and performed an introductory touch session that lasted 60-90 seconds. A research assistant entered the room and administered the MES a second time. The massage therapist then continued with a 50-60 minute massage either performed with her hands or with a hand-held vibrator, depending on treatment assignment. Immediately afterwards, the POMS and STAI were re-administered and the Bowerman Touch Empathy Scale (BTES) was administered.

Scores on the first administration of the MES were significantly different than scores on the second administration of the MES. Scores on the second administration of the MES were unrelated to scores on the POMS or STAI. Second administration MES scores correlated more strongly with BTES scores than initial MES scores. The MES only asked one question regarding mood change ("How much do you believe the treatment will affect your present mood?"); she suggested that more items referring to specific mood outcomes may have yielded significant findings.

Bowerman did not address role expectations or expectations of a variety of potential outcomes of massage therapy. As a measure of internal consistency, the derived alpha coefficient for the MES was reported as .72. Although the MES appeared to have adequate reliability, whether it has more than face validity is subject to question.

Kalauokalani et al. expectation items

In the second study, Kalauokalani et al. (2001) conducted a subanalysis of a randomized clinical trial of acupuncture and massage for 135 patients with chronic low back pain to assess the relationship of patient expectations to functional outcomes (Roland-Morris disability questionnaire). Prior to randomization, expectations were measured via telephone interviews in four ways: expectation for treatment benefit (from 0-10, how helpful did they

believe massage and acupuncture would be for their back problem), relative strength of expected benefit (the difference between the two previous scores), average expectation (the average of the two expectation scores), and general expectations regarding prognosis without reference to either massage or acupuncture (7-point Likert scale).

More patients with more positive expectations for benefit from their assigned treatment reported improved back pain (86%) than patients with lower expectations (68%). Those with more hopeful expectations also had significantly greater pre-post improvements in back pain. Logistic regression adjusting for possible confounds showed that those with high expectations were 5.3 times more likely to improve than those with low expectations.

Regarding the relative strength of expected benefit, patients with different relative expectations for acupuncture or massage had significantly better improvements if they received their preferred treatment. Conversely, the more general and averaged measures of expectations were not significantly related to follow-up back pain scores. Although this study provided support for the importance of measuring client expectations, the authors did not use a scale with good psychometric properties. Also, they measured expectation of helpfulness for one specific outcome: current back problem.

Myers et al. expectations items

In the third study, Myers et al. (2007) conducted a subanalysis of a randomized clinical trial comparing usual care to usual care plus the participant's choice of acupuncture, chiropractic or massage involving 444 adults with acute low back pain to assess the relationship of patient expectations to functional outcomes (Roland-Morris disability questionnaire). General expectations (from 0-10, how much improvement was expected in six weeks) were measured for all participants and specific expectations (from 0-10, how helpful would <choice of therapy> be for the current episode of back pain or sciatica) were measured for those randomized to the additional choice option.

The mean specific expectation for the helpfulness of massage was considered high at 7.2, although specific expectations for acupuncture, chiropractic, or massage were not associated with improvement in ratings of functional outcomes. However, general expectations were significantly related to improvement at both the 5 and 12 week assessment, and this association was higher in the usual care group (β=0.95 at 5 weeks, 0.80 at 12 weeks) compared to the choice group (β=0.55 at 5 weeks and 0.29 at 12 weeks) . The authors noted that their findings were opposite to those of Kalauokalani et al. (2001) and called for a standardized approach to measuring patient expectations.

Tsao et al. description of CAM expectations

In the fourth study, Tsao et al. (2005) compared treatment expectations for five CAM interventions between 45 pediatric chronic pain patients and their parents. Along with two conventional treatments (taking medicine and having surgery), children and parents were asked to rate on a 1-5 scale (1 = not at all, 2 = a little, 3 = some, 4 = a lot, 5 = completely) how much they thought each treatment (hypnosis, relaxation, massage, acupuncture, and yoga) would help their symptoms. To establish face validity, the items were pilot tested; no details on this process, or any other attempts to assess validity, were provided. Acceptable AICs were calculated to be .23 for the child and .22 for the parent items. There were variations in how both children and their parents rated some of the individual items. For example, children rated medication and relaxation as more helpful than massage and yoga, which in turn were rated higher than acupuncture, surgery, and hypnosis. For parents, massage, yoga, hypnosis, and acupuncture had similar ratings and were higher than surgery.

Tsao et al. (2005) admitted that measuring expectations using a single item for each intervention lowered their confidence in their findings but suggested that detailed interviews would improve the validity of their conclusions. Although this method could solicit more detail, reliability would most likely suffer; construction of a scale would have been a better suggestion.

Smith, Sullivan, & Baxter focus groups

In the final study, Smith, Sullivan, & Baxter (2009) used three focus groups with 19 massage therapy clients to explore the reasons why they continued to use massage therapy. One of the open-ended questions was "what effect or results do you expect to receive from your massage sessions?" They concluded that one of the motivating factors to continue using massage was related to an expectation that goals will be met and summarized these goals as prevention, condition management, wellness, and time for oneself.

Other researchers have provided evidence that expectations affect outcomes but previous attempts at measurement did not include comprehensive coverage of the expectation construct or strong psychometric properties. A valuable contribution to this literature would be a validated and reliable scale measuring the broad range of client expectations of massage.

Formative Research

Cline (2001), in her formation of a health communication agenda for CAM, proposed that a productive beginning would be "to investigate the relationship between the interpersonal processes that typify health care relationships and health and medical outcomes" (p.15). Fundamentally, these interpersonal processes need to be identified and characterized in order to ascertain their relationship to various outcomes. Studying the characteristics and therapist-client relationships of local licensed massage therapists seemed an appropriate place to identify variables that may potentially impact clients' health outcomes. Because this area of inquiry was relatively new, I chose to use qualitative methods to explore the potential constructs. Specifically, guiding questions were:

1. What are the top three common topics of conversation among massage therapists and their clients?
2. How much of their time is spent talking?
3. From the massage therapist and client point of view, what are the elements of the best massage ever given or received?

4. What are the common components in a massage therapy encounter?
5. From the massage therapists' point of view, what characteristics about their clients and their relationship with their clients do they identify as affecting their clients' outcomes (reported symptoms)?

Methods.

Three qualitative data collection methods were used: free listing, a discussion group, and semi-structured interviews.

Free-Listing.

At an Iowa massage therapy convention held in Cedar Rapids in September, 2005, nearly 100 massage therapists were present to receive continuing education. Of those, 30 were approached individually to participate in a free-listing exercise. Each massage therapist was asked to consider a typical client visit and answer two questions: 1. From the time your clients arrive until the time they leave, what are the three most common things that you talk about? and 2. Think about the total amount of time you spend with your clients. What percentage is spent talking?

Discussion Group.

A massage therapy research conference was held in Albuquerque, New Mexico, a few weeks later at the end of September, 2005. After a lecture on qualitative research, approximately 30 attendees were invited to participate in a discussion group; 21 people remained in the session and agreed to participate.

Participants first paired themselves and conducted interviews regarding the best massage that they ever gave or received. Next, participants were instructed to form small groups to share and discuss their interviews for another 30-40 minutes. Lastly, each small group reported to the whole group and the presenter took notes on large post it notes for all participants to see. Along with these overall group notes, this author reviewed individual

interview notes and group notes to add detail and clarification. This information was summarized in Microsoft Word and transferred to Qualrus (Brent, Slusarz, et al., 2002) to facilitate coding and analysis.

Semi-structured Interviews.

One month later, three massage therapists who practiced in Iowa were recruited for semi-structured interviews. An interview guide with four subject headings (background, typical massage therapy session, outcomes of massage therapy, and massage therapist-client relationships) was used. Interviews were tape recorded and transcribed into Microsoft Word and transferred to Qualrus to facilitate coding and analysis.

Results.

All 30 massage therapists that were approached to participate in the free-listing exercise agreed to do so. Most (27) of them were women, representing a similar ratio of the conference attendees. When asked, "what are the three most common things that you talk about", most (27) listed "the purpose of the massage" and listed it first. The second most common response was "personal issues of client", listed by 20 participants. Less common responses included "feedback", "self-care", "small talk", "me", and "general information about massage". Overall, 35.6% of the time that these massage therapists spend with their clients involves talk. Verbal exchange is more prevalent during first appointments when therapists and clients are becoming acquainted. In addition, participants reported that less talk occurs when the client's goal is to relax and more talk occurs during specific technique work when feedback regarding pain or other symptoms is important.

Of the 22 participants in the discussion group, 18 were female and four were male. Characteristics of the best massage ever received were that the client's expectations were met or exceeded, a mood shift and/or an emotional release occurred, and the massage therapist was friendly, confident, and sensitive.

Three massage therapists were interviewed by this author. They were female, white, and middle-aged, reflecting the common characteristics reported of massage therapists (AMTA, 2011; Cherkin et al., 2002; Lee and Kemper, 2000). Regarding conversations with their clients, all therapists reported that verbal interaction varied depending on the client and that it was the clients' choice whether or not personal conversation occurred during the massage. Poor results were viewed as a consequence of clients' unrealistic expectations, lack of prevention efforts, and mental stress.

Summary

A review of the overall results suggests that the massage therapists involved in and referred to in this study demonstrated confidence and sensitivity, and provided their clients with self-care advice that offers them an opportunity to take an active role in their health. Clients that shared responsibility and had reasonable expectations regarding the results of massage therapy seemed more likely to have better massage therapy outcomes. A variety of types of relationships seem to exist among massage therapists and their clients. Also, massage therapy seems to be a holistic treatment that affects not only muscles, but clients' mood and energy level as well. As a result of the qualitative study, client expectations of massage were chosen as a construct to measure with a validated scale in this dissertation study.

The literature review and qualitative study demonstrate that contextual factors (e.g., communication constructs) are likely important influences on client satisfaction with massage and massage therapy outcomes. Thus far, they have either been poorly studied or not studied at all.

Description of the Contributions of the Dissertation Studies (Chapters 2-4)

This dissertation addresses several gaps in the massage therapy literature. One weakness of massage therapy research is the failure to incorporate relevant constructs from

health behavior theories to guide the research questions. Chapter 2 presents the first study in massage therapy research to use Social Cognitive Theory as a framework to answer the following questions: 1. Do personal factors of the massage therapist (outcome expectations, expectancies, and practice experience) predict the frequency of their clinical, educational, and interpersonal behaviors? and 2. Does working alone versus working in a group practice influence the frequency of massage therapists' clinical, educational, and interpersonal behaviors?

A second weakness of massage therapy research is its minimal use of valid and reliable measurement of theoretical constructs specifically relevant to massage therapy outcomes. Chapter 3 describes the development and validation of a scale that measures client expectations of massage and the relationship of these expectations to client changes in pain and affect.

A third contribution of this dissertation to the massage therapy literature is the inclusion of a communication theory to help understand the pain and satisfaction outcomes of massage therapy clients. Using Expectancy Violation Theory as a framework, Chapter 4 investigates the amount to which various client expectations are met and if expectations are related to client pain post-massage and satisfaction with the care they received.

Two additional contributions will be discussed in the Chapter 5. These include the methodology used in Chapters 3 and 4: practice-based research. This dissertation is the first research study in massage therapy that partnered with massage therapists in practice to study real life massage therapist-client encounters. Furthermore, Chapter 5 will bring together the contributions of this dissertation as they relate specifically to the role of massage therapists in public health.

`CHAPTER 2

SURVEY OF EXPECTATIONS, EXPECTANCIES, AND BEHAVIOR IN A SAMPLE OF MASSAGE THERAPISTS IN IOWA

Introduction

The most recent survey of the use of massage therapy was commissioned by the American Massage Therapy Association (AMTA) in 2011. It revealed that 18% of adults surveyed received a massage, most commonly to manage stress and medical concerns (AMTA, 2011). Although US massage therapists saw an estimated 18 million adults and 700,000 children in 2007 (Barnes, Bloom, & Nahin, 2008), there have been few studies examining the characteristics of massage therapists and none of them have used a health behavior theory as a framework.

There have been a few descriptive studies of massage therapists. For example, surveys of massage therapists in Boston, Connecticut, and Washington were conducted to describe training and practice patterns (Cherkin et al., 2002; Lee & Kemper, 2000; Sherman et al., 2005). Median hours of initial training were 600 in Washington and Connecticut and 1000 in Boston. Median years in practice were 5 for Connecticut and 4 for Washington. On average, Boston massage therapists were in practice 7 years. None of these studies included massage therapists from the Midwest, nor did they survey massage therapists regarding their interpersonal behaviors with clients, expectancies and expectations of massage therapy.

Researchers have found that the interpersonal behaviors of medical providers are related to patient outcomes (Frantsve & Kerns, 2007; Heritage & Maynard, 2006; Stewart, 1995); these same behaviors have also been hypothesized to influence the outcomes of complementary and alternative medicine (Long, 2002). People are seeking massage therapy for symptom reduction (Hawk, Ndetan, & Evans, 2011), requiring massage therapists to be better equipped with interpersonal communication skills. In addition, a research review has shown that patients whose health care providers display enthusiasm (positive expectations)

toward treatment have greater symptom relief (Crow et al., 1999). Although the potential for massage therapists' personal characteristics and expectations to partially explain the effects of massage has been suggested (Moyer, Rounds, & Hannum, 2004), they remain unexamined. Therefore, the purpose of this study was to describe massage therapists' outcome expectations, expectancies and other personal characteristics to test whether these constructs are associated with the behaviors of massage therapists.

Social Cognitive Theory serves as the foundation for this study as it provides a framework for how a person's personal characteristics, behavior, and environment interact and influence each other (Bandura, 1986). The theory includes several constructs that are used to help understand, predict, and/or change health-related behavior. Examples of personal characteristics that are hypothesized to influence behavior are outcome expectations, expectancies, and self-efficacy. Outcome expectations are the expected consequences of a behavior (Bandura, 1986). Expectancies, on the other hand, are the values held toward particular outcomes (Baranowski, Perry, & Parcel, 2002). Self-efficacy is a belief held regarding one's confidence is his/her ability to perform a specific behavior despite challenges that may arise (Bandura, 1997).

Outcome expectations and self-efficacy are often measured in evaluation and research which uses Social Cognitive Theory as a framework (Baranowski, Perry, & Parcel, 2002). Applications include designing interventions to increase self-efficacy and outcome expectations related to physical activity (Basen-Engquist et al., 2010; Contento, Koch, Lee, & Calabrese-Barton, 2010), fruit and vegetable consumption (Doerksen & Estabrooks, 2007; Contento, Koch, Lee, & Calabrese-Barton, 2010) and home exercise adherence (Sirur, Richardson, Wishart, & Hanna, 2009). Other studies have applied expectancies, outcome expectations, and self-efficacy constructs to improve participation in longitudinal studies (Sinicrope et al., 2009) and exercise adoption among an at risk population (Hays et al., 2010). In addition, reviews indicate that self-efficacy and outcome expectation variables have been used to explain clinical behaviors in physicians, nurses, pharmacists, and psychologists

(Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008) and physicians' use of clinical practice guidelines (Cabana et al., 1999). This study uses Social Cognitive Theory as a framework to examine the influence that personal characteristics of massage therapists (their outcome expectations, expectancies, and experience) and their practice environment have on a variety of behaviors that ultimately impact the health outcomes of their clients (Fischer, Ahya, and Gordon, 2010). It is the first study to apply Social Cognitive Theory to the health related behavior of massage therapists.

In this study, outcome expectations are the expectations held by massage therapists regarding several different potential benefits of massage therapy (e.g., decreased pain and improved mood). Outcomes expectations are shaped by past experiences with related situations and from watching or hearing about others' experiences in related situations (Baranowski, Perry, & Parcel, 2002). Outcome expectations, a Social Cognitive Theory construct, was selected because they are likely to be viewed as incentives for massage therapists to act in ways that will produce positive outcomes and thus influence their behavior (Bandura, 1998, 2001). For example, if a massage therapist expects that massage will relax her client, then the massage therapist will engage in behavior (e.g., be like a friend, and give ideas about how to manage stress) that makes that response (relaxation) more probable.

In this study, expectancies are defined as the importance that massage therapists place on various behaviors in order to achieve excellent results from massage. This construct was chosen as Social Cognitive Theory asserts that along with outcome expectations, expectancies also predict behavior. For example, if a massage therapist believes that it is important to engage in various behaviors (e.g., be like a friend, and give ideas about how to manage stress) in order to for her client to relax, then the massage therapist is more likely to engage in those behaviors.

The final personal factor being examined in this study that may influence the behavior of massage therapists is their experience (i.e., the number of years since they

graduated from their initial training program). According to Social Cognitive Theory, massage therapists are more likely to engage in behaviors in which they have appropriate knowledge and skills to perform.

The environment relevant to this study is the practice environment, whether the massage therapist practices alone or with others. Although some massage therapists prefer to work alone, others work in a variety of settings with a variety of other professionals. According to Social Cognitive Theory, the presence of peers in the working environment may be a source of social support for engaging in related behaviors and therefore increase the frequency of their occurrence.

In this study, a broad range of massage therapist behavior is being examined in order to represent the clinical, educational, and interpersonal nature of their work. For example, in addition to assessing muscles, massage therapists often educate their clients regarding the benefits of massage and discuss clients' concerns with them. As stated earlier, according to Social Cognitive Theory, outcome expectations, expectancies, practice experience, and environment influence behavior (Bandura, 1986). The theory driven research question in this study is: are personal factors of the massage therapist (outcome expectations, expectancies, and practice experience and environment) associated with the frequency of their clinical, educational, and interpersonal behaviors?

Methods

Participants

This study included a cross-sectional sample of licensed massage therapists in Iowa. Contact information for these therapists was obtained through the Iowa Department of Public Health website. Massage therapists in Iowa were chosen for two primary reasons. First, previous studies have not explored massage therapy practice in the Midwest. Second, Iowa has a 19-year history of requiring licensure in order to practice massage therapy in the state indicating some degree of basic equivalency in training, knowledge and skills. Massage

therapists were eligible for this study if they listed an Iowa address, were not under disciplinary action, and were currently in practice. In September 2008, 2254 massage therapists were available for sampling. Of these, 400 were randomly selected to receive a mailed survey.

Procedure

In late October 2008, the surveys, printed on colored paper, were mailed with a letter personally signed by an Iowa-licensed massage therapist/researcher in a stamped envelope with the University's address printed as the return; a postage paid return envelope was also included. In a Cochrane Collaboration review, these procedures were found to maximize response rates (Edwards et al., 2007). Three weeks after the surveys were mailed, a random sample of 50 massage therapists who did not respond to the initial survey was contacted by telephone to remind them of their invitation to complete and return the survey. The surveys took approximately 5-10 minutes to complete. All procedures were approved by the University's institutional review board. An early version of the survey was pilot tested by 25 massage therapists, and then revised. The final survey was pilot tested by five.

Measures: Iowa Massage Therapist Survey

Participant characteristics

The four-page survey began with questions regarding massage therapists' gender, age, and training. It proceeded with questions regarding practice setting, client workload, and other employment. The final item asked respondents to report the use of seven techniques (e.g., Swedish massage and trigger point therapy) and seven practices (e.g., stretching recommendations and stress management), with three response options (never use the technique/practice, use it with some clients, or use it with majority of clients).

Outcome expectations

Massage therapists were asked to rate how much they agree or disagree with 11 statements about the outcomes of massage therapy, using a seven option Likert scale (strongly agree – strongly disagree). For example, "massage therapy will decrease the amount of pain my clients have." The outcomes list was generated from prior research which supported the relationship between massage therapy and improvements in pain, concentration, stress, sleep, immunity, mood, and blood pressure (Buttagat, Eungpinichpong, Chatchawan, & Kharmwan, 2011; Castro-Sanchez et al., 2011; Moyer, Rounds, & Hannum, 2004; Nerbass, Feltrim, Souza, Ykeda, & Lorenzi-Filho, 2010; Rapaport, Schettler, & Bresee, 2010) and was pilot tested with massage therapy clients.

Behavior

Massage therapists were asked to rate how often they engage in 17 behaviors with their clients using five frequency responses (almost always – never). For example, "as a massage therapist, I assess my clients' muscles to understand their condition." The 17 behaviors that were included are a complement to items that were written for scale measuring client expectations of massage. For example, if the item read "I expect that my massage therapist may assess my muscles to understand my condition", then the complementary item on the survey in this study was "as a massage therapist, I assess my clients' muscles to understand their condition".

Expectancies

Massage therapists were asked to assess how important the 17 above behaviors are to obtain good massage therapy outcomes. For example, "to achieve excellent results from massage, it is valuable for me to assess my clients' muscles to understand their condition".

Data Analysis

Descriptive statistics, exploratory factor analysis and regression analyses were conducted using SPSS GradPack 17.0. Six items were removed from inclusion in the potential expectancy and behavior subscales due to low variability (i.e., respondents rated the item similarly). Principal component analyses with varimax rotation were conducted on the expectancy and behavior items. Three categories of expectancy and behavior emerged from the principal component analysis: clinical, interpersonal, and educational (see Tables 1 and 2). One item (put my clients in a better mood) did not load on any factor and was dropped from further analyses. Considering the small number of items, the internal consistency was adequate (alphas ranged from .61 to .77) (Clark & Watson, 1995).

To examine the relationships of the Social Cognitive Theory variables, three separate regression models were tested using each sum of responses to the clinical, educational, and interpersonal behaviors as the dependent variable. The following independent variables were included for each regression model: sum of the responses to the outcome expectations question, the sums of the categories of expectancy items (clinical, educational, and interpersonal), number of years since initial completion of massage training, and a dummy variable for whether or not the massage therapist practices with others. The significance level was set at 0.05. See Figure 1 for an example of how the variables in the clinical behavior model were tested. Educational and interpersonal behaviors were tested in the same manner.

The age, gender, and year of licensure for every massage therapist that is licensed in Iowa are available to the public through the Iowa Department of Public Health website. To determine whether there were significant differences between responders and non-responders at the time the sample was drawn, Chi-square was used to test gender and independent t-tests were used to test age and year since licensure.

Results

Response Rate

Of the 400 surveys that were mailed out, 6 were undeliverable, 5 were forwarded to massage therapists that had moved out of state, 5 were received by massage therapists that reported that they were no longer in practice, and 14 were returned blank (an indication of the massage therapist's desire not to participate). Of the 50 random non-responders that were called, 8 phone numbers were disconnected, 24 were not reached but a message was left, 2 reported that they were not in practice, 8 indicated that they would return the survey but it was never received, and 8 returned a completed survey. In the end, 227 surveys were not returned and 155 were returned completed; the final response rate was 40% (155/382). Four additional surveys were removed from the analysis due to incomplete data resulting in a final sample of 151.

Participant Characteristics

The mean hours of initial training completed was 688 (range=500-1500) and the mean years since basic training was completed was 6.2 (range=0.5-22). Nearly half of the massage therapists practiced alone (45.7%), while 15.9% practiced with a chiropractor, 14.6% practiced in a salon or spa, 12.6% practiced with other massage therapists, and 12% at other practice settings. There was a large range (1-60) in the number of hours spent with clients each week; the average was 15.8 hours. An average of 14 clients (range=1-45) were cared for in a typical week. A little more than half (53.6%) were also employed in a job other than as a massage therapist.

The techniques that were most commonly used with clients were Swedish massage (92.7%), trigger point therapy (53.0%), and stretching (46.4%) (see Table 3). Techniques used less regularly were Reiki or therapeutic touch and craniosacral therapy. The most common practices were encouraging water intake, heat application, stretching

recommendations, stress management, and exercise counseling. Practices used less regularly were aromatherapy and cold application.

Respondents to the survey were similar to non-respondents. Regarding gender, 89% of the responders were female compared to 86% of non-responders; this difference was not significant (χ^2=2.16, *df*=1, *p*=.15). The mean age of respondents was 40.7 years compared to 39.8 for non-responders; this difference was also not significant (*t*=-.67, *df*=381, *p*=.50). The average years since licensure for both respondents and non-respondents were 5.3.

Outcome Expectations, Expectancies, and Behavior

In general, the massage therapists had high levels of expectations for massage outcomes, especially regarding relaxation, pain reduction, improving mood, and increasing muscle flexibility. Respondents had the lowest expectations for improving concentration and lowering blood pressure (see Table 4). Massage therapists in this sample tended to rate the importance of clinical and educational behaviors higher than the importance of interpersonal behaviors to achieve excellent results from massage (see Table 1). Parallel to the expectancies, the most prevalent behaviors were more clinical in nature: being trustworthy, showing concern, respecting modesty, tailoring the session, and helping clients to relax. There was more variability in interpersonal behaviors such as acting like a friend to clients as well as educational behaviors such as discussing nutrition (see Table 2).

Predicting Behavior

Using regression analysis, expectancies was the only Social Cognitive Theory variable that significantly predicted the frequency of every category of behavior (clinical, p<.01), interpersonal, p<.01, education, p<.01) (see Table 5). In other words, if the massage therapist expected a behavior would lead to good results, he/she was more likely to engage in that respective behavior more frequently. Outcome expectations predicted clinical (p=.03) and educational (p<.01) behavior, but not interpersonal behavior. Number of years since completion of initial massage training predicted the frequency of clinical behavior (p=.01);

more experienced massage therapists engaged in clinical behaviors more often. The social environment (whether or not the massage therapist practiced with others) did not explain any variance in any category of behavior.

Discussion

Outcome expectations, expectancies, and related behavior of participating massage therapists

Outcome expectations and expectancies predicted frequency of clinical and educational behaviors. This finding is consistent with other studies which used Social Cognitive Theory to understand the behavior of health care providers. For example, outcome expectancies predicted the clinical behavior (placing fissure sealants) of dentists (Bonetti, Johnston, Clarkson, & Turner, 2009), and outcome expectations predicted the educational behavior (recommending smoking cessation services) of physicians (Vogt, Hall, Hankins, & Marteau, 2009).

In addition, interpersonal expectancies, but not outcome expectations, predicted interpersonal behavior. Consistent with Social Cognitive Theory, massage therapists that placed a higher value on interpersonal behaviors were more likely to engage in interpersonal behaviors more often. In addition, the number of years since completion of initial massage training approached significance ($p=.056$) in predicting interpersonal behavior and it is possible that it may have reached significance in a larger sample. Perhaps massage therapists that value the more interpersonal nature of their work stay in practice longer or massage therapists become increasingly confident interacting more with clients over time. Of the interpersonal behaviors, showing concern for clients and being a person that clients can trust were rated as highly valued and nearly all of the massage therapists reported that they engaged in these behaviors often or almost always. The items in which variation was observed were related to being like a friend to clients, sharing personal aspects of their life with clients, and discussing clients' personal problems. The finding that outcome

expectations did not predict interpersonal behavior could be a result of low self confidence in their communication skills, a perception that interpersonal communication is not the main goal of the session, a perception that talking during massage interferes with relaxation, or a perception that discussing personal issues (vs. clinical issues) is outside the scope of massage therapy practice.

The remaining Social Cognitive Theory variable, the practice environment, was not associated with any category of massage therapist behavior. The exact reason is unknown. It is possible that massage therapists have other social supports in place that influence their behavior that were not measured in this study yet influence their behavior. It should also be recognized that the low variance in the frequency of the behaviors studied may have affected the ability of the regression analysis to explain relationships with the experience level of the massage therapist and whether or not the massage therapist practiced with others.

The data from this study provided a very relevant and previously undocumented finding: massage therapists had high expectations regarding the benefits of massage. Expectations were highest for the outcomes in which there is the most evidence for effectiveness (i.e., decreased anxiety, pain, and depression). If this is true of massage therapists in general, it could help to explain the non-specific effects associated with massage (Moyer, Dryden, & Shipwright, 2009). High outcome expectations in physicians and dentists have been linked to better health outcomes for their patients (Crow et al., 1999; Gracely, Dubner, Deeter, & Wolskee, 1985; Gryll & Katahn, 1978; Kaptchuk, 2002; Thomas, 1987). Future research investigating the relationship of massage therapist expectations to their clients' health outcomes is warranted.

As mentioned earlier, massage therapists in this study had the highest expectations regarding the potential of massage for promoting relaxation, decreasing pain, and improving mood. The fact that these are the effects that are best supported by research is notable (Moyer, Dryden, & Shipwright, 2009). It is possible that massage therapists are transferring their confidence in the benefits of massage to their clients.

Limitations

One limitation is that this was a cross-sectional survey; the relationship between outcome expectations, expectancies, and behavior may be better assessed through a longitudinal study. In addition, this survey included self reported behavior; direct observation may have provided a more accurate depiction (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008).

Suggestions for Future Research

The response rate was lower than ideal, but was very typical of surveys which do not provide incentives (Edwards et al, 2007). Moreover, the respondents were similar to non-respondents. The sample of massage therapists that responded were similar to those that did not respond, at least in terms of gender, age, and years since initial licensure. Although the majority of respondents were women (and there may be undetectable gender differences because of small sample size) this is reflective of the population of massage therapists in Iowa (i.e., both the sample and the population were 89% female) (Iowa Bureau of Professional Licensure, 2008). In addition, the characteristics of massage therapists in this study were consistent with previous studies regarding gender (Cherkin et al., 2002; Lee & Kemper, 2000), age (Cherkin et al., 2002; Lee & Kemper, 2000), working in a variety of settings (Cherkin et al., 2002; Lee & Kemper, 2000), working part time (Cherkin et al., 2002; Lee & Kemper, 2000), median hours of initial training (Cherkin et al., 2002), years in practice (Cherkin et al. 2002), most common type of massage therapy used (Cherkin et al., 2002; Lee & Kemper, 2000), and respondents tendency to provide self-care recommendations such as increased water intake and exercise (Sherman et al., 2005). Future studies should consider using a national sample to obtain a broader picture of the characteristics, expectations, and behavior of massage therapists.

The massage therapists in this study were acting as health promoters in areas related to diet, stress management, and exercise counseling for general health. For example, they

believed it was valuable to talk to their clients about eating well and half reported doing so often or almost always. Coursework on nutrition is not required for national exams or for a school to be accredited so it is not possible to know what massage therapists are being taught, if anything. It is commonly understood that a balanced diet is integral to one's overall wellness and that nutritional deficiencies and obesity can negatively affect health. Nonetheless, future research should explore the role of massage therapists in providing nutritional information in a general, not prescriptive, manner.

In a study of preventive screening of women who used CAM providers, the authors reported that women who saw massage therapists were more likely to get mammograms and Pap testing (Downey, Tyree, & Lafferty, 2009). They concluded that when women use CAM providers as an alternative (versus along with) their medical doctor, the recommendations given by that provider may be their main source of encouragement to seek out preventive screening Future research should investigate the frequency with which massage therapists encourage routine preventive screenings such as mammograms, Pap tests, and colonoscopies. Research is also needed to determine whether acknowledging and fostering the participation of massage therapists in the public health work force increases positive health outcomes (Burke, Ginzburg, Collie, Trachtenberg, & Muhammad, 2005). This research would be well guided by Social Cognitive Theory, especially the construct self-efficacy. If massage therapists have high self-efficacy (confidence in their ability to perform specific behaviors), this likely affects their behavior and hence their clients' health outcomes.

In their most recent strategic plan, NCCAM (2011) identified the role of CAM providers as supporters and promoters of healthy behavior as a research priority. At the same time, some massage therapists are exploring opportunities to become more active public health partners (Thompson, 2009). In addition, the ATMA (2012) reported that 29% of members work in a health care setting. This parallels the increased offering of massage therapy in hospital settings (AHA, 2007). Research examining the role of massage therapists as partners with public health initiatives seems timely.

Conclusions

Massage therapists in this study, like massage therapists in other studies, used a variety of techniques and practices to address their clients concerns. In addition, they were optimistic regarding the ability of massage to provide good outcomes, especially those benefits that were supported by research. Social Cognitive Theory helped to understand some, but not all of the relationships between the expectations, expectancies, experience, and behavior of massage therapists. This study provides insight into the expectations, values, and behaviors of a sample of massage therapists. These findings are useful for future theory-based research efforts, especially those that seek to understand or change the behavior of massage therapists.

Table 2.1. Expectancies of a Random Sample of Massage Therapists in Iowa

To achieve excellent results from massage, it is valuable for me to:	Mean	SD	Factor loading	Cronbach's α
Clinical				.77
Assess my clients' muscles to understand their condition	6.6	0.8	.78	
Teach my clients how to prevent their condition from becoming worse	6.4	0.9	.81	
Explain to my clients the cause of their muscular tension	6.0	1.0	.81	
Provide my clients with information regarding their condition	5.8	1.2	.56	
Educational				.61
Educate my clients on the benefits of massage therapy	6.5	0.7	.68	
Give my clients ideas on how to manage their stress	5.8	1.1	.69	
Talk to my clients about eating well (nutrition)	5.3	1.3	.80	
Interpersonal				.76
Act like a friend to my clients	4.2	1.7	.80	
Discuss my clients' personal problems with them	3.6	1.7	.79	
Share personal aspects of my life with my clients	2.7	1.5	.84	
Items not included in the exploratory factor analysis				
Respect my clients' modesty.	6.9	0.4		
Tailor my massage approach to suit my clients' individual needs	6.9	0.3		
Be a person that my clients can trust	6.8	0.5		
Help my clients feel relaxed	6.8	0.5		
Have exceptional massage skills	6.8	0.6		
Show concern for my clients	6.7	0.7		
Put my clients in a better mood	6.0	1.1		

Note. n = 151.

All variables are on a Likert scale where 7= strongly agree and 1= strongly disagree.

Table 2.2. Frequency of a Random Sample of Iowa Massage Therapists Behaviors

As a massage therapist, I	Mean	SD	Factor loading	Cronbach's α
Clinical				.72
Assess my clients' muscles to understand their condition	4.6	0.7	.73	
Teach my clients how to prevent their condition from becoming worse	4.3	0.8	.73	
Explain to my clients the cause of their muscular tension	4.0	0.8	.76	
Provide my clients with information regarding their condition	3.9	1.1	.55	
Educational				.61
Educate my clients on the benefits of massage therapy	4.5	0.6	.70	
Give my clients ideas on how to manage their stress	3.7	0.9	.78	
Talk to my clients about eating well (nutrition)	3.5	1.0	.72	
Interpersonal				.64
Act like a friend to my clients	3.5	1.1	.72	
Share personal aspects of my life with my clients	2.6	0.9	.77	
Discuss my clients' personal problems with them	2.6	0.9	.73	
Items not included in the exploratory factor analysis				
Am a person that my clients can trust	5.0	0.1		
Respect my clients' modesty	5.0	0.1		
Help my clients feel relaxed	4.9	0.3		
Tailor my massage approach to suit my clients' individual needs	4.9	0.3		
Show concern for my clients	4.9	0.4		
Have exceptional massage skills	4.6	0.6		
Put my clients in a better mood	4.4	0.6		

Note. n = 151.

All variables are on a frequency scale where 5= almost always and 1= never.

Table 2.3. A Random Sample of Massage Therapists' in Iowa Percent Use of Techniques and Practice with Clients

Technique	Never use	Use with some (< 50%)	Use with most (50%+)
Swedish massage	2.0%	5.3%	92.7%
Trigger Point therapy	9.3	97.1	53.0
Stretching during session	9.3	44.4	46.4
Reflexology	21.9	49.7	28.5
Neuromuscular therapy	34.5	38.5	27.0
Reiki or therapeutic touch	60.3	23.8	15.9
Craniosacral therapy	57.0	28.9	14.1
Practice			
Encourage increased water intake	0.7%	5.3%	94.0%
Heat application (hot pack, heating pad)	8.7	43.3	48.0
Stretching recommendations for home/work	4.0	51.7	44.3
Stress management	15.9	42.8	41.4
Exercise counseling (for general health)	13.5	55.4	31.1
Aromatherapy	31.3	42.7	26.0
Ice or cold application	34.4	53.0	12.6

Note. n = 151.

Table 2.4. Outcome Expectations of a Random Sample of Massage Therapists in Iowa

Massage therapy will:	Mean	SD
Help my clients to relax	6.8	0.4
Decrease the amount of pain my clients have	6.6	0.6
Improve my clients' mood	6.6	0.6
Improve the flexibility of my clients' muscles	6.5	0.7
Help my clients to sleep better at night	6.5	0.7
Help my clients to cope with their stress	6.4	0.7
Improve my clients' performance during physical activity	6.2	0.8
Increase my clients' level of energy	6.2	0.8
Help my clients' bodies' ability to fight illness	6.1	0.9
Lower my clients' blood pressure	5.9	1.1
Help my clients to concentrate better on a task	5.7	1.1

Note. n = 151.
All variables are on a Likert scale where 7= strongly agree and 1= strongly disagree.

Table 2.5. Regression Analysis for Social Cognitive Theory Variables Predicting Behaviors of Massage Therapists

	Dependent Variable								
	Model 1: Clinical Behaviors			Model 2: Educational Behaviors			Model 3: Interpersonal Behaviors		
Independent variable	B	SE B	β	B	SE B	β	B	SE B	β
Outcome expectations	0.05	0.02	0.12*	0.06	0.02	0.18*	0.02	0.02	0.04
Expectancies	0.59	0.04	0.71*	0.53	0.05	0.65*	0.40	0.03	0.73*
Experience	0.07	0.03	0.14*	0.03	0.02	0.09	0.05	0.02	0.12
Practices with others	-0.17	0.28	-0.03	-0.20	0.22	-0.05	0.27	0.25	0.06
	R^2 = .58.			R^2 = .57.			R^2 = .56.		

Note. n = 151.

*p < .05.

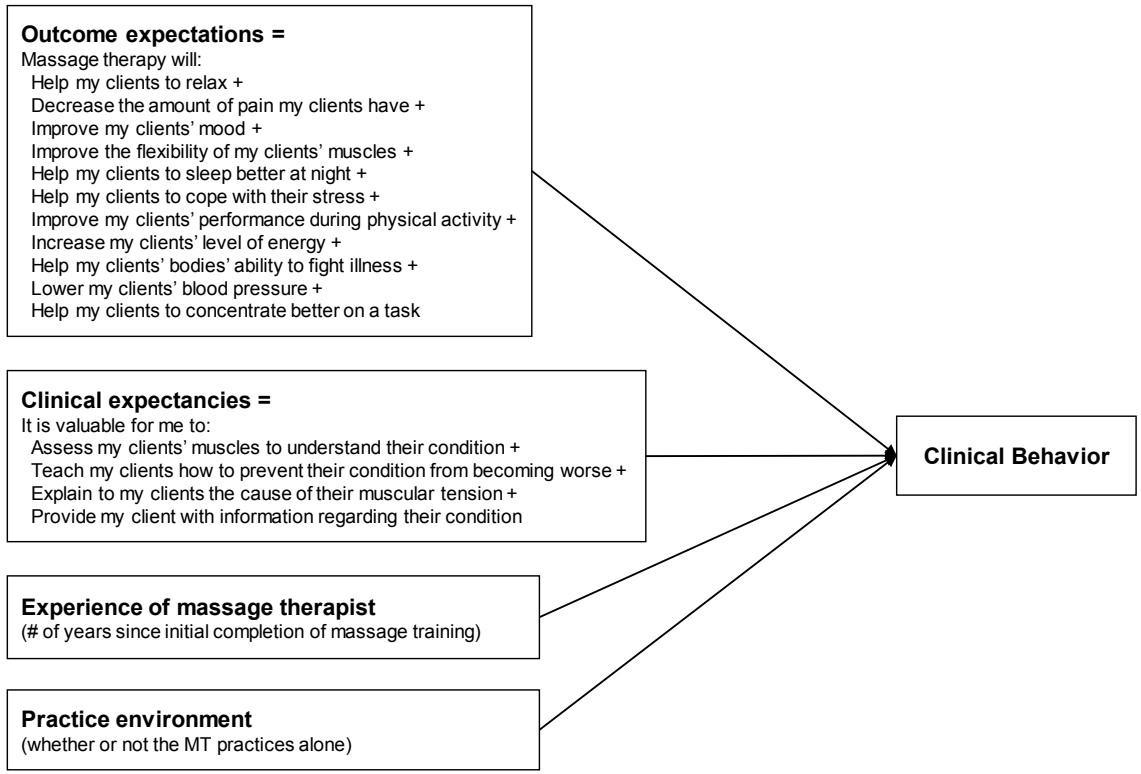

Figure 2.1. Model testing the influence of Social Cognitive Theory variables on the clinical behavior of massage therapists

CHAPTER 3
THE DEVELOPMENT AND VALIDATION OF THE CLIENT EXPECTATIONS OF MASSAGE SCALE

Introduction

Although massage therapy is a popular form of complementary and alternative medicine (Barnes & Bloom, 2008), and evidence for its effectiveness is increasing (Moyer, Rounds, and Hannum, 2004; Moyer, Dryden, & Shipwright, 2009), little is known of the mechanisms by which massage therapy achieves its effects. There is both theoretical (Bandura, 1986; Baranowski, Perry, & Parcel, 2002) and empirical (Constantino, Arnkoff, Glass, Ametrano, & Smith, 2011; Crow et al., 1999; Glass, Arnkoff, & Shapiro, 2001; Joyce & Piper, 1998; Meyer et al., 2002; Mondloch, Cole, & Frank, 2001) support for the importance of studying the relationships between the expected benefits of health behavior and outcomes of care. As no validated measures of client expectations of massage exist, the purpose of this study was to develop and validate a scale to assess client expectation of massage therapy and massage therapists.

Conceptualization

In the health care literature, two types of expectations emerge: outcome expectations and role expectations. In Social Cognitive Theory, outcome expectations are defined as the anticipated consequences of a behavior; they are learned from previous experience, observing or hearing about another's experience, and physiological arousal (Bandura, 1986). Systematic reviews conclude that there is at least moderate evidence of a significant relationship between medical patients' outcome expectations and health outcomes (Crow et al., 1999; Mondloch, Cole, and Frank, 2001). This is echoed in the psychotherapy literature where clients' outcome expectations have been shown to be related to measures of the therapeutic alliance and therapy outcomes (Glass, Arnkoff, & Shapiro, 2001; Joyce & Piper, 1998; Meyer et al., 2002). Role expectations refer to

beliefs about the expected behavior of a person who occupies a particular position; review findings examining the relationship between role expectations and psychotherapy outcomes are equivocal, largely due to weaknesses associated with poor measurement (Glass, Arnkoff, & Shapiro, 2001).

Although there are similarities in patient expectations across health care disciplines, they are often discipline specific. For example, in the psychotherapy literature, outcome expectations refer to beliefs regarding the helpfulness of therapy, the therapy process, and the length of therapy whereas role expectations may include beliefs about the therapist's expertise and nurturance (Glass, Arnkoff, & Shapiro, 2001). Patient expectations of physiotherapy outcomes include pain relief, being cured, receiving advice, and understanding the cause of their problem (Grimmer et al., 1999). In addition, medical patients expect medical information, psychosocial support, physical examination, health advice, and therapeutic listening (Dawn & Lee, 2004). Finally, patients referred to a British National Health Service outpatient clinic that provides acupuncture, osteopathy, and homeopathy expected relief of symptoms, a holistic therapeutic approach, information to help understand their condition, and self-care recommendations (Richardson, 2004).

Mirroring the definitions used in psychotherapy (Glass, Arnkoff, & Shapiro, 2001), the expectations that massage therapy clients have can be divided into two types: role expectations and outcomes expectations. Role expectations refer to the expected behaviors of the massage therapist, what clients expect massage therapists will do before, during, and after the massage session. For example, clients may expect that their massage therapist will assess their muscles and give them advice about how to take better care of themselves. Outcomes expectations refer to the expected benefits of massage, what clients expect will happen as a result of having a massage. For example, clients may expect to feel more relaxed after receiving a massage.

In massage therapy research, two studies have included measures of client expectations of massage. In the first study, Bowerman (1989) measured expectations using a scale she created called the Massage Expectation Scale (MES). This is a 5-point Likert scale with each item having its own specific set of responses ranging from "extremely much" to "not at all". Bowerman did not address role expectations or expectations of a variety of potential outcomes of massage therapy. As a measure of internal consistency, the derived alpha coefficient for the MES was reported as 0.72. Although the MES appeared to have adequate reliability, whether it has more than face validity is subject to question as it was not formally evaluated in her study. The hypotheses that the MES would be positively related to self-reported mood and negatively related to self-reported anxiety post-massage were not supported (Bowerman, 1989).

In the second study that measured massage expectations, Kalauokalani et al. (2001) conducted a subanalysis of a randomized clinical trial of acupuncture and massage for low back pain to assess the relationship of patient expectations to functional outcomes. Prior to randomization, expectations were measured via telephone interviews in four ways: 1. expectation for treatment benefit (from 0-10, how helpful did they believe massage and acupuncture would be for their back problem), 2. relative strength of expected benefit (the difference between the massage and acupuncture scores), 3. average expectation (the average of the massage and acupuncture scores), and 4. general expectations regarding prognosis without reference either treatment (using a 7-point Likert scale, participants replied to "one month from now, do you expect your back or leg pain to be 1=completely gone to 7= much worse). The measures were not validated.

Kalauokalani et al. (2001) found that more patients with higher expectations for benefit from their assigned treatment reported improved back pain than patients with lower expectations. Those with higher expectations also had significantly greater pre-post improvements in back pain. Logistic regression adjusting for possible confounds showed

that those with high expectations were 5.3 times more likely to improve than those with low expectations. Although the measure of relative strength of expected benefit was not significantly related to post-treatment functional outcomes, there was a significant interaction between the relative strength of expected benefit and the effect of the treatment (acupuncture or massage) received. In other words, if patients rated massage more positively than acupuncture before the trial and actually received massage in the trial, they improved significantly more than if they received acupuncture. Conversely, the more general (the third measure) and averaged (the fourth measure) expectations for acupuncture and massage were not significantly related to post-treatment functional outcomes.

The most recent study which measured expectations of massage involved patients with acute low back pain (Myers et al., 2007). General expectations (from 0-10, how much improvement was expected in six weeks) and specific expectations (from 0-10, how helpful would massage therapy be for the current episode of back pain or sciatica) were measured. The mean specific expectation for the helpfulness of massage was considered high, but it was not related to changes in functional status. On the other hand, the general expectation item was related to improvements in functional status. Myers et al. (2007) noted that their results were opposite to the Kalauokalani et al. (2001) study and recommended the use of standardized measures of expectations in the future.

Although at least one measure of expectations was found to be important in the previous two studies, their results are conflicting. In addition to not using a scale with explicit psychometric properties, previous researchers only measured expectation of helpfulness for one specific outcome: chronic or acute back pain. Their studies did not address role expectations or expectations of a variety of potential outcomes of massage therapy.

Hypotheses

We hypothesize that there are several components to the construct of client expectations of massage (i.e., role and outcome expectations) that reflect the range of clinical and information sharing aspects of the session as well as the benefits of massage. Second, we hypothesize that there will be positive and significant changes in pain and affect following one massage therapy session and that these changes will be related to client expectations of massage. In addition, client expectations of massage will be at least moderately positively correlated with previous measures of client expectations of massage including the Bowerman MES and the two items from the Kalauokalani et al. study as they likely measure at least a portion of the same construct. Because the goal of this study is to create a scale that measures a distinct construct, we hypothesize that client expectations of massage will be weakly or not correlated with optimism or pessimism.

Methods

The first step in developing the new scale involved developing a pool of items. Initially, qualitative research was conducted with 33 massage therapists and 22 massage therapy clients inquiring about the interpersonal elements of massage, including client expectations. Second, a thorough literature review was conducted regarding patient expectations of psychotherapy (Glass, Arnkoff, & Shapiro, 2001; Joyce & Piper, 1998; Meyer et al., 2002), physical therapy (George & Hirsh, 2005; Grimmer et al., 1999), and medicine (Dawn & Lee, 2004; Kravitz, 2001). Efforts were made to write items that apply to massage therapy clients with a broad range of potential expectations to maximize content validity. Finally, massage therapy researchers and clients reviewed the item pool for clarity and comprehensiveness. After a draft scale was developed, testing began with the participants in this study.

Participants

Two samples of massage therapists were personally recruited at the American Massage Therapy Association (AMTA) Iowa Chapter conventions in September 2006 (Sample 1) and March 2009 (Sample 2), respectively. Massage therapists were eligible to participate if they were licensed to practice massage in Iowa and if they saw at least 20 different clients per month. Each massage therapist was asked to distribute study materials to 20 consecutive eligible clients. To be eligible, clients must have been able to read and write English, be aged 18-70 for Sample 1, be aged 18-64 years (non-Medicare age) for Sample 2, and be scheduled for at least a 30-minute massage. Massage therapists reported that most clients were willing to participate in the study and a few massage therapists reported that a couple chose not to participate.

Of the 25 massage therapists in Sample 1 who initially volunteered, 21 returned client surveys for a total sample of 367 clients. Some massage therapists did not see 20 clients during the study period as they initially thought they would. Of the 367 cases in the sample, 11 cases were removed because they were ineligible due to age. Of the 25 massage therapists in Sample 2 who initially volunteered, all had clients return surveys for a total sample of 377 clients. One of the massage therapists had only two clients return surveys; the massage therapist and his two clients were dropped from the study. Of the 375 cases in the sample, 12 cases were removed because they were 65 or older (ineligible).

Measures

Characteristics of massage therapists

Questions began with massage therapists' gender, age, and training. It proceeded with questions regarding practice setting, client workload, and other employment. The final item asked respondents to report the use of seven techniques (e.g., Swedish massage and trigger point therapy) and seven practices (e.g., stretching recommendations and

stress management) using three options (never use the technique/practice, use it with some clients, or use it with majority of clients).

Characteristics of massage therapy clients

Questions included the complaint, symptom, or other reason for the visit, the duration of the complaint, whether and from whom else clients may be seeking care, age, gender, and the number of massages received from their current massage therapist. For Sample 2, an item was added regarding source of payment (i.e., out of pocket, insurance, or gift).

Client Expectations of Massage Scale (CEMS)

The CEMS asks clients to rate their level of agreement with statements about their massage therapist and massage therapy using a seven response Likert scale (strongly agree – strongly disagree). The scale contained 34 items for Sample 1 and 28 items for Sample 2. Based on the literature review and the first study (Sample 1), four categories of expectations (clinical, educational, interpersonal, and outcome expectations) were included in the measurement model. Examples of clinical expectations are "my massage therapist may" assess my muscles and have exceptional massage skills. Examples of educational behaviors include discussing the benefits of massage and the various causes of muscular tension. Examples of interpersonal behaviors include being like a friend and discussing personal problems. Finally, examples of outcome expectations are "massage therapy will" decrease pain and be relaxing. The directions and final items for the CEMS are shown in the Appendix.

Massage Expectation Scale

As discussed earlier, Bowerman (1989) developed a 5-point Likert scale consisting of seven items, each with its own specific set of responses ranging from "extremely much" to "not at all". Example items include "how much do you anticipate

you will enjoy this procedure" and "how much do you think you know about the massage treatment you are about to receive."

Expectations of massage

The two Kaluaokalani et al. (2001) questions were modified to reflect "current problem" instead of "low back problem" to allow relevance to a broader array of problems that massage therapy clients present for care. In this study, the questions read, "from 0-10, with 0 being not at all helpful and 10 being extremely helpful, how helpful do you believe massage would be for your current problem?" and "one month from now, do you expect your problem to be: completely gone, much better, moderately better, a little better, about the same, a little worse, or much worse?"

Life Orientation Test - Revised (LOT-R)

Of four reviewed measures of hope and optimism, Steed (2002) concluded that the Life Orientation Test was "marginally superior to the other scales" on the basis of its stable factor structure. The LOT has since been revised to focus more solely on the expectations of good versus bad outcomes; the Cronbach's alpha was reported as an acceptable 0.78 (Scheier, Carver, & Bridges, 1994). Respondents were asked to rate their level of agreement using a 5-point Likert format (4 = I agree a lot, 0 = I disagree a lot) with ten items. The LOT-R contains three positively worded phrases (optimism), three negatively worded phrases (pessimism), and four fillers.

Pain

The numeric rating scale for pain (NRSP) consists of eleven numbers ranging from 0-10 displayed horizontally, anchored on the left with "no pain" and on the right with "worst pain possible." Clients were asked to check the box that corresponds to their level of pain. A NRSP was used pre and post massage in a previous study that detected significant changes in postoperative patients (Wang & Keck, 2004). The validity and

reliability of this type of rating scale has been supported (Jensen, Turner, Romano, & Fisher, 1999). Two-point changes have been considered clinically important in previous studies (Childs, Piva, & Fritz, 2005; Farrar et al., 2001).

Positive and Negative Affect Schedule – Expanded form

The original Positive and Negative Affect Schedule (PANAS) is a 20-item self-report scale that is composed of a series of mood descriptors that participants rate the extent to which they have felt from 1 (very slightly or not at all) to 5 (extremely). Examples of negative affect items include "irritable, jittery, and scared" and positive affect items include "excited, enthusiastic, and determined". Various time instructions have been tested; "right now, at the present moment" was used in this study (Watson, Clark, & Tellegen, 1988). The PANAS-X contains additional subscales; serenity will be used for this study. The serenity subscale contains three words ("calm", "relaxed", and "at ease") that are rated in the same fashion (Watson & Clark, 1994). The reliability of all three subscales is very good. The following coefficient alphas have been reported for the "moment" time instructions: 0.89 for Positive, 0.85 for Negative, and 0.74 for Serenity (this scale has only three items). The correlation between Positive and Negative Affect is very low (-0.15 for the "moment" instructions) (Watson & Clark, 1994).

Procedures

Massage therapists in both samples were asked to complete a form that included items on demographics, practice characteristics, and expectations of massage therapy. They were also asked to distribute client forms until 20 eligible clients participated or until the five week data collection period ended. Sample 1 clients were asked to complete a form containing personal characteristics, the first draft of the Client Expectations of Massage Therapy Scale (CEMS), Bowerman's MES, an adaptation of the two expectation questions used in the Kalauokalani et al. (2001) study, and the Life Orientation Test – Revised (Scheier, Carver, & Bridges, 1994) before their massage and

to return it to their massage therapist in a sealed envelope. Sample 2 clients were asked to complete an *Iowa Massage Therapy Client Survey (before massage)*. This included client characteristics, the numeric rating scale for pain (NRSP), the Positive and Negative Affect Schedule-Revised (PANAS-X), and the revised CEMS. After their massage, clients were asked to complete an *Iowa Massage Therapy Client Survey (after massage)* which included the NRSP and the PANAS-X. They were instructed to return both forms using a stamped envelope addressed to the researcher. The two forms were printed on different colors to facilitate their identification. Each client received a pen with the Massage Therapy Foundation logo as a token of appreciation for participation. All procedures were approved by the university's institutional review board.

Analyses

Analyses were conducted to test for the scale's reliability, structure, convergent validity, discriminant validity, and predictive validity (Clark & Watson, 1995). In order to avoid burdening one sample of massage clients with many scales to complete and to allow for scale revision and reassessment, two samples were used to assess the different types of validity. Sample 1 data was tested to determine the components of the scale (i.e., subscales), convergent validity, discriminant validity, and reliability. Sample 2 data was used to confirm the structure of the revised scale and to assess reliability and predictive validity.

Sample 1

To test for convergent validity, a correlation analysis was conducted with the CEMS subscales, the Bowerman MES, and the two questions used in the Kalauokalani et al. (2001) study. Because the CEMS and other variables aim to measure a similar construct (massage expectations), the CEMS should correlate with them if it has good convergent validity. To test for discriminant validity, a correlation analysis was conducted with the CEMS subscales and the two subscales from the LOT-R. Because the

CEMS is hypothesized to measure a construct other than optimism and pessimism, the correlations should be low to nonexistent if it has good discriminant validity. Finally, after redundant and invariable items were removed, an exploratory factor analysis using the Kaiser criteria and varimax rotation was conducted on the CEMS to assess construct validity. Scale reliability was assessed using coefficient alpha.

Sample 2

A paired t-test using SPSS Grad Pack tested the hypothesis that there would be positive and significant changes in pain and affect following one massage therapy session. To examine the construct validity of the CEMS, Mplus (Muthén & Muthén, 2009) was used to conduct a confirmatory factor analysis on the items in the scale that were retained for substantive reasons. As shown in Figure 1, the latent variables (clinical, educational, interpersonal, and outcome expectations) were allowed to correlate. As the distribution of the data was negatively skewed, the MLM estimator (Satorra Bentler χ^2 and robust standard errors) was used to correct for the non-normal nature of the data.

To assess the predictive validity of CEMS, a structural equation model (see Figure 2) in which the CEMS subscales are hypothesized to predict changes in positive affect, negative affect, serenity, and pain was tested. Structural equation modeling was chosen because it allows multiple indicators of the same construct and controls for measurement error (Bollen, 1989). The latent exogenous variables representing outcome, interpersonal, clinical, and educational expectations as well as positive affect, negative affect, serenity, and pain have been described earlier. The errors of the endogenous variables were allowed to correlate because they likely share variance unexplained by the model. A correction was made for the clustering of standard errors within each massage therapist.

Because there is not one agreed measure of overall model fit, four indices will be reported: the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit

Index (CFI), the Tucker-Lewis Index (TLI), and Chi-square (degrees of freedom and p-value). The recommended cut-offs are .06 for the RMSEA and .95 for the TLI and CFI (Hu & Bentler, 1999). Component fit for the measurement model was assessed by examining the statistical significance of the coefficients (factor loadings), the statistical significance of the correlations among the latent variables, and the explained variances of the indicators.

Results

Characteristics of massage therapists

Table 1 provides the demographic and practice characteristics of Sample 1 and 2. Study massage therapists were mostly female, middle-aged, and about half practiced solo. Massage therapists in Sample 2 had more hours of initial training, were in practice longer, worked more hours as a massage therapist, and were less likely to have another job compared to Sample 1. This is likely due to the fact that greater discernment was used in accepting volunteers for the second sample to ensure that massage therapists had enough unique clients to participate in the project within the study timeline. Table 2 presents the common techniques and practices used by the massage therapists in this study.

Characteristics of massage therapy clients

The mean age of clients was 47.7 years (SD=12.9) for Sample 1 and 46.1 years (SD=12.0) for Sample 2. Most of the clients sought massage for specific complaints (e.g., back, neck, and shoulder pain) that were chronic in nature (Table 3).

Construct validity and internal reliability

Sample 1

The exploratory factor analysis resulted in a four factor solution: clinical, educational, and interpersonal (role) expectations and outcome expectations. Of the initial 22 items in the role expectations section, nine were retained and one was revised. Of the initial 12 items in the outcome expectations section, two were deleted and two were reworded.

As Table 4 demonstrates, all of the Cronbach's alphas were adequate (.70-.92). The lower alphas are a function of the low number of items for interpersonal (2 items) and educational (3 items) expectations; additional items were added for the final draft of the scale.

Sample 2

The confirmatory factor analysis of the CEMS revealed an excellent model fit (RMSEA=.03, CFI=.98, TLI=.97, Chi-square=135.7, df= 97, p=.00) for four factors, three of which refer to role expectations and one which refers to outcome expectations. Each of role expectation factors was measured by three items and the outcome expectation factor was measured by seven items. In addition, all of the factor loadings (range = .56 to .82) and the correlations among the latent variables (range = .19 to .59) were significant (see Table 4). The amount of variance explained in the items (R^2) ranged from .31 to .68. The reliabilities of the revised CEMS subscales used in Sample 2 improved from the reliabilities of the subscales used in Sample 1.

The first factor, clinical expectations, describes the role of the massage therapist as one who is skilled, assesses muscles, and tailors the massage to meet individual client needs. This subscale had good reliability ($\alpha = .77$). The second factor, educational expectations, describes the role of the massage therapist as an educator who teaches clients about the benefits of massage, stress management, and how to take better care of

themselves. This subscale had good reliability (α = .84). The third factor, interpersonal expectations, describes the role of the massage therapist as a friend who shares personal aspects of their life and discusses clients' personal problems with them. This subscale had good reliability (α = .78). The fourth factor, outcome expectations, describes the range of benefits that clients expect after a massage therapy session. These include improvements in concentration, relaxation, sleep, immunity, mood, energy, and blood pressure. This subscale had very good reliability (α = .89).

Convergent validity

Sample 1

Table 5 shows that the correlations between the CEMS subscales and the MES were all moderate and significant, displaying good convergent validity. The CEMS shows similar significant correlations with the Kalauokalani et al. item "from 0 to 10, with 0 being not at all helpful and 10 being extremely helpful, how helpful do you believe massage would be for your current problem?" but low correlations with their second item, "one month from now, do you expect your problem to be:" completely gone (1) to much worse (7).

Discriminant validity

Sample 1

When compared to the subscales of the LOT-R, the CEMS had good divergent validity. As predicted, CEMS subscales were not related to pessimism and weakly correlated with optimism, suggesting that the CEMS measures a construct distinct from optimism or pessimism (see Table 5).

Sample 2

Analysis in Sample 2 also showed good discriminant validity. Although the correlations among the four latent variables are all at least moderate to high, they nonetheless establish discriminate validity among the constructs. In addition, when all of the indicators are tested as one latent variable, the model has a very poor fit (RMSEA=.12, CFI=.70, TLI=.66).

Predictive validity

As predicted, the mean change in pain (2.9) was both statistically and clinically significant (see Table 6). In addition, significant improvements were observed for the serenity and negative affects subscales of the PANAS-X, but not for positive affect.

Structural equation modeling revealed that the data fit the model well (RMSEA=.04, CFI=.96, TLI=.95). The Chi-square was 278.3 (df= 164, p=.00). Controlling for clinical, interpersonal, and educational expectations and initial pain score, outcome expectations predicted changes in serenity and pain (Figure 3). Controlling for outcome, clinical, and educational expectations and initial pain score, interpersonal expectations predicted changes in serenity. Consistent with the initial confirmatory factor analysis of the CEMS, the correlations among the latent expectation variables were significant and ranged from .19 to .60. With the exception of changes in positive affect with changes in pain, all of the correlations among the errors of the endogenous variables were significant (Figure 3).

Discussion

This study aimed to develop and validate a scale that measured the range of client expectations of massage therapy. Factor analyses on two samples supported a four factor structure consisting of expectations related to the role of the massage therapist as a person, clinician, and educator as well as the outcomes of massage therapy. The scale had good convergent validity as evidenced by its positive correlations with previous measures

of client expectations. Regarding the low correlations of the CEMS subscales with the second Kalauokalani et al. item ("one month from now, do you expect your problem to be: completely gone, much better, moderately better, a little better, about the same, a little worse, or much worse?"), it is possible that the second item measured patient perceptions of their problem versus their expectations of massage specifically. The CEMS also had good discriminant validity as evidenced by its weak associations with optimism and nonsignificant correlations with pessimism.

Regarding predictive validity, clients' interpersonal, clinical, educational, and outcome expectations varied in their relationship to the massage therapy outcomes measured in this study. Higher outcome expectations resulted in more positive changes in serenity and pain. On the other hand, higher interpersonal expectations were related to lower changes in serenity. Neither clinical nor educational expectations were related to any of the outcomes measured in this study. Specific findings will be discussed below.

Client expectations of massage and pain

The outcome expectation subscale had good predictive validity with changes in pain; decreases in pain were predicted by higher client expectations of benefit from massage therapy. This is consistent with the Kalauokalani et al. (2001) study and a randomized controlled trial of acupuncture (Linde et al., 2007) as well as Social Cognitive Theory (Bandura, 1998). Pain is a symptom that is often measured in clinical trials involving massage therapy (Cherkin et al, 2011; Moyer, Rounds, & Hannum, 2004). To further our understanding of the psychological mechanisms of massage therapy effects (also called placebo effects by Finniss, Kaptchuk, & Benedetti, 2010), it is important for researchers to incorporate a measure of outcome expectations to help explain any observed changes in pain.

Client expectations of massage and affect

Although there were statistically significant decreases in negative affect, none of the CEMS subscales predicted these changes. However, the clients in this study did not have much room for improvement; the mean score pre-massage was 1.5 (potential scores range from 1-5).

Significant and more meaningful increases in serenity were observed in the massage therapy clients. These positive changes in serenity were predicted by higher outcome expectations, supporting the predictive validity of the outcome expectations subscale for changes in serenity. On the other hand, higher interpersonal expectations were associated with *lower* improvements in serenity. In other words, the more a client expected their massage therapists to share personal aspects of their life, be friendly, and discuss clients' personal problems, the less improvement in serenity they reported after the massage. It is possible that for some clients, conversation during massage interferes with their ability to relax and be at ease.

Although the PANAS has been used in acupuncture (de Valois, Young, & Melsome, 2011), homeopathy (Hyland, Lewith, & Wheeler, 2008), and yoga (Vadiraja et al., 2009) studies, this is the first study to use the PANAS-X with massage therapy clients. Similar to this study, others have failed to find significant changes in positive affect (de Valois, Young, & Melsome, 2011; Hyland, Lewith, & Wheeler, 2008) while studies involving yoga (Vadiraja et al., 2009) and group-based exercise (Brown, Liu-Ambrose, & Lord, 2011) found significant improvements. In addition, de Valois, Young, & Melsome (2011) questioned the value of using the positive affect subscale in future CAM research due to high missing values (12.2%) and negative feedback from research participants. Similarly, there was a high proportion of missing values for positive affect in this study (8.5%) and some negative feedback received from research participants. It is understandable that massage clients could be confused on how to rate, for example, how alert, excited, and enthusiastic they feel after a massage. For these reasons, we

recommend against using the positive affect subscale in future research with massage therapy clients.

Limitations

This study involved volunteer massage therapists from a single geographic location and their clients that may not be representative of all massage therapy clients. In addition, it is possible that the responses of the massage therapy clients were subject to social desirability (i.e., they may have rated the massage therapist in a more favorable way). However, another study reported high patient expectations of massage (Myers et al., 2007) and changes in the NRSP in this study were similar to those observed in post-surgical patients (from 4.65 pre-massage to 2.35 post-massage) (Wang & Keck, 2004). Finally, the participants in this study likely held a favorable bias toward massage therapy as they were approached after their decision to actively seek massage therapy. This study cannot be generalized to potential clients that have no previous experience with massage therapy.

Implications for Massage Therapists

This study demonstrated that massage therapy clients have four categories of expectations which include expectations about their massage therapist as a person, clinician, and educator and about massage therapy. As outcome expectations were related to changes in pain and serenity, massage therapists should be aware of these relationships to promote better outcomes. On the other hand, if a massage therapist is aware that a client has unrealistic expectations at the start of a session, the therapist can realign the expectations to prevent disappointment in the results of the session. In addition, as high interpersonal expectations were associated with lower changes in serenity, massage therapists should question their clients as to whether talking during the massage is perceived as relaxing or distracting and modify the amount of conversation if necessary. As suggested by Expectancy Violation Theory (Burgoon & Hale, 1988), having

reasonable expectations met or low expectations exceeded result in better communication outcomes than when high expectations are not met.

Suggestions for Future Research

This study measured expectations of clients presenting with a variety of conditions and for relaxation. Items included in the analysis therefore aimed to be relevant to all clients. However, for clinical trials addressing a specific condition, it would appear prudent to add and test items addressing the expectations for symptom-specific improvement (e.g., reducing pain, decreasing muscle tension, and improving range of motion in low back pain patients).

Future research should also examine expectations in populations unfamiliar with massage in order to attempt to increase the variability of responses to the CEMS. Another research opportunity with unfamiliar populations involves investigating the process by which expectations may affect other behaviors, such as choosing to receive massage. For example, outcomes expectations and role expectations may have separate and direct influences on getting a massage or role expectations may moderate the potential effect of outcomes expectations on the behavior of getting a massage. In addition, the association of the CEMS to other outcome measures used in massage therapy research (e.g. anxiety and depression) is needed.

The massage therapist-client relationship and the link between communication patterns and outcomes in particular, need to be explored. When training massage therapists, it would be valuable to understand how conversation may accentuate or impede the psychological benefits of massage.

Conclusion

In general, the massage therapy clients in this study had high expectations regarding the benefits of massage. These high expectations were associated with

improvements in serenity and pain. This study enhances our understanding of the non-specific effects of massage therapy.

Table 3.1. Massage Therapists' Characteristics

Characteristic	Sample 1[a]	Sample 2[b]
Percent female	85.7	79.2
Mean age	47.4	45.9
Mean hours of initial training program	694.4	717.3
Mean years since completion of initial training	6.6	9.6
Mean hours spent in direct patient care in a typical week	15.8	24.8
Percent that practice alone (vs. with others)	47.6	50.0
Percent employed in a job other than as a massage therapist	47.6	16.7

[a]n = 21.

[b]n = 24.

Table 3.2. Sample 1[a] and Sample 2[b] Massage Therapists' Percent Use of Techniques and Practices with Clients

	% Never use		% Use with some (<50%)		% Use with most (50%+)	
Technique	1	2	1	2	1	2
Swedish massage	4.8	4.2	19.0	29.2	76.2	66.7
Trigger Point therapy	9.5	-	38.1	33.3	52.4	66.7
Stretching during session	9.5	-	38.1	37.5	52.4	62.5
Reflexology[c]		37.5		45.8		16.7
Neuromuscular therapy	23.8	20.8	38.1	33.3	38.1	45.8
Reiki or therapeutic touch	66.7	66.7	23.8	20.8	9.5	12.5
Craniosacral therapy[c]		70.8		20.8		8.3
Practice						
Encourage increased water intake	-	4.2	4.8	-	95.2	95.8
Heat application (hot pack, heating pad)	4.8	12.5	38.1	16.7	57.1	70.8
Stretching recommendations for home/work	4.8	-	33.3	20.8	61.9	79.2
Stress management	14.3	-	57.1	41.7	28.6	58.3
Exercise counseling (for general health)	19.0	-	38.1	41.7	42.9	58.3
Aromatherapy	57.1	33.3	23.8	33.3	19.0	33.3
Ice or cold application	28.6	33.3	52.4	50.0	19.0	16.7

[a]n = 21.

[b]n = 24.

[c]This technique was not included on the form for Sample 1.

Table 3.3. Characteristics of Massage Therapy Clients

	Sample 1[a] (%)	Sample 2[b] (%)
Female	77.5	78.5
Reason for the visit		
Complaint-based	76.7	71.9
Relaxation or wellness	23.1	28.1
Duration of complaint		
Acute	18.8	17.4
Chronic	62.2	59.5
Seeking care from another provider (yes)	39.4	36.1
Source of payment[c]		
Out of pocket	-	86.6
Insurance	-	2.2
Gift	-	10.9
Number of massages received from this massage therapist		
None, first massage	16.6	19.3
1	6.9	0.6
2-4	13.4	19.0
5 or more	63.1	61.1

[a]n = 320 included in analysis after list-wise deletion.

[b]n = 321 included in analysis after list-wise deletion.

[c]This item was not included on the form for Sample 1.

Table 3.4. Items in Analysis, Means, Standard Deviations, Factors, Factor Loadings, and Reliabilities

	Mean[a]		SD		Factor loading*		α[b]	
Variable	S1[c]	S2[d]	S1	S2	S1	S2	S1	S2
Clinical							.69	.77
Tailor their massage approach to suit my individual needs	6.7	6.5	0.7	0.7	.72	.80		
Have exceptional massage skills	6.7	6.7	0.7	0.6	.67	.78		
Assess my muscles to understand my condition	6.7	6.5	0.6	0.8	.63	.65		
Educational							.70	.84
Give me ideas on how to manage my stress[e]	-	5.7	-	1.3	-	.82		
Educate me on the benefits of massage therapy	6.3	5.7	1.1	1.5	.70	.81		
Provide me with information I need to take better care of myself	5.8	5.7	1.4	1.3	.77	.75		
Interpersonal							.70	.78
Share personal aspects of their life with me[e]	-	3.9	-	1.7	-	.82		
Discuss my personal problems with me	4.5	3.6	1.8	1.9	.79	.78		
Be like a friend to me	6.0	4.9	1.3	1.6	.83	.64		

Table 3.4. Continued

	Mean[a]		SD		Factor loading*		α[b]	
Variable	S1[c]	S2[d]	S1	S2	S1	S2	S1	S2
Outcome							.87	.89
Help my body's ability to fight illness[e]	-	5.4	-	1.5	-	.81		
Increase my level of energy	6.2	5.8	1.0	1.1	.80	.81		
Improve my mood	6.3	5.8	1.0	1.3	.78	.80		
Lower my blood pressure[e]	-	5.1	-	1.5	-	.75		
Help me to concentrate better on a task	5.8	5.4	1.3	1.4	.78	.73		
Help me to sleep better at night	6.3	6.0	1.0	1.2	.69	.70		
Help me to relax.	6.6	6.4	0.9	0.8	.71	.56		

[a]Scale responses were 7=strongly agree to 1=strongly disagree.

[b]α = Coefficient alpha of subscale.

[c]n = 321 included in analysis after listwise deletion.

[d]n = 320 included in analysis after list-wise deletion.

[e]This item was not included on the form for Sample 1.

*All factor loadings are significant ($p<.05$).

Table 3.5. Correlations of Client Expectations of Massage Scale Items with the Massage Expectations Scale (MES), the Kalauokalani et al. Items (K1, K2), and the two subscales of the Life Orientation Test (Optimism and Pessimism)

CEMS Subscale	MES	K1[a]	K2[b]	Optimism	Pessimism
Clinical	-.53*	.36*	-.11*	.22*	.04
Educational	-.38*	.48*	-.23*	.15*	-.04
Interpersonal	-.40*	.36*	-.17*	.11*	-.06
Outcome	-.65*	.49*	-.22*	.26*	.01

Note. n = 320 included in analysis after listwise deletion.

[a]K1= "From 0 to 10, with 0 being not at all helpful and 10 being extremely helpful, how helpful do you believe massage would be for your current problem?"

[b]K2= "One month from now, do you expect your problem to be" 1 (completely gone) to 7 (much worse).

*Correlation is significant ($p<.05$, 2-tailed).

Table 3.6. Outcome measures before and after one massage session

Measure	Pre-massage mean	Post-massage mean	Average difference	t-Test statistic
Pain[a]	4.3	1.4	-2.9	24.5*
Serenity[b]	2.8	4.3	1.5	-27.0*
Negative affect[b]	1.5	1.1	-0.4	-13.7*
Positive affect[b]	2.9	2.9	0.0	-0.8

Note. n = 321 included in analysis after listwise deletion.

[a]Numeric rating scale for pain (0="no pain" and 10= "worst pain possible).

[b]PANAS-X subscale (1="very slightly or not at all" and 5= "extremely).

*Paired t-test, $p<.05$.

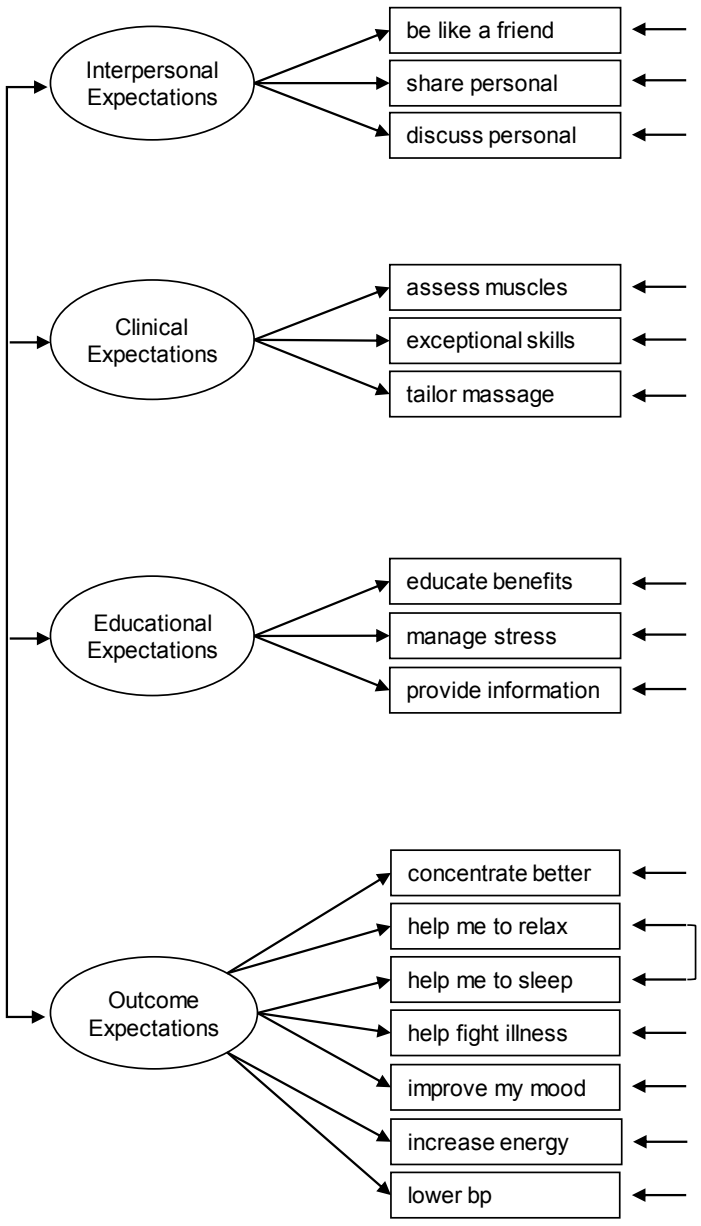

Figure 3.1. Measurement model for the Client Expectations of Massage Scale

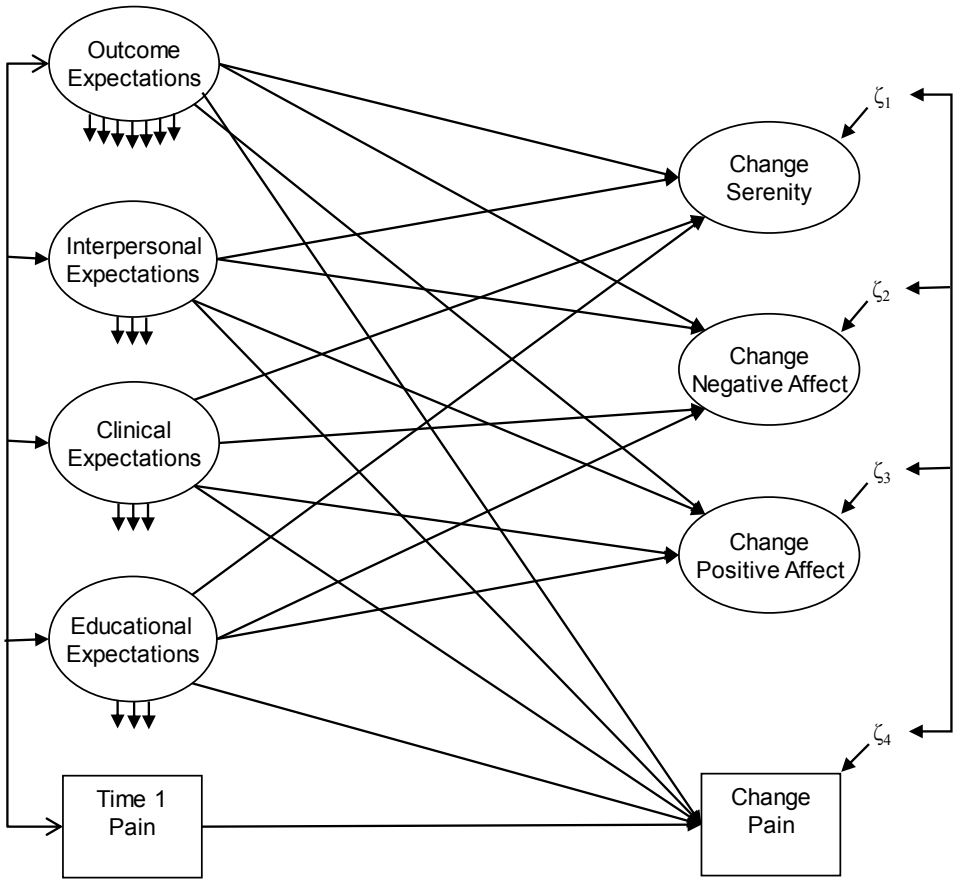

Figure 3.2. Model testing the predictive validity of the Client Expectations of Massage Scale

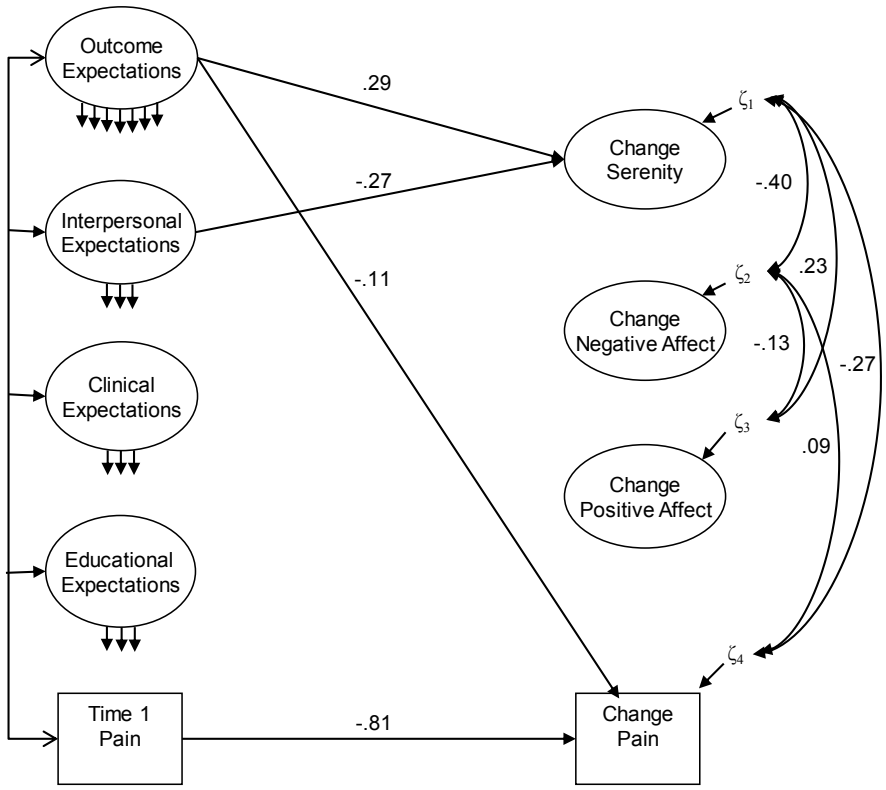

Figure 3.3. Final model demonstrating the predictive validity of the Client Expectations of Massage Scale

CHAPTER 4
APPLICATION OF EXPECTANCY VIOLATIONS THEORY TO THE STUDY OF THE EFFECTS OF CLIENT EXPECTATIONS OF MASSAGE AND MASSAGE THERAPIST INTERPERSONAL ATTRACTIVENESS ON CLIENT PAIN AND SATISFACTION

Introduction

Provider-patient relationships and elements of communication have been identified as important constructs in complementary and alternative medicine (Cline, 2001; Ho & Bylund, 2008; Kaptchuk, 2002). One important theoretical construct related to communication is client expectations (Burgoon & Hale, 1988). Clients' positive expectations of massage therapy have been found to be related to improved health outcomes (Kalauokalani, Cherkin, Sherman, Koepsell, & Deyo, 2001). Research from medicine (Crow et al., 1999; Mondloch, Cole, & Frank, 2001), acupuncture (Linde et al., 2007), chiropractic (Rubinstein et al., 2008), and psychotherapy (Glass, Arnkoff, & Shapiro, 2001; Joyce & Piper, 1998; Meyer et al., 2002) also suggests that high expectations for treatment benefit are related to improved health outcomes. In addition, client satisfaction has been studied in massage (Hanley, Stirling, & Brown, 2003; Osaka et al., 2009; Wentworth et al., 2009), however its relationship to communication constructs (e.g., expectations and communicator characteristics) has not been addressed. The purpose of this study, therefore, is to examine the influence of client expectations of massage on client pain and satisfaction to enhance our understanding of the communication constructs that may influence massage therapy outcomes. Expectancy Violations Theory (EVT) will be the framework for this investigation (Burgoon & Hale, 1988).

Massage Therapy

According to a national survey conducted in 2007, 18 million US adults and 700,000 children reported receiving a massage the previous year (Barnes & Bloom, 2008), most

commonly for back pain or wellness (Hawk, Ndetan, & Evans, 2011). During a typical visit, the massage therapist consults with the client to obtain the reason for the visit and a medical history. Assessment procedures (e.g., range of motion, posture) are common during visits (Sherman et al., 2005). Applications of massage can vary from 5-10 minutes of chair massage to 30-120 minutes of table massage. Massage therapists often provide self-care advice (e.g., increase water intake, exercise) after the massage (Boulanger, unpublished; Sherman et al., 2005).

Massage therapy is considered safe when provided by a trained professional (Ernst, 2003). Currently, 43 states and the District of Columbia regulate the practice of massage therapy. Most states require at least 500 hours of initial training and the passing of a national exam (American Massage Therapy Association, 2011).

Research into the effects of massage therapy has grown rapidly over the past twenty years (Moyer, Dryden, & Shipwright, 2009). There is support for the use of massage in adults for neck and low back pain (Furlan et al., 2012) as well as anxiety and depression (Moyer, Rounds, & Hannum, 2004). Pediatric massage has been shown to be effective for anxiety (Beider & Moyer, 2006) and symptoms related to cancer (Haun, Graham-Pole, & Shortley, 2009; Hughes, Ladas, Rooney, & Kelly, 2008).

Massage therapy clients have expectations regarding the potential benefits from massage. These *outcome expectations* have been shown to be related to improved health outcomes (Kalauokalani et al., 2001). Massage therapy clients also have expectations regarding the clinical (e.g., massage therapists will assess their muscles), educational (e.g., educate them regarding the benefits of massage), and interpersonal (e.g., be like a friend) behaviors of the massage therapist. Massage therapy researchers, however, have not taken advantage of using communication theories to explain the influence of these expectations on the effects of massage therapy.

Expectancy Violation Theory

The theoretical constructs described in EVT are expectancies, expectancy violations, and communicator reward valence. People have expectations (or expectancies) regarding their interactions with others (Burgoon & Hale, 1988; White, 2008). Expectancies operate on a range and are affected by communicator (e.g., gender, personality, and reputation) and relational (e.g., prior history, liking, attraction) characteristics as well as context. When expectations of another person's behavior are met, the behavior is often not noticed. When expectations are violated (outside the range of expected behavior), the person becomes aroused, attends to the behavior, and judges the behavior to be positive or negative. Whether the expectancy violation is interpreted as positive or negative also depends on the communicator reward valence. This is defined as the "net evaluation of the desirability of interacting with the communicator and is influenced by such factors as the communicator's physical attractiveness, status, gender, personality, and communication style" (Burgoon, Newton, Walther, & Baesler, 1989, p. 99).

Positive communication outcomes are likely to result from met or positively violated expectations of another person and associated behavior (better than expected). If a person is unsure how they feel about the violation, communicator reward valence will be a strong determinant of whether the violation is interpreted positively or negatively. If the other person and associated behavior are judged negatively, less favorable outcomes will occur.

Researchers initially used EVT to investigate nonverbal behavior (Burgoon, 1978; Burgoon, Stacks, & Woodall, 1979; Burgoon, Newton, Walther, & Baesler, 1989). EVT has been applied to the study of satisfaction with physicians (Burgoon, Birk, & Hall, 1991), physicians' expectancy violations (McCalman & Madere, 2009), effectiveness of genetic counselors (Jay, Afifi, & Samter, 2000), and to create a model of patients' relational expectations of health care providers (O'Hair, Allman, & Moore, 1996), but it has yet to be applied in the context of massage therapy.

In the case of massage, EVT proposes that clients are more likely to have positive outcomes (e.g., client satisfaction, perception of pain) if the expectations they hold of their massage therapist are met or exceeded. The judgments that clients make of the massage therapist and the massage therapist's behavior influence whether the violation of expectations is interpreted positively or negatively. In addition to expectancy violations, the reward valence of the massage therapist is likely to influence the outcomes of the massage session. According, the following hypotheses will be tested:

H1: The degree to which clients' expectations regarding their massage therapists' clinical, educational, and interpersonal behavior are violated and massage therapist reward valence will influence client perception of pain.

H1a: Positive violations of expectations will be related to lower pain scores following the massage.

H1b: Negative violations of expectations will be related to higher pain scores following massage.

H1c: Positive ratings of massage therapist interpersonal attractiveness will be related to lower pain scores following massage.

H2: The degree to which clients' expectations regarding their massage therapists' behavior are violated and massage therapist reward valence will influence clients 'ratings of their satisfaction with the care they received from their massage therapist.

H2a: Positive violations of expectations will be related to higher satisfaction.

H2b: Negative violations of expectations will be related to lower satisfaction.

H2c: Positive ratings of massage therapist interpersonal attractiveness will be related to higher client satisfaction.

Methods

This study includes a cross-sectional survey of massage therapy clients before and immediately after one massage therapy session.

Participants

Massage therapists were personally recruited at the American Massage Therapy Association Iowa Chapter convention in March 2009. They were eligible to participate if they were licensed in Iowa and saw at least 20 different clients per month. Each massage therapist was asked to present the study materials to 20 consecutive eligible clients. Clients must have been able to read and write English, be 18-64 years of age, and be scheduled for at least a 30-minute massage. Of the 25 massage therapists who volunteered to participate, all had clients return surveys for a total sample of 377 clients. One of the massage therapists had only two clients return surveys; the massage therapist and his two clients were dropped from the study. Of the 375 remaining cases in the sample, 12 were removed due to ineligible age; another 42 were not included due to missing data.

Measures

Demographics (i.e., age, gender) and other client characteristics related to the complaint, symptom, or other reason for the visit, the duration of the complaint, whether clients were seeking care from another provider, the number of massages received from their current massage therapist, and source of payment (i.e., out of pocket, insurance, or gift) were assessed. The independent variables included client expectations, expectancy violations, and massage therapist reward valence. The dependent variables were pain post-massage and client satisfaction.

Client Expectations of Massage Scale (CEMS)

The interpersonal, educational, and clinical expectation subscales of the CEMS were used to measure the clients' expectations of their massage therapists. There are three items in

each subscale; clients are asked to rate the expectations they have for their massage therapist by responding to a 7 option Likert scale (7=strongly agree and 1=strongly disagree). Items within each expectation domain (i.e., interpersonal, educational, and clinical) are added together to provide a subscale score. The subscales have good reliability (alphas ranged from .77 to .84 as reported in Chapter 3).

Expectancy violations regarding massage therapist behavior

After the massage, clients were asked to report on the actual (vs. expected) interaction they had with their massage therapist regarding interpersonal, educational, and clinical behaviors via the CEMS. For example, before the massage, clients were asked about their level of agreement to "I expect that my massage therapist may be like a friend to me." After the massage, the corresponding item was "my massage therapist was like a friend to me." The difference between the actual vs. expected interaction provides a measure of the amount to which client expectations were violated (unmet, met, or exceeded). If a client rated their expectation of being like a friend as 3 (slightly disagree), and the client perceived the actual interaction as being very friendly and rated it as 7, the difference would be 4, indicating that that the specific expectation was exceeded. A value of 0 would indicate that expectation was met. Negative values would indicate that the expectation was not met. Similar to the CEMS, items were added together to provide three subscale scores.

Expectancy violation (general measure)

In addition to this more specific measure of meeting expectations, a general measure was also used. On a scale from 0-10, clients were asked to select the number that best described their expectations regarding their massage therapist (0=not met, 5=met, 10=exceeded).

Massage therapist reward valence

Items were adapted from the Interpersonal Attraction scale (McCroskey & McCain, 1974) which has been used to measure reward valence in prior EVT studies (e.g., Burgoon & Hale, 1988; Burgoon & LePoire, 1993; Burgoon, Newton, Walther, & Baesler, 1989). The three items were "My massage therapist could be a friend of mine", "My massage therapist looks pretty/handsome", and "My massage therapist is a pleasant person". A Likert response format was provided (7= strongly agree and 1= strongly disagree). Cronbach's alpha for reward valence was acceptable at 0.68.

Pain

The numeric rating scale for pain (NRSP) was used to assess clients' pain (Jensen, Turner, Romano, & Fisher, 1999). It consists of eleven numbers ranging from 0-10 displayed horizontally, anchored on the left with "no pain" and on the right with "worst pain possible."

Client satisfaction

Consistent with other studies (Osaka et al., 2009; Wentworth et al., 2009), client satisfaction was measured by asking clients to rate their satisfaction with the care they were provided by their massage therapist on a 0-10 scale (0=not at all satisfied, 5=moderately satisfied, 10=completely satisfied).

Procedure

Volunteer massage therapists received a personal orientation to familiarize them with study procedures. They were asked to distribute study materials until 20 clients had completed the study and/or the five week study period had ended. When clients consented to participation, they were asked to complete the *Iowa Massage Therapy Client Survey (before massage)*. It included client characteristics, the NRSP, and the CEMS. After their massage, clients were asked to complete the *Iowa Massage Therapy Client Survey (after massage)*. This included the NRSP and questions regarding the number of massage sessions they have

had from their current massage therapist, expectations being met, massage therapist reward valence and client satisfaction. The two forms were printed on different colors (i.e., blue = before massage, purple = post-massage) to facilitate their identification. They were instructed to return both forms using a stamped envelope addressed to the researcher. Each client received a pen with the Massage Therapy Foundation logo as a token of appreciation for participation. All procedures were approved by the university's institutional review board.

Data Analysis

SPSS was used to run descriptive statistics and a reliability analysis of the massage therapist reward valence construct. STATA (version 12) was used to test two regression models. The first model assessed the influence of clinical, educational, and interpersonal expectations, the amount these expectations were violated, and massage therapist reward valence on pain post-massage. The second model assessed the influence of clinical, educational, and interpersonal expectations, the amount these expectations were violated, and massage therapist reward valence on client satisfaction with the care received from the massage therapist. Client age, gender, initial pain score, and whether the client had a previous massage from this massage therapist were included in both regression models as covariates. Because the scores on client satisfaction had a skewed distribution with many observations clustering at perfect satisfaction, a negative binomial distribution was assumed and the log link function was employed.

Results

Characteristics of Massage Therapists Clients

Clients in this study were mostly female (78.5%) with a mean age of 46. The common reasons cited for their visit were for relaxation or wellness (28.1%) and well as issues with their back (21.2%), neck (13.4%), and shoulders (10.3%). More complaints were chronic (59.5%) than acute (17.4%) and 36.1% of clients were seeking care from another

provider. The majority (86.6%) of clients paid out of pocket for their massage although 10.9% had received it as a gift and 2.2% selected insurance as their source of payment. Although 19.3% of the clients were receiving their first massage from the current massage therapist, 19.6% previously had 1 to 4 massages and 61.1% had 5 or more massages.

Client Expectations of Massage

Client expectations related to clinical behaviors were the highest and had the least amount of variability in responses. On the other hand, interpersonal expectations were the lowest and had the most amount of variability (see Table 1).

Expectancy Violation

As measured by the general item "select the number that best describes your expectations regarding your massage therapist", all client expectations were met (scores ranged from 5-10, mean = 9.1, SD = 1.1). However, when the actual behavior enacted is compared to the expected behavior (i.e., the specific measure), there were discrepancies, suggesting that some client expectations were not met. Table 1 demonstrates that on average, clinical expectations were met, educational expectations were not met, and interpersonal expectations were exceeded. Moreover, upon examination of the correlations among the two measures, we found that the general item was not significantly correlated with interpersonal expectations being met and weakly correlated with clinical ($r = 0.21$) and educational ($r = 0.12$) expectations being met.

Massage Therapist Reward Valence

On average, clients judged their massage therapists' interpersonal attractiveness positively. On a scale of 1-7, the means were 5.9 for "my massage therapist could be a friend of mine" (SD=1.4), 5.5 for "looks pretty or handsome" (SD=1.4), and 6.7 for "is a pleasant person" (SD=0.7).

Pain

The mean pain score was 4.3 (range = 0 to 10) pre-massage and 1.4 (range = 0 to 6) post-massage. The results of the first regression model shown in Table 2 provided partial support for Hypotheses 1a and 1b: violations of educational ($p=.02$) and interpersonal ($p<.01$) expectations had a significant influence on client reported pain post-massage, but clinical expectations had no effect on the reported pain post-massage. Hypothesis H1c was supported: positive massage therapist reward valence ($p=.02$) was related to lower pain scores post-massage. In this regression model, baseline pain score ($p<.001$) and educational expectations ($p=.03$) also influenced reported pain post-massage. This model explained 34% of the variance in client pain following massage.

Satisfaction

The massage therapy clients were very satisfied with the care provided by their massage therapists; the mean score was 9.6 with a range of 7 to10. The results of the second regression model shown in Table 3 did not provide support for Hypotheses 2a and 2b; satisfaction was not related to the amount in which clinical, educational, and interpersonal expectations were violated. The model did provide support for Hypothesis H2c: positive massage therapist reward valence was positively related to client satisfaction ($p=.003$). In this regression model, baseline pain score also influenced satisfaction ($p=.04$). This model explained 11% of the variance in client satisfaction with the care they received.

Discussion

Summary of Findings

The hypotheses of this study were partially supported. The degree to which educational and interpersonal (but not clinical) expectations were violated and massage therapist reward valence predicted pain post-massage. Massage therapist reward valence was a significant predictor of client satisfaction. Contrary to the hypotheses, none of the

expectation variables tested in the model had significant influence on satisfaction. This is likely due to the fact that there was such low variance in the satisfaction scores, also contributing to the low R^2. In essence, all of the clients in this study reported that they were satisfied with their care. This is consistent with other studies that found high satisfaction with massage therapy (Hanley, Stirling, & Brown, 2003; Osaka et al., 2009; Wentworth et al., 2009) and physical therapy (Hush, Cameron, & Mackey, 2011). In studies of physical therapy, meeting patients' expectations was related to high satisfaction ratings (George & Hirsh, 2005; Hills & Kitchen, 2007). These high satisfaction ratings differ from patient satisfaction with other types of health care providers, such as physicians (Hertzman-Miller et al., 2002; Upshur, Baciaglupe, & Luckmann, 2010). Specific findings and areas for future research will be discussed below.

It is not surprising that clinical expectations did not predict changes in pain as there was little variability in clinical expectations, both expected and actual, and the difference between the two. In other words, most clients had high clinical expectations and they were met. These results contrast those related to patients of physicians who have reported unmet clinical expectations (e.g., received a prescription or diagnostic test) (Georgy, Carr, & Breen, 2011; Kravitz et al., 1996).

These data suggest that the more positive the violation of educational expectations, the less pain clients reported post-massage. However, in general, educational expectations were not met. For those clients whose educational expectations were exceeded, however, they reported less pain after the massage. Initial educational expectations were also related to less pain post-massage. Previous studies have found that patients with a more internal locus of control (i.e., take more responsibility for their health) (Lake, 2001; Wallston, Stein, & Smith, 1994) and high self-efficacy regarding their ability to manage their pain (Lackner, Carosella, & Feuerstein, 1996; Richard, Dionne, & Nouwen, 2011) are more likely to have positive pain outcomes. It is possible that clients who had high expectations regarding the

educational nature of the massage session also had increased confidence in their ability to take an active role in addressing their health issue.

Unlike educational expectations, clients whose interpersonal expectations were exceeded reported more pain after the massage. It could be that when massage therapists engaged clients in more conversation that they expected (were very friendly, discussed clients' problems, and shared personal aspects of their lives), clients interpreted this as a negative violation, and this resulted in poorer outcomes. This explanation is consistent with EVT (Burgoon & Hale, 1988). A study examining the role of communication during massage sessions found that although there was not a significant main effect of restricting talk during massage on symptom reduction, higher levels of therapeutic bond in the talk restrictive group led to significant symptom reduction post massage (Moyer, Rounds, & Hannum, 2008). It is possible that the conversation during the massage interfered with the clients' ability to relax and the lack of relaxation affected their perception of their pain. This is consistent with a study that found that massage therapy clients' high interpersonal expectations were related to negative changes in serenity (see Chapter 3). Nonetheless, there is a lesson here for massage therapists to assess their clients' expectations regarding conversation during the massage and client goals for the massage session.

Massage Therapist Reward Valence

Consistent with the study's hypotheses, clients who rated their massage therapists more interpersonally attractive reported less pain post-massage and were more satisfied with the care received from the massage therapist. Future research should include more comprehensive measures of the personal characteristics of massage therapists and examine how these communicator characteristics relate to health and satisfaction outcomes. For example, relationships between the attractiveness of the massage therapist and other communication constructs need to be explored. Meta-analytic findings reveal that facially attractive people are rated as more occupationally and socially competent, better adjusted,

likable, and intelligent than unattractive people (Langlois et al., 2000). Patients of physicians (Young, 1979) and psychotherapists (Harris & Busby, 1998) disclose more information to physically attractive providers.

Another construct associated with interpersonal attractiveness is immediacy, nonverbal behaviors such as eye contact, open posture, and leaning forward (White, 2008). Immediacy has been found to be positively associated with interpersonal attraction (Baringer & McCroskey, 2000) and homophily (similarity) (McCroskey, McCroskey, & Richmond, 2006; Rocca & McCroskey, 1999). Because massage therapy involves touch, it is reasonable to suspect that immediacy behaviors affect massage therapist-client communication outcomes. In addition, the massage therapists and their clients were strikingly similar in demographic characteristics: 79% of both samples were female with a mean age of 46 and lived/worked in or near Iowa. The extent to which (if any) these similarities affect communication needs to be studied.

When attempting to explain client pain post-massage and satisfaction, controlling for client pain score pre-massage was important. High baseline pain scores were significant predictors of higher post-massage pain scores and less satisfaction. Considering that 59% of the conditions for which clients reported seeking care were chronic in nature, it is likely that the baseline pain score acted as a proxy variable for client health status. Future research should incorporate more explicit measures of health status to improve understanding of its relationship to expectations and health outcomes.

It is noteworthy that the general and specific measures of expectancy violation were not highly correlated. There are at least two possible explanations. Clients may have had a different set of expectations that were not measured in this study yet were more important to the clients and those other expectations were met or exceeded. For example, clients could have been thinking about the benefits they received from the massage (e.g., reduced pain) more than the interpersonal encounter. Meeting outcome expectations was not measured in this study because many benefits of massage are more long term rather than immediate

(Moyer, Rounds, & Hannum, 2004). Another possibility is that when asked directly, clients did not want to rate their massage therapist poorly. This is corroborated by the finding that only 5% of clients had any level of disagreement with the valence item "my massage therapist looks pretty or handsome."

EVT was useful in informing the hypotheses of this study. Educational and interpersonal expectancy violations predicted pain post-massage. In addition, consistent with EVT, positive communicator reward valence predicted lower pain and higher client satisfaction scores post-massage. The EVT variables explained more variance in pain post massage (R^2= .34) than in client satisfaction (R^2= .11). To our knowledge, this is the first study using EVT to predict a health (vs. a communication) outcome, providing a new application of the theory.

Limitations

This sample of massage therapists was limited to volunteers from Iowa and their clients; the generalizability of the findings is not known. Another limitation was low variability in some key variables (e.g., expectations and satisfaction were high) and this likely put restraints on the ability of the regression analysis to detect significant statistical relationships. In addition, 61% of the clients in this study had seen their massage therapist five or more times; data collected from people who have less experience with massage may have more variation.

Similar to this study, a single item has been used to measure satisfaction in other studies of client satisfaction with massage (Hanley, Stirling, & Brown, 2003; Osaka et al., 2009; Wentworth et al., 2009). To understand the high levels of satisfaction with massage, a scale that has been validated is needed. The relationship between expectations being met and client satisfaction may be elucidated with a measure that has more variability. Scales developed in physical therapy reflect a multidimensional construct, including elements related to the interpersonal encounter and technical skill (Goldstein, Elliott, & Guccione,

2000; Roush & Sonstroem, 1999). Qualitative research is needed to uncover the dimensions of client satisfaction with massage so that appropriate items can be written. Potential categories include personal characteristics of the massage therapist (e.g., attractiveness, dress code, health habits, and fitness level), elements of the massage therapist-client relationship (e.g., listening, empathy), perceived benefits from massage therapy, and the physical environment. It seems prudent to follow Roush & Sonstroem (1999) in their inclusion of a measure of social desirability in a satisfaction measure to determine if specific dimensions of satisfaction are more related to social desirability than others.

Conclusion

Clients in this study had expectations related to the clinical, educational, and interpersonal nature of the interaction with their massage therapist. Clients' educational and interpersonal expectations and judgments of their massage therapists' interpersonal attractiveness predicted their level of pain after their massage, but not their satisfaction. Clients that perceived their massage therapist as more friendly, attractive, and pleasant were more satisfied with their care. Using a communication theory (EVT) was valuable in identifying the role of violated expectations and massage therapist interpersonal attractiveness in predicting client pain and satisfaction. To maximize their clients' pain and satisfaction outcomes, massage therapists should be prepared to provide education to their clients (if preferred by the client) and be aware of their clients' expectations regarding conversation during the massage. In addition, massage therapists should strive for a pleasant physical and social appearance.

Table 4.1. Client Expectations of Massage Item Means Before Massage (Expected) and After Massage (Actual)

	Mean Expected	SD	Mean Actual	SD	Mean individual difference
Clinical Expectation					
Tailor their massage approach to suit my individual needs	6.5	0.7	6.7	0.7	0.1
Have exceptional massage skills	6.7	0.6	6.8	0.6	0.1
Assess my muscles to understand my condition	6.5	0.8	6.5	0.8	0.0
Educational Expectation					
Give me ideas on how to manage my stress	5.7	1.3	5.2	1.8	-0.5
Educate me on the benefits of massage therapy	5.7	1.5	5.4	1.7	-0.3
Provide me with information I need to take better care of myself	5.7	1.3	5.5	1.6	-0.2
Interpersonal expectation					
Share personal aspects of their life with me	3.9	1.7	4.5	2.1	0.6
Discuss my personal problems with me	3.6	1.9	4.2	2.0	0.6
Be like a friend to me	4.9	1.6	5.8	1.3	0.9

Note. n = 321. All variables are on a Likert scale where 7= strongly agree and 1= strongly disagree.

Table 4.2. Regression Analysis for Expectancy Violation Theory Variables Predicting Client Pain Post-Massage

Dependent Variable: Client pain post-massage				
Independent variable	B	SE B	t	r
Massage therapist valence	-0.07*	0.03	-2.26	-0.12*
Initial clinical expectations	-0.03	0.05	-0.58	-0.01
Clinical expectations violated	-0.03	0.05	-0.61	-0.08
Initial educational expectations	-0.05*	0.02	-2.17	-0.05
Educational expectations violated	-0.04*	0.02	-2.31	0.03
Initial interpersonal expectations	0.03	0.02	1.52	-0.12*
Interpersonal expectations violated	0.07*	0.02	3.14	-0.15*
Pain pre-massage	0.32*	0.03	11.32	0.52*
Client age	0.00	0.01	0.53	0.03
Client gender	-0.18	0.16	-1.11	-0.11
Previously saw massage therapist	0.27	0.18	1.52	0.03

Note. n = 321. R^2 = .34.
*p < .05.

Table 4.3. Negative Binomial Regression Analysis for Expectancy Violation Theory Variables Predicting Client Satisfaction with the Care Provided by the Massage Therapist

Dependent Variable: Client satisfaction				
Independent variable	B	SE B	z	r
Massage therapist valence	0.15*	0.05	3.01	0.38*
Initial clinical expectations	0.11	0.07	1.67	0.19*
Clinical expectations violated	0.12	0.08	1.52	0.18*
Initial educational expectations	0.04	0.03	1.29	0.18*
Educational expectations violated	0.04	0.03	1.64	0.09
Initial interpersonal expectations	0.02	0.03	0.45	0.25*
Interpersonal expectations violated	-0.01	0.03	-0.38	0.00
Pain pre-massage	-0.09*	0.04	-2.0	-0.07
Client age	0.01	0.00	1.49	0.06
Client gender	.14	0.23	0.61	0.10
Previously saw massage therapist	-.36	0.27	-1.35	0.15*

Note. n = 321. Pseudo R^2 = .11.
*p < .05.

CHAPTER 5
DISCUSSION

Previous chapters presented inquiries into the characteristics of massage therapists and their clients in order to identify constructs that help to explain the effects of massage therapy. This chapter will present a synthesis of the results of the dissertation studies, additional research questions that were not addressed in earlier chapters, limitations of the dissertation studies, directions for future research, and implications for public health practice.

Summary of Research Findings

This dissertation helped to explain the characteristics of a sample of massage therapists and massage therapy clients in Iowa and how these characteristics were related to satisfaction, pain, and affect. The care provided by the massage therapists in this study should not be characterized by the simple application of touch to another person. The care involved a massage therapist that in general had high positive expectations regarding the benefits of massage therapy. In addition to the variety of hands-on therapies provided, the massage therapists educated their clients in areas such as diet, stress management, and exercise to improve their health. Massage therapists were rated positively by their clients and the majority provided care that almost perfectly satisfied their clients.

Massage therapy clients in this dissertation carried distinct domains of expectations regarding the behavior of their massage therapist and the benefits of massage therapy. The clinical, educational, and interpersonal domains of expectations were measured successfully by the Client Expectations of Massage Scale and found to be generally high. After their massage sessions, clients reported feeling less pain and negative affect and more serenity. Clients that expected massage therapy to be beneficial were more likely to report decreased pain and increased serenity. Clients that expected their massage therapist to be friendly, share personal aspects of their life, and discuss clients' personal problems were less likely to have

increased serenity after the massage. Expectations were not related to changes in affect in this sample.

Client ratings of expected massage therapist behavior were compared to behavior reported by the clients, providing a measure of the degree to which client expectations were met. Educational expectations that were exceeded were related to less pain post-massage. On the other hand, interpersonal expectations that were exceeded were related to more pain post-massage. In addition, a measure of interpersonal attractiveness significantly predicted pain post-massage. There was a failure to find any significant relationship between expectations being met and client satisfaction. This is likely due to the fact that clients were invariably satisfied with their care. Nonetheless, interpersonal attractiveness emerged as significantly predicting satisfaction. The more physically and socially attractive a massage therapists was judged to be, the more satisfied their clients were with their care. Using Expectancy Violation Theory as a framework led to the finding that interpersonal attractiveness is an important characteristic of massage therapists to measure when attempting to explain pain post-massage and client satisfaction. More research is needed to better examine the relationship of clients' expectations being violated and their subsequent satisfaction with their care.

Social Cognitive Theory was a valuable theory to apply to the study of the massage therapists' characteristics. Indeed, massage therapists are more likely to engage in a behavior if they believe that behavior will lead to better results for their clients (i.e., they had positive expectancies for the behavior). This was true of all categories of behavior (clinical, educational, and interpersonal) studied. Massage therapists' beliefs regarding the benefits of massage (outcome expectations) were related to clinical and educational behavior, but not to interpersonal behavior.

Additional Areas of Research Not Included in Chapters 2-4

This dissertation contributed to the massage therapy literature by providing examples of how a health behavior theory (Social Cognitive Theory) and a communication theory (Expectancy Violation Theory) could be used as a framework to guide research questions. In addition, a measure of client expectations of massage was developed and validated. Finally, the potential for client expectations of massage to predict client pain following massage and satisfaction was explored. What follows are additional areas of inquiry that could shed more light on client and massage therapist expectations and the use of practice-based research as a viable research method in massage therapy research.

Client and Massage Therapist Outcome Expectations: Do They Match?

Georgy, Carr, & Breen (2011) developed a model that suggests that patient expectations that are met and that match the provider's expectations yield better communication and satisfaction than when patient expectations are met and do not match those of their provider. In this dissertation, both client and massage therapist expectations regarding the benefits of massage therapy (outcome expectations) were measured; however, whether or not their expectations are similar was not addressed. Identifying areas of mismatch is important because it could help massage therapists focus their educational efforts on benefits that are supported by evidence but unknown to clients.

Although Table 1 presents a general comparison of client and massage therapist expectations, areas of expectation match and mismatch are evident. For example, both clients and massage therapists have similarly high expectations that massage therapy will help clients to relax and to sleep better at night. Also, although expectations regarding the effects of massage therapy to improve immunity and concentration and decrease blood pressure were rated lower by both massage therapists and clients, these are also the areas of largest mismatch (i.e., differences in massage therapists vs. client expectations). As the evidence that

massage therapy has positive effects on immunity (Rapaport, Schettler, & Bresee, 2010), concentration (Field et al., 1996), and blood pressure builds (Moraska, Pollini, Boulanger, Brooks, & Teitlebaum, 2010), it will become important for massage therapists to communicate this to their clients so that clients can benefit from the effects of higher expectations in these areas.

Client Expectations of Massage and Massage Therapist

Expectancies for Massage

The terms *expectancies* and *expectations* are often used synonymously in the literature although they are actually different from each other. Bandura (1986) distinguishes the two very well. He defines expectations as the anticipated consequences of a specific behavior. Expectancies, on the other hand, are the values held of those anticipated consequences.

As an example, Table 2 provides a comparison of client *expectations* of massage and how they compare to massage therapist *expectancies* of massage. Clients were asked to rate agreement with statements that began "I expect that my massage therapist may" and given a 7 response Likert scale (7=strongly agree, 1=strongly disagree). Massage therapists were asked to rate their agreement with statements that began "to achieve excellent results from massage, it is valuable for me to:" and were given the same Likert response scale. For the first item, clients rated how much they agreed that their massage therapist *would have* exceptional massage skills. In comparison, massage therapists rated *how important it is to have* exceptional massage skills in order to achieve good results from massage. Table 2 demonstrates that there is overall agreement; clients expect behaviors that massage therapists believe are important to achieve good outcomes. More specifically, both clients and massage therapists rate clinical behaviors higher than interpersonal behaviors. Nonetheless, we know from the study in Chapter 4 that the personal characteristics of the massage therapist (i.e., my

massage therapist could be a friend of mine, is pretty/handsome, and is pleasant) were significantly associated with client satisfaction.

Practice-based research with massage therapists as a viable methodology

Practice-based research (PBR) is a partnership wherein researchers partner with clinicians in practice to collect data from patients in a real-life setting. Research and practice are bridged as research findings from PBR often translate to clinical practice more easily than from experimental settings (Tierney et al, 2007). Responding to a congressional charge, the Agency for HealthCare Research and Quality has funded and offered support to PBR networks in primary care (http://pbrn.ahrq.gov/). In addition, PBR has recently been added to the National Institutes of Health's National Center for Complementary and Alternative Medicine strategic plan, explaining, "Practice-based research provides an important setting in which to study the complex interplay of intervention, the patient-provider relationship, and other important contextual and environmental factors involved in health care and health promotion." (NCCAM, 2011, p.43).

In addition to being very common in primary care (Tierney et al., 2007) and dentistry (e.g., Nascimento et al, 2011), PBR has been successfully conducted in chiropractic to measure outcomes in patients aged 55 or older (Hawk, Long, & Boulanger, Morschhauser, & Fuhr, 2000), the prevalence of non-musculoskeletal conditions (Hawk, Long, & Boulanger, 2001), patient satisfaction (Hawk, Long, & Boulanger, 2001) and more recently the safety and effectiveness of chiropractic for children (Alcantara, Ohm, & Kunz, 2009). PBR provides a relevant setting for observational research as well as an opportunity for providers to learn about research in an experiential versus theoretical fashion (Hawk, Long, & Boulanger, 1998).

Because of the lacuna in research regarding the practice of massage therapists and characteristics of massage therapy clients, PBR was chosen for the studies in Chapters 3 and

4. Information regarding 321 client visits was collected in just over one month. Recruiting massage therapists at massage therapy conventions appeared to be a successful strategy. Massage therapists that were the first to volunteer often shared their enthusiasm with other attendees and encouraged them to volunteer as well. The researcher was able to meet face to face with volunteers to review the study instructions and materials. The biggest challenge was finding massage therapists that met the eligibility criterion for seeing at least 20 different clients per month. Many massage therapists practice part time and have other jobs related to massage therapy (e.g., instructor for a massage therapy program) or jobs unrelated to massage therapy.

Of the 25 massage therapists in Sample 1 and 2 who initially volunteered, 21 from Sample 1 returned client surveys (N=367) and 24 from Sample 2 had clients return surveys (N=377). Some massage therapists did not see 20 clients during the study period as they initially thought they would. Others presented study materials to clients that were not age-eligible. The final sample sizes were nonetheless adequate.

Compliance with study procedures was impressive considering that the participation of the massage therapists was voluntary. Although the attitudes towards participation were not measured specifically, three massage therapists wrote in optional comments on their survey:

> Excited to help you out and hopefully several new clients as well. I wish you well in your studies.
>
> To make research a must!
>
> I am glad there is more research being done on massage. It helps to validate what we do.

Participation in PBR had a positive influence on the behavior of primary care clinicians, suggesting that PBR may be valuable tool for education, translation of research findings, and behavior change as well as for research (Rhyne et al, 2011). In the future, it would be helpful to examine if participation in a PBR project affects massage therapists' attitudes and behaviors regarding research and evidence-informed practice. Since these

dissertation projects were completed, researchers from an academic massage program have created a PBR network of massage therapists to conduct massage research (www.massagenet.org). Findings from their studies have not yet been published.

Limitations

The main limitations of this research include the limited generalizability due to the participants being located in one state and the limited variability in key variables such as expectations and satisfaction. As discussed in Chapters 2-4, larger and more variable samples are needed to add confidence to the findings from this dissertation. To address these limitations and to improve our understanding of the constructs studied, several directions for future research are suggested below.

Directions for Future Research

Constructs Related to Client Outcomes from Massage Therapy

These dissertation studies provide support for the importance of client expectations but did not address the relationship of massage therapists' outcome expectations to client outcomes. Practitioners' outcome expectations have also been found to be related to patient outcomes (Gracely, Dubner, Deeter, & Wolskee, 1985; Gryll & Katahn, 1978; Thomas, 1987). Considering how positive the outcome expectations of the massage therapists were in these studies, future research should consider the effects of massage therapist outcome expectations on client outcomes. The relationship between client expectations and other constructs needs to be explored. For example, do expectations vary with client health status, socioeconomic status, age, and experience with massage?

Effects of Massage Therapy on Psychological Symptoms

In addition to reductions in musculoskeletal symptoms, improvements in psychological symptoms are commonly reported after massage. Few massage therapy clients in this dissertation research reported seeking care specifically for psychological symptoms;

yet, significant improvements in negative affect and serenity were observed. Although massage therapists are not considered mental health professionals, massage therapy is parallel to psychotherapy in structure and outcomes (Moyer, Rounds, & Hannum, 2004). Clients of both therapies typically meet with their provider for a one-hour period of interpersonal contact on an ongoing basis. Of all the massage therapy effects examined, reductions in trait anxiety and depression were the most sizable and were comparable to the effects of psychotherapy (Moyer, Rounds, & Hannum, 2004).

Despite the evidence supporting the use of massage therapy for psychological symptoms, more research is needed regarding the beliefs and attitudes massage therapists hold regarding their intentions to treat such symptoms. Whether or not a subfield of massage therapy research and practice addressing "affective massage therapy" should be created has been debated in the literature (Moyer, 2008; Fitch, 2009). Indeed, one massage therapist who volunteered in this dissertation research wrote on his survey, "I stay within my scope of practice and only deal with patient's neuromuscular problems" while another wrote, "personal relationships are a common occurrence with clients".

There are massage and bodywork techniques that specifically address the emotional components associated with bodily stress. Additional training is available for therapies such as somatoemotional release, degriefing, polarity therapy, and rolfing. However, the process and outcomes of these therapies are not well understood; this is an area ripe for research (Moyer, 2008).

Development of communication skills training for massage therapists

Both massage therapists and their clients would benefit from communication skills training for massage therapists. The massage therapists in this dissertation had high expectations regarding the benefits of massage; if they were able to effectively communicate the benefits of massage to non-users and first time users, they could increase and maintain

their client base. Initially, research is needed to determine what skills massage therapists feel that they would like to acquire as well as to identify the skills that would likely produce the best therapy outcomes for clients and job satisfaction for therapists. For example, research has demonstrated that awareness of non-verbal cues such as close interpersonal distance, eye contact, facial expression, and voice tone are important components of patient-doctor communication that affect the patient-doctor relationship (Teutsch, 2003) and patient satisfaction (Griffith, Wilson, Langer, & Haist, 2003; Hall, Harrigan, & Rosenthal, 1995; Schmid Mast, 2007). In addition, the effects of being empathic, not interrupting clients, providing closure at the end of the visit, and cultural competence are likely relevant constructs to study (Teutsch, 2003). Finally, the extent to which massage therapists solicit client expectations may be important (Rozenblum et al., 2011) as it is difficult to meet client expectations that are not known.

Application of Theory to Massage Therapy Research

Using Social Cognitive Theory and Expectancy Violation Theory as frameworks for the dissertation proved to be valuable. Social Cognitive Theory provided insight into the expectations, expectancies, and behavior of massage therapists. This is useful for future, theory-based efforts, especially studies examining behavior change. In addition, future research should incorporate other theoretical constructs such as self-efficacy. Massage therapists that have high levels of self-efficacy regarding their skill set may behave differently with their clients and thereby affect their outcomes. Another useful application of this theory would be toward efforts aimed to increase the adoption of evidence-informed practice among massage therapists. If an intervention could improve massage therapists' self-efficacy for interpreting and applying research findings relevant to their clients and help massage therapists relate that behavior to improved outcomes for their clients (i.e., create positive expectancies for engaging in evidence-informed practice), clients would likely achieve better outcomes from these massage therapists.

Implications for Public Health Practice

This section discusses the potential role of massage therapists as members of the public health work force. Two areas of promise include the ability of massage therapists to address musculoskeletal symptoms and to promote the health of their clients through educational and community efforts.

Massage Therapists as Members of the Public Health Workforce

According to the US Bureau of Labor Statistics, employment opportunities for massage therapists are projected to increase 20% from 2006-2016. With an increasing number of massage therapists, and health promotion being more important than ever, it may be timely for massage therapists to join forces with public health initiatives. In addition, NCCAM identified CAM providers as potential supporters and promoters of healthy behavior and called for more research in this area.

As described in Chapter 2, a sizable number of massage therapists in this Iowa sample were commonly engaged in public health promoting activities related to diet, stress management, and exercise counseling. Many more massage therapists are up for the task as well. At the 2010 Highlighting Massage Therapy in Complementary and Integrative Medicine Research Conference, a full day was devoted to the role of massage in public health. The program included two key note speakers that addressed pain management and a panel discussion involving public health policy, health care integration, and how massage currently addresses public health concerns such as prevention, pain management, and lifestyle choices (Thompson, 2009).

There are two types of CAM users: people who use CAM to treat a symptom or illness and people who use CAM for health promotion (Davis, West, Weeks, & Sirovich, 2011). As there is evidence that this is true specifically for massage therapy clients, the implications of the findings from this dissertation will be explored in this context.

Massage Therapists and Symptom Management

In reference to symptom management of musculoskeletal conditions, one obvious public health problem for massage therapists to tackle is low back pain. Americans spend a minimum of 50 billion dollars each year on low back pain, the leading cause of employment disability and lost work days (NINDS, 2007). According to a national survey, 26.4% of US adults reported low back pain within the past 3 months, making it the most common area of reported pain (Deyo, 2006). Indeed, in this dissertation, the most common complaint reported by clients was back pain (21.2%). With the high prevalence of low back pain combined with the evidence for the effectiveness of massage therapy (Cherkin et al., 2011), massage therapists hold promise for helping to manage chronic back pain (NCCAM, 2011).

Massage Therapists and Health Promotion

Consistent with a review of why patients use CAM (Ernst & Hung, 2011), the findings from this dissertation demonstrate that massage therapy clients seek out massage therapy to promote their health. In addition, dissertation findings showed that massage therapists in Iowa engage in health promoting behaviors with their clients in the areas of stress management, diet, and exercise counseling for general health. Whether CAM providers influence the health behavior of their patients or whether health conscious people are more likely to seek out CAM needs further investigation. In one study, practitioners of shiatsu (a body-based therapy developed in Japan) in Austria, Spain and the United Kingdom provided advice to their clients regarding exercise, diet, posture, and self-care. Six months after treatment, clients reported they had made lifestyle changes (e.g., relaxed more, increased exercise, and changed diet) as a result of having shiatsu (Long, 2009).

Using data from the National Health Interview Survey (NHIS), three studies shed light on the relationships between CAM use and health promotion. Nahin et al. (2007) reported that in 2002, CAM users were more likely to be physically active and former smokers and less likely to be heavy drinkers and obese than non-users. Davis, West, Weeks,

& Sirovich (2011) divided the 2007 NHIS data into categories of CAM users and non-users and further separated the CAM users into either treatment user or health promotion user. Similar to Nahin et al. (2007), they found that CAM users were more physically active than non-users. In addition, among CAM users, those that used CAM for health promotion had the highest rates of physical activity and were healthier and less obese than treatment users. In this sample, 4.9% used massage therapy for health promotion and 3.3 % for treatment (Davis, West, Weeks, & Sirovich, 2011).

In the final study using the 2007 NHIS data, Hawk, Ndetan, & Evans (2011) reported that of those respondents that used massage, 55.7% did so for wellness and disease prevention. They also noted that 27.8% of massage users told their physicians that they received massage. If primary care providers recognized massage therapists as members of the public health work force and became more aware of their patients' use of massage, perhaps coordinated efforts would lead to more successful attempts at health behavior change (Hawk, Ndetan, & Evans, 2011). As clients of massage therapy often have repeated contact with their massage therapist and consistent encouragement from CAM practitioners to increase healthy behaviors can result in positive health changes (Williams-Piehota, Sirois, Bann, Isenberg, & Walsh, 2011), massage therapists should be recognized as potential agents for behavior change.

In addition to promoting health through educational efforts, another contribution massage therapists can make is related to the early detection of skin cancer, the most common form of cancer in the United States (National Cancer Institute, 2010). Massage therapists typically view areas of the body not visible to clients (e.g., the back) which are a common site for cancerous moles. A non-profit organization called the World Skin Project was founded by a massage therapist who credits her massage therapist for saving her life after he pointed out a suspicious mole that turned out to be malignant melanoma. Their mission is "to reduce the occurrence of skin cancer through the promotion of early detection, prevention, and awareness" (www.theworldskinproject.org). Workshops are provided to train

massage therapists how to recognize suspicious moles and to make appropriate referrals to dermatologists.

In addition to promoting health at their offices, some massage therapists work with communities or specialized populations to improve their health. After the California earthquakes of 1994, the American Massage Therapy Association formed the Massage Emergency Response Team (MERT) which guides state chapters to respond to disasters by providing massage to rescue workers (American Massage Therapy Association, 2012). For example, trained MERT members provided massage to rescue workers after September 11, 2001 and Hurricane Katrina in 2005. Since 1993, the Massage Therapy Foundation has been funding community service grants to help massage therapists serve populations who typically have no access to massage (Massage Therapy Foundation, 2011). Populations served through grants include the homeless, pediatric burn survivors, and developmentally disabled adults.

Conclusion

This dissertation was the first attempt at applying a health behavior and communication theory to massage therapy research. Examining constructs from Social Cognitive Theory (outcome expectations and expectancies) and Expectancy Violations Theory (expectations and communicator reward valence) improved our understanding of how massage therapy achieves is reputed effects. Future research should continue to use and test theory in the context of massage.

Massage therapists and their clients in this dissertation had positive expectations regarding the benefits of massage therapy. Massage therapy clients also had expectations regarding the clinical, educational, and interpersonal aspects of the session; these expectations were effectively measured by the Client Expectations of Massage Scale. Massage therapy clients were also very satisfied with their care and more research is needed to understand the relationship of their expectations to their satisfaction. It appears that outcome expectations, interpersonal expectations, violations of educational and interpersonal

expectations, and massage therapist attractiveness are important constructs to consider when explaining the effects of massage therapy. In addition, massage therapists in this dissertation saw clients for a variety of health related issues ranging from musculoskeletal concerns to general health promotion. As awareness of massage therapists' role as health promoters increases, more deliberate attempts can be made to include massage therapists in efforts to improve the health of the public.

Table 5.1. The Differences between Mean Client and Massage Therapist Outcome Expectations of Massage

	Clients (n=321)		Massage Therapists (n=24)		Difference
Massage Therapy Outcome	Mean	SD	Mean	SD	
Help me to relax.	6.4	0.8	6.6	0.5	0.2
Help me to sleep better at night	6.0	1.2	6.5	0.6	0.5
Increase my level of energy	5.8	1.1	6.2	0.8	0.4
Improve my mood	5.8	1.3	6.4	0.8	0.6
Help my body's ability to fight illness	5.4	1.5	6.2	0.7	0.8
Help me to concentrate better on a task	5.4	1.4	6.2	0.8	0.8
Lower my blood pressure	5.1	1.5	6.2	1.0	1.1

Note. All variables are on a Likert scale where 7= strongly agree and 1= strongly disagree.

Table 5.2. Client Expectations of Massage Compared to Massage Therapist Expectancies of Massage

	Clients (n=321)		Massage Therapists (n=24)	
	Mean	SD	Mean	SD
Clinical				
Have exceptional massage skills	6.7	0.6	6.7	0.5
Tailor their massage approach to suit my individual needs	6.5	0.7	6.9	0.3
Assess my muscles to understand my condition	6.5	0.8	6.5	0.7
Educational				
Educate me on the benefits of massage therapy	5.7	1.5	6.3	0.9
Provide me with information I need to take better care of myself	5.7	1.3	5.9	0.9
Give me ideas on how to manage my stress	5.7	1.3	5.7	1.1
Interpersonal				
Be like a friend to me	4.9	1.6	4.2	1.9
Share personal aspects of their life with me	3.9	1.7	3.0	1.6
Discuss my personal problems with me	3.6	1.9	3.9	1.7

Note. All variables are on a Likert scale where 7= strongly agree and 1= strongly disagree.

APPENDIX

The directions and final items for the Client Expectations of Massage Scale are shown below.

Please tell us about the expectations you have of your massage therapist by rating how much you agree or disagree with the following statements using this scale:

7 = Strongly agree	4 = Neither agree nor disagree	3 = Slightly disagree
6 = Agree		2 = Disagree
5 = Slightly agree		1 = Strongly disagree

I expect that my massage therapist may:

Clinical expectations items

Tailor their massage approach to suit my individual needs.

Have exceptional massage skills.

Assess my muscles to understand my condition.

Educational expectations items

Give me ideas on how to manage my stress

Educate me on the benefits of massage therapy.

Provide me with information I need to take better care of myself.

Interpersonal expectations items

Share personal aspects of their life with me.

Discuss my personal problems with me.

Act like a friend to me.

REFERENCES

Ahn, H.-n. & Wampold, B. E. (2001). "Where oh where are the specific ingredients? A meta-analysis of component studies in counseling and psychotherapy." *Journal of Counseling Psychology, 48*(3): 251-257.

Ah Yun, K. (2011). The impact of interaction expectancies on the relationship between attitude dissimilarity and interpersonal attraction. *Communication Research Reports, 18*(2), 166-173.

Alcantara, J., Ohm, J., & Kunz, D. (2009). The safety and effectiveness of pediatric chiropractic: a survey of chiropractors and parents in a practice-based research network. *Explore, 5*(5), 290-295.

American Massage Therapy Association (2011). *Consumer Survey Fact Sheet*. Retrieved from http://www.amtamassage.org/research/Consumer-Survey-Fact-Sheets/2011-Massage-Therapy-Consumer-Survey-Fact-Sheet.html

American Massage Therapy Association. (2012). Consumer Industry Fact Sheet. Retrieved from http://www.amtamassage.org/uploads/cms/documents/amta2012_industryfactsheet.pdf

American Massage Therapy Association. (2012). AMTA Timeline. Retrieved from http://www.amtamassage.org/About-AMTA/AMTA-History.html

Anderson, E. S., Winett, R. A., Wojcik, J. R., Winett, S. G., & Bowden, T. (2001). A computerized social cognitive intervention for nutrition behavior: direct and mediated effects on fat, fiber, fruits, and vegetables, self-efficacy, and outcome expectations among food shoppers. *Annals of Behavioral Medicine, 23*(2), 88-100.

Bachelor, A. (1995). Clients' perception of the therapeutic alliance: A qualitative analysis. *Journal of Counseling Psychology, 42*(3), 323-337.

Bandura, A. J. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. J. (1997). Self-efficacy: The exercise of control. New York: W.H. Freeman and Company.

Bandura, A. J. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and Health, 13*(4), 623-649.

Baranowski, T., Perry, C. L., & Parcel, G. S. (2002). How individuals, environments, and health behavior interact. In K. Glanz, B. K., Rimer, & F. M. Lewis (Eds.), *Health Behavior and Health Education: Theory, Research, and Practice* (3rd ed., pp. 165-184). San Francisco: Jossey-Bass.

Baringer, D. K. & McCroskey, J. C. (2000). Immediacy in the classroom: student immediacy. *Communication Education, 49*(2), 178-186.

Barnes, P. M., Bloom, B., & Nahin, R.L. Complementary and alternative medicine use among adults and children: United States, 2007. National health statistics reports; no 12. Hyattsville, MD: National Center for Health Statistics. 2008.

Basen-Engquist, K., Carmack, C. L., Perkins, H., Hughes, D., Serice, S., Scrugggs, S., Pinto, B., & Waters, A. 2010. Design of the steps to health study of physical activity in survivors of endometrial cancer: Testing a social cognitive theory model. *Psychology of Sport and Exercise, 12*, 27-35.

Beck, Mark F. (1999). *Milady's Theory and Practice of Therapeutic Massage* (3rd ed.). Albany: Milady Publishing.

Beider, S. & Moyer, C. A. (2006). Randomized controlled trials of pediatric massage: a review. *Evidence-based Complementary and Alternative Medicine: eCAM, 4*(1): 23-34.

Bollen, K. A. (1989). *Structural Equations with Latent Variables*. New York: John Wiley and Sons.

Bonetti, D., Johnston, M., Clarkson, J. & Turner, S. (2009). Applying multiple models to predict clinicians' behavioural intention and objective behaviour when managing children's teeth. *Psychology and Health, 24*(7), 843-860.

Boulanger, K. T., Hawk, C., Long, C. R., & Jenkins, K. (2002). Recruiting and retaining chiropractors in a practice-based research program. *Journal of the Neuromusculoskeletal Stystem, 10*(1), 5-12.

Bowerman, S. B. (1989). The effect of empathic touch and expectations on mood change during a therapeutic massage treatment (Doctoral dissertation, California School of Professional Psychology - Los Angeles). Dissertation Abstracts International, 50 (10).

Breen, A. & Breen, R. (2003). Back pain and satisfaction with chiropractic treatment: what role does the physical outcome play? *The Clinical Journal of Pain, 19*, 263-268.

Brent, E., P. Slusarz et al. (2002). Qualrus: The Intelligent Qualitative Analysis Program. Columbia, MO, Idea Works, Inc.

Broom, A. (2005). Using qualitative interviews in CAM research: a guide to study design, data collection and data analysis. *Complementary Therapies in Medicine, 13*(1), 65-73.

Broom, A., J. Barnes, J., Tovey, P. (2004). Introduction to the research methods in CAM series. *Complementary Therapies in Medicine,* 12(2-3), 126-30.

Brown, A. K., Liu-Ambrose, T., & Lord, S. R. (2011). The effect of group-based exercise on cognitive performance and mood in seniors residing in intermediate care and self-care retirement facilities: a randomised controlled trial. *British Journal of Sports Medicine, 43*, 608-614. doi:10.1136/bjsm.2008.049882

Brown, J.B., Stewart, M. & Ryan, B.L. (2003). Outcomes of patient-provider interaction. In T.L. Thompson, A.M. Dorsey, K.I. Miller, & R. Parrott. *Handbook of Health Communication*, Mahwah, NJ: Lawrence Erlbaum Associates.

Bureau of Labor Statistics. Occupational Outlook Handbook, 2010-11 Edition. Massage therapists. http://www.bls.gov/ocolocos295.htm. Accessed February 22, 2011. Davis, M. A., West, A. N., Weeks, W. B, & Sirovich, B. E. (2011). Health behaviors and utilization among users of complementary and alternative medicine for treatment versus health promotion. *Health Services Research, 46*(5), 1402-1416.

Burgoon, Birk, & Hall, (1991). Compliance and satisfaction with physician-patient communication an expectancy theory interpretation of gender differences. *Human Communication Research, 18*(2), 177-208.

Burgoon, J. K. (1978). A communication model of personal space violations: explication and an initial test. *Human Communication Research, 4*, 129-142.

Burgoon, J. K. & Hale, J. L. (1988). Nonverbal expectancy violations: Model elaboration and application to immediacy behaviors. *Communication Monographs, 55*:58-79.

Burgoon, J. K. & LePoire, B. A. (1993). Effects of communication expectancies, actual communication, and expectancy disconfirmation on evaluations of communicators and their communication behavior. *Human Communication Research, 20*(1), 67-96.

Burgoon, J. K., Newton, D. A., Walther, J. B., & Baesler, E. J. (1989). Nonverbal expectancy violations and conversational involvement. *Journal of Nonverbal Behavior, 13*(2), 97-119.

Burgoon, J. K., Stacks, D. W., & Woodall, G. W. (1979). A communication model of violations of distancing expectations. *Western Journal of Speech Communication, 43*, 153-167.

Burke, A., Ginzburg, K., Collie, K., Trachtenberg, D., & Muhammad, M. (2005). Exploring the role of complementary and alternative medicine in public health practice and training. *The Journal of Alternative and Complementary Medicine, 11*(5), 931-936.

Buttagat, V., Eungpinichpong, W., Chatchawan, U., & Kharmwan, S. (2011). The immediate effects of traditional Thai massage on heart rate variability and stress-related parameters in patients with back pain associated with myofascial trigger points. *Journal of Bodywork & Movement Therapies, 15*, 15-23.

Cabana, M. D., Rand, C. S., Powe, N. R., Wu, A. W., Wilson, M. H., Abboud, P. C., & Rubin, H. R. (1999). Why don't physicians follow clinical practice guidelines? A framework for improvement. *Journal of the American Medical Association, 282*(15): 1458-1465.

Castro-Sanchez, A. M., Mataran-Penarrocha, G. A., Granero-Molina, J., Aguilera-Manrique, G., Quesada-Rubio, J. M., & Moreno-Lorenzo, C. (2011). Benefits of massage-myofascial release therapy on pain, anxiety, quality of sleep, depression, and quality of life in patients with fibromyalgia. *Evidence-Based Complementary and Alternative Medicine*. doi:10.1155/2011/561753

Cegala, D.J. & Broz, S.L. (2003). Provider and patient communication skills training. In T.L. Thompson, A.M. Dorsey, K.I. Miller, & R. Parrott. *Handbook of Health Communication*, Mahwah, NJ: Lawrence Erlbaum Associates.

Chang, M., Brown, R., & Nitzke, S. (2008). Scale development: factors affecting diet, exercise, and stress management (FADESM). *BMC Public Health*, *8*:76 doi:10.1186/1471-2458-8-76

Cherkin, D. C., Deyo, R. A., Sherman, K. J., Hart, L. G., Street, J. H., et al. (2002). Characteristics of licensed acupuncturists, chiropractors, massage therapists, and naturopathic physicians. *Journal of the American Board of Family Practice, 15*(5): 378-90.

Cherkin, D. C., Sherman, K. J., Kahn, J., Wellman, R., Cook, A. J., Johnson, E., Erro, J., Delaney, K. & Deyo, R. A. (2011). A comparison of the effects of 2 types of massage and usual care on chronic low back pain. *Annals of Internal Medicine, 155*, 1-9.

Childs, J. D., Piva, S. R. , & Fritz, J. M. (2005). Responsiveness of the numeric rating scale in patients with low back pain. *Spine, 30*(11): 1331-1334.

Clark, L. A. & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3): 309-319.

Cline, R.J.W. (2001). Setting the health communication agenda for complementary and alternative medicine: Whither thou goest, I will go. International Communication Association Annual Conference: Washington, D.C.

Conboy, L. A., Macklin, E., Kelley, J., Kokkotou, E., Lembo, A., & Kaptchuk, T. (2010). Which patients improve: characteristics increasing sensitivity to a supportive patient-practitioner relationship. *Social Science and Medicine ,70*(3), 479-484. doi:10.1016/j.socscimed.2009.10.024

Constantino, M. J., Arnkoff, D. B., Glass, C. R., Ametrano, R. M., & Smith, J. Z. (2011). Expectations. *Journal of Clinical Psychology, 67*(2), 184-192. doi: 10.1002/jclp.20754

Contento, I. R., Koch, P. A., Lee, H., & Calabrese-Barton, A. (2010). Adolescents demonstrate improvement in obesity risk behaviors after completion of C*hoice, Control & Change*, a curriculum addressing personal agency and autonomous motivation. *Journal of the American Dietetic Association 110*, 1830-1839.

Crow, R., Gage, H., Hampson, S., Hart, J., Kimber, A., & Thomas, H. (1999). The role of expectancies in the placebo effect and their use in the delivery of health care: a systematic review. *Health Technology Assessment, 3*(3): 1-96.

Davis, M. A., West, A. N., Weeks, W. B, & Sirovich, B. E. (2011). Health behaviors and utilization among users of complementary and alternative medicine for treatment versus health promotion. *Health Services Research, 46*(5), 1402-1416.

Dawn, A. G. & Lee, P. P. (2004). Patient expectations for medical and surgical care: a review of the literature and applications to ophthalmology. *Survey of Ophthalmology, 49*(5): 513-524.

Deyo, R. A., Mirza, S. K., & Martin, B. I. (2006). Back pain prevalence and visit rates. *Spine, 31*(23), 2724-2727.

de Valois, B. A., Young, T. E., & Melsome, E. (2011). Assessing the feasibility of using acupuncture and moxibustion to improve quality of life for cancer survivors with upper body lymphoedema. *European Journal of Oncology Nursing.* [Epub ahead of print]. doi:10.1016/j.ejon.2011.07.005

Doerksen, S. E. & Estabrooks, P. A. (2007). Brief fruit and vegetable messages integrated within a community physical activity program successfully change behavior. *International Journal of Behavioral Nutrition and Physical Activity 4*:12. doi:10.1186/14795868-4-12.

Downey, M. A., Tyree, P. T., & Lafferty, W. E. (2009). Preventive screening of women who use complementary and alternative medicine providers. *Journal of Women's Health, 18*(8), 1133-1143.

Edwards, P., Roberts, I., Clarke, M., DiGuiseppi, C., Pratap, S., Wentz, R., Kwan, I., & Cooper, R. (2007). Methods to increase response rates to postal questionnaires (review). *Cochrane Database of Systematic Reviews*, 2: 1-236.

Eisenberg, D. M., Davis, R. B., Ettner, S. L., Appel, S., Wilkey, S., Van Rompay, M., & Kessler, R. C. (1998). Trends in alternative medicine use in the United States, 1990-1997. *Journal of the American Medical Association, 280*(18), 1569-1575.

Enck, P., Benedetti, F., & Schedlowski, M. (2008). New insights into the placebo and nocebo responses. *Neuron, 59*, 195-206.

Epstein, R. M., & Street, R. J. (2007). Patient-centered communication in cancer care: Promoting healing and reducing suffering. National Cancer Institute, NIH Publication No. 07-6225. Bethesda, MD, 2007.

Ernst, E. (2003). The safety of massage therapy. *Rheumatology, 42*, 1101-1106.

Ernst, E. & Hung, S. K. (2011). Great expectations: what do patients using complementary and alternative medicine hope for? *Patient, 4*(2), 89-101.

Farrar, J. T., Young, J. P., LaMoreaux, L., Werth, J. L., & Poole, R. M. (2001). Clinical importance of changes in chronic pain intensity measured on an 11-point numerical pain rating scale. *Pain, 94*: 149-158.

Field, T., Ironson, G., Scafidi, F., Nawrocki, T., Goncalves, A., Burman, I., … & Kuhn, C. (1996). *International Journal of Neuroscience, 86*, 197-205.

Finniss, D. G., Kaptchuk, T. J., & Benedetti, F. (2010). Biological, clinical, and ethical advances of placebo effects. *The Lancet, 375*, 686-695.

Fischer, M. J. , Ahya, S. N., Gordon, E. J. (2010). Interventions to reduce late referrals to nephrologists. *American Journal of Nephology, 33*, 60-69.

Fitch, P. (2009). Letter to the Editor re: Affective Massage Therapy. *International Journal of Therapeutic Massage and Bodywork, 2*(1), 21-22.

Frantsve, L. M. & Kerns, R. D. (2007). Patient-provider interactions in the management of chronic pain: current findings within the context of shared medical decision making. *Pain Medicine, 8*(1), 25-35.

Furlan, A. D., Yazdi, F., Tsertsvadze, A., Gross,A., Van Tulder, M., Santaguida, , L.… Tsouros, S. (2012). A systematic review and meta-analysis of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low-back pain. *Evidence-Based Complementary and Alternative Medicine*.

Gaumer, G. (2006) Factors associated with patient satisfaction with chiropractic care: survey and review of the literature. *Journal of Manipulative and Physiological Therapeutics, 29*(6):455-62.

George, S. Z. & Hirsh, A. T. (2005). Distinguishing patient satisfaction with treatment delivery from treatment effect: a preliminary investigation of patient satisfaction with symptoms after physical therapy treatment of low back pain. *Archives of Physical Medicine and Rehabilitation, 86*: 1338-1344.

Georgy, E. E., Carr, E. C. J., & Breen, A. C. (2011). Met or matched expectations: what accounts for a successful back pain consultation in primary care? *Health Expectations*, doi: 10.1111/j.1369-7625.2011.00706.x. [Epub ahead of print]

Glass, C. R., Arnkoff, D. B., & Shapiro, S. J. (2001). Expectations and preferences. *Psychotherapy, 38*(4): 455-461.

Godin, G., Belanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: a systematic review of studies based on social cognitive theories. *Implementation Science, 3*:36. doi :10.1186/1748-5908-3-36

Goldstein, M. S., Elliott, S. D., Guccione, A. A. (2000). The development of an instrument to measure satisfaction with physical therapy. *Physical Therapy, 80*(9), 853-863.

Gracely, R. H., Dubner, R., Deeter, W. R., & Wolskee, P. J. (1985). Clinicians' expectations influence placebo analgesia. [Letter] *Lancet, 1*, 4.

Griffith, C. H., Wilson, J. F., Langer, S., & Haist, S. A. (2003). House staff nonverbal communication skills and standardized patient satisfaction. *Journal of General Internal Medicine, 18*, 170-174.

Grimmer, K., Sheppard,L., Pitt, M., Magarey, M., & Trott, P. (1999). Differences in stakeholder expectations in the outcome of physiotherapy management of acute low back pain. *International Journal for Quality in Health Care, 11*(2): 155-162.

Gryll, S. L. & Katahn, M. (1978). Situational factors contributing to the placebo effect. *Psychopharmacology, 57*, 253-261.

Hall, J. A., Harrigan, J. A., Rosenthal, R. (1995). Nonverbal behavior in clinician-patient interaction. *Applied and Preventive Psychology, 4*,21–37.

Hanley, J., Stirling, P., & Brown, C. (2001). Randomised controlled trial of therapeutic massage in the management of stress. *British Journal of General Practice, 53*, 20-25.

Harris, S. M. & Busby, D. M. (1998). Therapist physical attractiveness: an unexplored influence on client disclosure. *Journal of Marital and Family Therapy, 24*(2), 251-257.

Haun, J., N., Graham-Pole, J., & Shortley, B. (2009). Children with cancer and blood diseases experience positive physical and psychological effects from massage therapy. *International Journal of Therapeutic Massage and Bodywork, 2*(2), 7-14.

Hawk, C., Long, C. R., & Boulanger, K. (1998). Development of a practice-based research program. *Journal of Manipulative and Physiological Therapeutics, 21*(3), 149-156.

Hawk, C., Long, C. R., & Boulanger, K. T. (2001). Patient satisfaction with the chiropractic clinical encounter: report from a practice-based research program. *Journal of the Neuromusculoskeletal System, 9*(4), 109-117.

Hawk, C., Long, C. R., & Boulanger, K., Morschhauser, E., & Fuhr, A. W. (2000). Chiropractic care for patients aged 55 and older: report from a practice-based research program. *Journal of the American Geriatric Association, 48*(5), 534-545.

Hawk, C., Ndetan, H., & Evans, M. W. [in press]. *Preventive Medicine*.

Hays, L. M., Pressler, S. J., Damush, T. M., Rawl, S. M., & Clark, D. O. (2010). Exercise adoption among older, low-income women at risk for cardiovascular disease. *Public Health Nursing 27*(1), 79-88.

Henry, S. G., Fuhrel-Forbis, A., Rogers, M. A., & Eggly, S. (2011). [Epub ahead of print] Association between nonverbal communication during clinical interactions and outcomes: a systematic review and meta-analysis. *Patient Education and Counseling*.

Heritage, J. & Maynard, D. (2006). Problems and prospects in the study of physician-patient interaction: 30 years of research. *Annual Review of Sociology, 32*, 351-374.

Hertzman-Miller, R. P., Morgenstern, H., Hurwitz, E. L., Yu, F., Adams, A. H., Harber, P., & Kominski, G. F. (2002). Comparing satisfaction of low back pain patients randomized to receive medical or chiropractic care: results from the UCLA low-back pain study. *American Journal of Public Health, 92*(10), 1628-1633.

Hills, R. & Kitchen, S. (2007). Development of a model of patient satisfaction with physiotherapy. *Physiotherapy Theory and Practice, 23*(5), 255-271. doi: 10.1080/09593980701249929

Ho, E. Y. & Bylund, C. L. (2008). Models of health and models of interaction in the practitioner-client relationship in acupuncture. *Health Communication, 23*, 506-515.

Hu, L. & Benter, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Hughes D, Ladas E, Rooney D, Kelly K. (2008). Massage therapy as a supportive care intervention for children with cancer. *Oncology Nursing Forum, 35*(3), 431-442.

Hush, J. M., Cameron, K., Mackey, M. (2011). Patient Satisfaction With Musculoskeletal Physical Therapy Care: A Systematic Review. *Physical Therapy, 9*(1), 25-36.

Hyland, M. E. (2005). A tale of two therapies: psychotherapy and complementary and alternative medicine (CAM) and the human effect. *Clinical Medicine, 5*(4), 1-8.

Hyland, M. E., Lewith, G. T., & Wheeler, P. (2008). Do existing psychologic scales measure the nonspecific benefit associated with cam treatment? *The Journal of Alternative and Complementary Medicine, 14(2), 185-189.*

Iowa Bureau of Professional Licensure. (2008). Iowa Board of Massage Therapy. Retrieved from http://www.idph.state.ia.us/licensure/board_home.asp?board=mt

Jamison, J. R. (1997). An interactive model of chiropractic practice: reconstructing clinical reality. *Journal of Manipulative and Physiological Therapeutics, 20*(6), 382-388.

Jay, L. R., Afifi, W. A., & Samter, W. (2000). The role of expectations in effective genetic counseling. *Journal of Genetic Counseling, 9*(2), 95-116. doi: 10.1023/A:1009493424814

Jensen, M. P., Turner, J. A., Romano, J. M., & Fisher, L. D. (1999). Comparative reliability and validity of chronic pain intensity measures. *Pain, 83*: 157-162.

Joyce, A. S. & Piper, W. E. (1998). Expectancy, the therapeutic alliance, and treatment outcome in short-term individual psychotherapy. *Journal of Psychotherapy Practice and Research, 7*(3): 236-248.

Kahn, J. (2002). *Massage Therapy Research Agenda*. Evanston, IL:AMTA Foundation.

Kalauokalani, D., Cherkin, D. C., Sherman, K. J., Koepsell, T. D., & Deyo, R. A. (2001). Lessons from a trial of acupuncture and massage for low back pain. *Spine, 26*(13): 1418-1424.

Kaptchuk, T. J. (2002). The placebo effect in alternative medicine: Can the performance of a healing ritual have clinical significance? *Annals of Internal Medicine, 136*: 817-825.

Kaptchuk, T. J., Kelley, J. M., Conboy, L. A., Kerr, C. E., Jacobson, E. E., et al. (2008). Components of placebo effect: randomized controlled trial in patients with irritable bowel syndrome. *British Medical Journal, 336*, 999–1003.

Koshi, E. B. & Short, C. A. (2007). Placebo theory and its implications for research and clinical practice: a review of the recent literature. *Pain Practice, 7*(1), 4-20.

Kravitz, R. L. (2001). Measuring patients' expectations and requests. *Annals of Internal Medicine, 134*: 881-888.

Kutner, J, S., Smith, M. C., Corbin, L., Hemphill, L., Benton, K., Mellis, B. K., …Fairclough, D. L. (2008). Massage therapy versus simple touch to improve pain and mood in patients with advanced cancer: a randomized trial. *Annals of Internal Medicine*, 149(6), 369-379.

Lackner, J. M., Carosella, A. M., & Feuerstein, M. (1996). Pain expectancies, pain, and functional self-efficacy expectancies as determinants of disability in patients with chronic low back disorders. *Journal of Consulting and Clinical Psychology, 64*(1), 212-220.

Lake, A. E. (2001). Behavioral and nonpharmacologic treatments of headache. Medical Clinics of North America, 85(4), 1055-1075.

Langlois, J. H., Kalakanis, L., Rubenstein, A. J., Larson, A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin, 126*(3), 390-423.

Lee, A. C., Kemper, K. J. (2000). Practice patterns of massage therapists. *Journal of Alternative and Complementary Medicine, 6*(6): 527-529.

Lee, M. S., Kim, J., & Ernst, E. (2010). Massage therapy for children with autism spectrum disorders: a systematic review. *Journal of Clinical Psychiatry, 72*(3), 406-411.

Linde, K., Witt, C. M., Streng, A., Weidenhammer, W., Wagenpfeil, S., Brinkhaus, B., Willich, S. N., & Melchart, D. (2007). The impact of patient expectations on outcomes in four randomized controlled trials of acupuncture in patients with chronic pain. *Pain, 128*, 264-271.

Long, A.F. (2002). Outcome measurement in complementary and alternative medicine: unpicking the effects. *Journal of Alternative and Complementary Medicine,* 8(6):777-86.

Long, A. F. (2009). The potential of complementary and alternative medicine in promoting well-being and critical health literacy: a prospective, observational study of shiatsu. *BMC Complementary and Alternative Medicine, 9*, 19. doi:10.1186/1472-6882-9-19

Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 68*(3): 438-450.

Massage Therapy Foundation. (2011). Community service grants. Retrieved from http://www.massagetherapyfoundation.org/communityservice.html

McCalman, C. L. & Madere, C. M. (2009). Sub-saharan African students' experiences, perceptions, and expectations with American health services: an intercultural challenge. Interpersona: An International Journal on Personal Relationships, 3(2), 156-176.

McCroskey, J. C. & McCain, T. A. (1974). The measurement of interpersonal attraction. *Speech Monographs*, 41, 261-266.

McCroskey, L. L., McCroskey, J. C., & Richmond, V. P. (2006). Analysis and improvement of the measurement of interpersonal attraction and homophily. *Communication Quarterly, 54*(1), 1-31.

McLeod, B. D. (2011). Relation of the alliance with outcomes in youth psychotherapy: a meta-analysis. *Clinical Psychology Review, 31*, 603-616.

Meyer, B., Pilkonis, P. A., Krupnick, J. L., Egan, M. K., Simmens, S. J., & Sotsky, S. M. (2002). Treatment expectancies, patient alliance, and outcome: further analyses from the National Institute of Mental Health Treatment of Depression Collaborative Research Program. *Journal of Consulting and Clinical Psychology, 70*(4): 1051-1055.

Miller, K. (2005). *Communication Theories: Perspectives, Processes, and Contexts* (2nd ed.). New York, NY. McGraw Hill.

Minassian, D. C. (1997). Epidemiology in practice: sample size calculation for eye surveys: a simple method. *Journal of Community Eye Health, 10*(23): 42-44.

Mondloch, M. V., Cole, D. C., & Frank, J. W. (2001). Does how you do depend on how you think you'll do? A systematic review of the evidence for a relation between patients' expectations and health outcomes. *Canadian Medical Association Journal, 165*(2): 174-179.

Moraska, A., Pollini, R. A., Boulanger, K., Brooks, M. Z., & Teitlebaum, L. (2010). Physiological adjustments to stress measures following massage therapy: a review of the literature. *Evidence-based Complementary and Alternative Medicine: eCAM, 7*(4): 409-418.

Moyer, C. A. (2008). Affective Massage Therapy. *International Journal of Therapeutic Massage and Bodywork, 1*(2), 3-5.

Moyer, C. A. (2007). Massage therapy: an examination of the contextual model. Unpublished Doctoral Dissertation, University of Illinois at Urbana-Champaign.

Moyer, C. A., Rounds, J., & Hannum, J. W. (2004). A meta-analysis of massage therapy research. *Psychological Bulletin, 130*(1): 3-18.

Moyer, C. A., Rounds, J., & Hannum, J. (2008). *The Non-Talking Cure: Massage Therapy's Psychotherapeutic Effects are Associated with Therapeutic Bond.* Poster presented at the 20th Annual Convention of the Association for Psychological Science.

Moyer, C. A., Dryden, T., & Shipwright, S. (2009). Directions and dilemmas in massage therapy research: a workshop report from the 2009 North American Research Conference on Complementary and Integrative Medicine. *International Journal of Therapeutic Massage and Bodywork 2*(2), 15-27.

Muthén, L. K. & Muthén, B. O. (2009). Mplus Statistical Analysis with Latent Variables. User's Guide. Los Angeles, CA.

Myers, S.S., Phillips, R.S., Davis, R.B., Cherkin, D.C., Legedza, A., Kaptchuk T.J., ... & Eisenberg, D.M. (2007). Patient expectations as predictors of outcome in patients with acute low back pain. *Journal of General Internal Medicine 23*(2):148–53.

Nahin, R. L., Dahlhamer, J. M., Taylor, B. L., Barnes, P. M, Stussman, B. J., Simile, C. M., … & McFann, K. K. (2007). Health behaviors and risk factors in those who use complementary and alternative medicine. *BMC Public Health*, *7*, 217. doi:10.1186/1471-2458-7-217

National Cancer Institute. (2010). What you need to know about melanoma and other skin cancers. NIH Publication No.10-7625.

National Center for Complementary and Alternative Medicine (2011). Third Strategic Plan 2011-2015: Exploring the Science of complementary and alternative medicine. Retrieved from http://nccam.nih.gov/about/plans/2011/

Nascimento, M. M., Gordan, V. V., Qvist, V., Bader, J. D., Rindal, D. B., Williams, O. D., … Gilbert, G. H. (2011). Restoration of noncarious tooth defects by dentists in The Dental Practice-Based Research Network. *The Journal of the American Dental Association, 142*, 1368-1375.

National Institute of Neurological Disorders and Stroke (2003). *Low Back Pain Fact Sheet*. http://www.ninds.nih.gov/disorders/backpain/detail_backpain.htm

Nerbass, F. B., Feltrim, M. I.. Z., Souza, S. A., Ykeda, D. S., Lorenzi-Filho, F. (2010). Effects of massage therapy on sleep quality after coronary artery bypass graft surgery. *Clinics* 65(11), 1105-1110.

O'Hair, D., Allman, J., & Moore, S. D. (1996). A cognitive-affective model of relational expectations in the provider-patient context. *Journal of Health Psychology, 1*(3), 307-322.

Ong, L. M. L., DeHaes, J. C. J. M., Hoos, A. M., & Lammes, F. B. (1995). Doctor-patient communication: a review of the literature. *Social Science and Medicine, 40*(7), 903-918.

Osaka, I., Kurihara, Y., Tanaka, K., Nishizaki, H., Aoki, S., & Adachi, I. (2009). Endocrinological evaluations of brief hand massages in palliative care. *The Journal of Alternative and Complementary Medicine, 15*(9), 981-985.

Rapaport M. H. , Schettler, P. & Bresee C. (2010). A Preliminary Study of the Effects of a Single Session of Swedish Massage on Hypothalamic-Pituitary-Adrenal and Immune Function in Normal Individuals. *Journal of Alternative and Complementary Medicine,16*(10), 1079-1088.

Rhyne, R., Sussman, A. L., Fernald, D., Weller, N., Daniels, E., & Williams, R. L. (2011). Reports of persistent change in the clinical encounter following research participation: a report from the Primary Care Multiethnic Network (PRIME Net). *Journal of the American Board of Family Medicine, 24*, 496-502.

Richard, S., Dionne, C. E., & Nouwen, A. (2011). Self-efficacy and health locus of control: relationship to occupational disability among workers with back pain. *Journal of Occupational Rehabilitation, 21*, 421-430.

Richardson, J. (2004). What patients expect from complementary therapy: a qualitative study. *American Journal of Public Health, 94*(6): 1049-1053.

Rocca, K. A. & McCroskey, J. C. (1999). The interrelationship of student ratings of instructors' immediacy, verbal aggressiveness, homophily, and interpersonal attraction. *Communication Education, 48*(4), 308-316.

Roush, S. E. & Sonstroem, R. J. (1999). Development of the Physical Therapy Outpatient Satisfaction Survey (PTOPS). *Physical Therapy, 79*(2), 159-170.

Roter, D. & McNeilis, K.S. (2003). The nature of the therapeutic relationship and the assessment of its discourse in routine medical visits. In T.L. Thompson, A.M. Dorsey, K.I. Miller, & R. Parrott. *Handbook of Health Communication*, Mahwah, NJ: Lawrence Erlbaum Associates.

Rozenblum, R., Lisby, M., Hockey, P. M., Levtizion-Korach, O., Salzberg, C. A., Lipsitz, S., & Bates, D. W. (2011). Uncovering the blind spot of patient satisfaction: an international study. *BMJ Quality and Safety, 20*, 959-965.

Rubinstein, S. M., Knol, D. L., Leboeuf-Yde, C., de Koekkoek, T. E., Pfeifle, C. E., & van Tulder, M. W. (2008). Predictors of a favorable outcome in patients treated by chiropractors for neck pain. *Spine, 33*(13), 1451-1458.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*(6): 1063-1078.

Schmid Mast, M. (2007). On the importance of nonverbal communication in the physician-patient interaction. *Patient Education and Counseling, 67*, 315-318.

Schmid Mast, M., Hall, J. A., & Roter, D. L. (2007). Disentagling physician sex and physician communication style: their effects on patient satisfaction in a virtual medical visit. *Patient Education and Counseling, 68*, 16-22.

Seiter, J. S., Weger, H., Merrill, M. L., McKenna, R. M., & Sanders, M. L. (2010). Nonsmokers' perceptions of cigarette smokers' credibility, likeability, attractiveness, considerateness, cleanliness, and healthiness. *Communication Research Reports, 27*(2), 143-158.

Sharma, M., Wagner, D. I., & Wilkerson, J. (2006). Predicting childhood obesity prevention behaviors using Social Cognitive Theory. *International Quarterly of Community Health Education, 24*(3), 191-203.

Sherman, K. J., Cherkin, D. C., Hawkes, R. J., Miglioretti, D. L., & Deyo, R. A. (2009). Randomized trial of therapeutic massage for chronic neck pain. *Clinical Journal of Pain*, 25(3), 233-238.

Sherman, K. J., Cherkin, D. C., Kahn, J., Erro, J., Hrbek, A, Deyo, R. A., & Eisenberg, D. M. (2005). A survey of training and practice patterns of massage therapists in two US states. *BMC Complementary and Alternative Medicine, 5*:13.

Sigrell, H. (2002). Expectations of chiropractic treatment: what are the expectations for new patients consulting a chiropractor, and do chiropractors and patients have similar expectations? *Journal of Manipulative and Physiological Therapeutics, 25*(5), 300-305.

Sinicrope, P. S., Patten, C. A., Bonnema, S. M., Almquist, J. R., Smith, C. M., Bebbe, T. J., Jacobsen, S. J., & Vachon, C. M. (2009). Healthy women's motivators and barriers to participation in a breast cancer cohort study: a qualitative review. *Ann Epidemiology 19*, 484-493.

Sirur, R., Richardson, J., Wishart, L., & Hanna, S. (2009). The role of theory in increasing adherence to prescribed practice. *Physiotherapy Canada 61*, 68-77.

So, D. (2002) Acupuncture outcomes, expectations, patient-provider relationship, and the placebo effect: implications for health promotion. *American Journal of Public Health, 92*(10): 1662-1667.

Smith, J. M., Sullivan, S. J., & Baxter, G. D. (2009).The culture of massage therapy: valued elements and the role of comfort, contact, connection and caring. *Complementary Therapies in Medicine, 17*, 181-189.

Smith, J. M., Sullivan, S. J., & Baxter, G. D. (2009). Massage therapy services for healthcare: a telephone focus group study of drivers for clients' continued use of services. *Complementary Therapies in Medicine, 17*, 281-291.

Steed, L. G. (2002). A psychometric comparison of four measures of hope and optimism. *Educational and Psychological Measurement, 62*(3): 466-482.

Stewart, M. A. (1995). Effective physician-patient communication and health outcomes: a review. *Canadian Medical Association Journal, 152*(9), 1423-1433.

Street, R. L. (2002). Gender differences in health care provider–patient communication: are they due to style, stereotypes, or accommodation? *Patient Education and Counseling, 48*, 201–206.

Teutsch , C. (2003). Patient–doctor communication. *The Medical Clinics of North America, 87*, 1115-1145.

Thomas, K. B. (1987). General practice consultations: is there any point to being positive? *British Medical Journal, 294*(9), 1200-1202.

Thompson, D. (2009). The 2010 highlighting massage therapy in complementary and integrative medicine research conference. *International Journal of Therapeutic Massage and Bodywork, 2*(4), 1-2.

Tierney, W. M., Oppenheimer, C. C., Hudson, B. L, Benz, J., Finn, A., Hickner, J. M, … Gaylin, D. S. (2007). A national survey of primary care practice-based research networks. *Annals of Family Medicine, 5*(3), 242-250.

Tindle, H. A., Davis, R. B., Phillips, R. S., & Eisenberg, D. M. (2005). Trends in use of complementary and alternative medicine by US adults: 1997-2002. *Alternative Therapies in Health and Medicine, 11*(1): 42-49.

Tsao, J. C., Meldrum, M., Bursch, B., Jacob, M. C., Kim, S. C., & Zeltzer, L. K. (2005). Treatment expectancies for CAM interventions in pediatric chronic pain patients and their parents. *Evidence-based Complementary and Alternative Medicine: eCAM, 2*(4): 521-527.

Upshur, C. C., Bacigalupe, G., & Luckmann, R. (2010). "They don't want anything to do with you": patient views of primary care management of chronic pain. *Pain Medicine, 11*, 1791-1798. doi: 10.1111/j.1526-4637.2010.00960.x

Vadiraja, H. S., Raghavendra Rao, M., Nagarathna, R., Nagendra, H. R., Rekha, M., Vanitha, N., Gopinath, K. S., Srinath, B. S., Vishweshwara, M. S., Madhavi, Y. S., Ajaikumar, B. S., Ramesh Bilimagga, Rao, N. (2009). Effects of yoga program on quality of life and affect in early breast cancer patients undergoing adjuvant radiotherapy: A randomized controlled trial. *Complementary Therapies in Medicine, 17*, 274-280. doi:10.1016/j.ctim.2009.06.004

Verhoef, M. J., A. L. Casebeer, & Hilsden, R. J. (2002). Assessing efficacy of complementary medicine: adding qualitative research methods to the "Gold Standard". *Journal of Alternative and Complementary Medicine, 8*(3), 275-81.

Vogt, F., Hall, S., Hankins, M., & Marteau, T. M. (2009). Evaluating three theory-based interventions to increase physicians' recommendations of smoking cessation services. Health Psychology, 28(2), 174-182.Wang, H.L. & Keck, J. F. (2004). Foot and hand massage as an intervention for postoperative pain. *Pain Management Nursing, 5*(2): 59-65.

Wallston, K. A., Stein, M. J., & Smith, C. A. (1994). Form C of the MHLC Scales: A condition-specific measure of locus of control. *Journal of Personality Assessment, 63*(3), 534-553.

Wang, H.L. & Keck, J. F. (2004). Foot and hand massage as an intervention for postoperative pain. *Pain Management Nursing, 5*(2): 59-65.

Watson, D. & Clark, L. A. (1994). The PANAS-X: Manual for the Positive and Negative Affect Schedule-Expanded Form.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*(6): 1063-1070.

Wentworth, L. J., Briese, L. J., Timimi, F. K., Sanvick, C. L., Bartel, D. C., Cutshall, S. M.,… Bauer, B. A. (2009). Massage therapy reduces tension, anxiety, and pain in patients awaiting invasive cardiovascular procedures. *Progress in Cardiovascular Nursing, 24*, 155-161.

Weiss, S. D. & Houser, M. L. (2007). Student communication motives and interpersonal attraction toward instructor. *Communication Research Reports, 24*(3), 215-224.

Wentworth, L. J., Briese, L. J., Timimi, F. K., Sanvick, C. L., Bartel, D. C., Cutshall, S. M.,… Bauer, B. A. (2009). Massage therapy reduces tension, anxiety, and pain in patients awaiting invasive cardiovascular procedures. *Progress in Cardiovascular Nursing, 24*, 155-161.

Williams-Piehota, P., Sirois, F. M., Bann, C. M., Isenberg, K. B., & Walsh, E. G. (2011). Agents of change: how do complementary and alternative medicine providers play a role in health behavior change? *Alternative Therapies in Health and Medicine, 17*, 22-30.

White, C. (2008). Expectancy Violations Theory and Interaction Adaptation Theory. In L. A. Baxter & D. O. Braithwaite (Eds.), Engaging theories in interpersonal communication (pp.189-202). Los Angeles, CA: Sage Publications.

Wojcicki, T. R., White, S. M., & McAuley, E. (2009). Assessing outcome expectations in older adults: the multidimensional outcome expectations for exercise scale. *Journal of Gerontology: Psychological Sciences, 64B*(1), 33-40.

Young, J. W. (1979). Symptom disclosure to male and female physicians: effects of sex, physical attractiveness, and symptom type. *Journal of Behavioral Medicine, 2*(2), 159-169.