EXAMINING THE IMPACT OF TARGET, ILLNESS, AND OBSERVER CHARACTERISTICS ON PERCEPTIONS OF WOMEN WITH FIBROMYALGIA AND RHEUMATOID ARTHRITIS

by

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Abstract

Aim: To examine the impact of the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes on perceptions of women with Rheumatoid Arthritis (RA) and Fibromyalgia (FM) and the role of observers’ Pain Experience and Attributional Style (AS) in moderating perceptions. Inclusion of these variables within a single study adds to our understanding of existing attributional theories regarding judgements about people with chronic pain (i.e., Weiner, 1980). Method: Sixty-six observers with differing levels of Pain Experience and either a Supportive or Unsupportive AS viewed photographs of 8 women of varying levels of attractiveness paired with a diagnosis of RA or FM and pictured with or without a cane. Observers rated each woman on Pain/Disability, Personality, and Responsibility for her pain condition, as well as their feelings of Anger and Sympathy/Desire to Help. Multivariate and univariate ANOVAs were used to analyze the data. Results: The visible disability cue impacted the largest number of judgements: It added legitimacy to the targets’ pain condition (higher perceived Pain/Disability) but also led to more negative views of the targets’ Personality and Responsibility, and to higher levels of Anger. As anticipated the “What is Beautiful is Good/Healthy” stereotypes exerted their expected effects on perceptions of Pain/Disability and Personality, but the strength of the effects declined when a visible disability cue or medical evidence were present. The ambiguity stereotype only had a direct effect on ratings of Anger and Personality and these ratings appeared to be linked to one another (more Anger/less positive view of Personality when there was no medical evidence). Lastly, observer characteristics played a minimal role in moderating the impact of the stereotypes (Pain Experience moderated the impact of the visible disability cue for Pain/Disability only) but
they were the only variables to directly influence rating of Sympathy/Desire to Help (higher Sympathy/Desire to Help associated with a Supportive AS and more Pain Experience). **Conclusions:** The findings highlight the complexity of the attributional process and have implications for existing attributional theories of chronic pain and the potential impact of stereotypes/observer characteristics on the interactions between patients with pain and health care practitioners/loved ones on patient outcomes.
Dedication

I would like to dedicate this dissertation to my wonderful family, friends, and partner who have gone above and beyond supporting me through this journey. I would especially like to dedicate this to my mother, Ruth, whose trials and tribulations of living with Fibromyalgia has made me a better person and a passionate professional dedicated to finding ways to improve the lives of others living with chronic pain.
Acknowledgements

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Introduction

Overview

Rheumatic conditions, including Fibromyalgia (FM) and Rheumatoid Arthritis (RA), are a leading cause of disability and chronic pain (e.g., Moulin, Speechley, & Morley-Forster, 2002). In Canada, 4.5 million people over the age of 15 have some type of arthritis and women are disproportionately affected, outnumbering men by a ratio of 3-9:1 (American College of Rheumatology, 2002; Arthritis Society, 2005; Statistics Canada, 2002). The experience of chronic pain is multidimensional, involving physiological, cognitive, and affective dimensions. Moreover, an individual's experience of chronic pain occurs in a social context and is thus influenced by the individual's personal historic context, societal conceptions of health and illness, and the reactions of those around them including family, friends, employers, and health care professionals (HCP). Unfortunately, the reactions of even the most highly trained professional and well-intentioned family member can be influenced by a variety of patient characteristics that are either unrelated to the pain condition or are inadequate indicators of the patient's level of pain and disability.

Specifically, observers' perceptions of a patient's pain/disability levels and personal attributes have been found to be influenced by stereotypes related to the patient's level of physical attractiveness (e.g., Hadjistavropoulos, McMurtry, & Craig, 1996), the presence of visible cues to disability (Mercer, Andrews, & Mercer, 1983), the degree to which there is supporting objective medical evidence (i.e., the ambiguity of the diagnosis; Lundquist, Higgins, & Prkachin, 2002), and attributions about personal

1 Note: Throughout this document, the term 'observers' will be used in reference to people making attributions while the term 'target' will be used to refer to people being perceived.
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responsibility for the onset or offset of the pain condition (e.g., Dijiker & Koomen, 2003). Patients who are attractive, lack visible cues to their pain condition, lack objective medical evidence for their pain, or are viewed as being responsible for their pain condition, are generally perceived as having lower levels of pain and less functional disability compared to their counterparts (Hadjistavropoulos et al.; Mercer et al; Lundquist et al.; Dijiker & Koomen, 2003; Lavoie, 2009). Similarly, patients who are attractive, have visible disability cues, or have objective medical evidence to support their pain claims are generally perceived as having more positive personality traits (such as trustworthiness and likeability) than their counterparts (e.g., Lavoie, 2009). These stereotypes not only influence observers’ perceptions, they also exert a practical impact on patients’ lives. That is, they can lead to delays in diagnosis and treatment by HCPs and, as a result, to delays in patient adjustment (e.g., Werner & Malterud, 2003).

In addition to the influence of stereotypes, observers’ perceptions of patients with pain have also been found to be influenced by observer-related characteristics including their attributional style (AS: Lundquist et al., 2002) and their degree of experience with persons who have pain (Prkachin, Solomon, & Hwang, 2001). For example, compared to people with a supportive AS, those with an unsupportive AS tend to make more negative judgements of patients with pain and are also more susceptible to the influence of non-illness related factors, such as reported patient compliance, when making their judgements (e.g., Lundquist et al.). Lastly, undergraduate students who have a positive family history (e.g., family member with pain) tend to be more accurate than those with a negative family history and HCPs (e.g., physiotherapists) in rating stranger-target’s pain levels (Prkachin et al.).
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While the research that has been completed to date provides some clear evidence that stereotypes can have a detrimental impact on patients’ lives, a major limitation of the existing research is that the variables of interest have not been evaluated in tandem (i.e., in relation to one another) or in the context of a unifying theoretical model. For instance, the comparative impact of stereotypes related to attractiveness, visibility of disability, and diagnostic ambiguity in relation to one another has been examined in only one study to date (Lavoie, 2009). Furthermore, the extent to which observer-related variables (e.g., AS and level of experience) either magnify or reduce the influence of stereotypes has never been examined.

These limitations were addressed in the current study. Specifically, on the basis of existing attributional theories, including Weiner’s (1980) Attribution-Affect-Action model, it was proposed that observers’ AS and degree of experience with persons who have chronic pain would moderate the degree to which their affective reactions towards, and judgements about, patients with pain were influenced by attractiveness, visibility of disability, and ambiguity stereotypes. Overall, the purpose of this research was to gain a better understanding of how patient, illness, and observer characteristics interact to influence perceptions of patients with pain.

In order to address these concepts, an extensive review of the literature has been completed. Following a brief overview of the prevalence and consequences of chronic pain (with a particular emphasis on Fibromyalgia (FM) and Rheumatoid Arthritis (RA), the literature review has been focused on how observers make judgements about others (i.e., the attributional process) and how stereotypes influence such judgements. Although the general social psychological literature has been reviewed in relation to
developing a theoretical model of the judgement process, an emphasis has been placed on reviewing the research literature in relation to judgements about persons with pain. Lastly, the possible impact of observers’ general AS and degree of experience with pain on the relationship between stereotypes and perceptions of patients with pain was explored. In order to evaluate how patient, illness, and observer characteristics interacted to influence perceptions, observers viewed stimulus photographs of women, which were designed to encompass varying levels of attractiveness, visibility of disability, and diagnostic ambiguity. The participants completed self-report questionnaires related to their perceptions of the women’s pain, personality, and responsibility for the pain condition. The participants also responded to questions about their attributional style and their emotional responses to the women in the photographs. This information was collected from observers with personal pain experience, no personal pain experience, and acquaintance pain experience. The main hypotheses were tested using two repeated-measures Analyses of Variance (ANOVAs) and one Multivariate Analysis of Variance (MANOVA).

Chronic Pain

Over the past several decades, numerous theoretical models have been proposed to explain the development of chronic pain. The biomedical model, the oldest of these models, dates back to the time of the ancient Greeks and Descartes (Turk & Monarch, 2002). From this perspective, chronic pain is defined as pain “that persists for extended periods of time, that accompanies a diseases process, or that is associated with an injury that has not resolved within an expected period of time” (Turk & Melzack, 2001, p.4). In other words, pain is viewed solely as disordered biology, diagnosis is confirmed by
objective medical data, and treatment focuses on the correction of the organic pathology. Any accompanying features, such as psychological distress, are viewed solely as reactions to the illness that will disappear once the injury has been ‘cured’ (Turk & Monarch). The biomedical model has been challenged, however, because it cannot account for cases of chronic pain where there is no clear physical cause for the continued experience of pain once an acute injury has healed or for cases in which chronic pain arises in the absence of a known injury or disease process (e.g., Merskey & Bogduk, 1986; Risdon, Eccleston, Crombez & McCracken, 2003; Turk & Melzack, 2001). Furthermore, the biomedical model does not account for the diversity in responses of patients with similar injuries or conditions.

In contrast to the biomedical model, the biopsychosocial model stresses the multidimensional nature of chronic pain to avoid dichotomizing the pain experience into either biological or psychological components (Milne, 1983). In addition to biology, the biopsychosocial model considers an individual’s cognitive and affective reaction toward his or her pain, as well as his or her social environment (Milne; Turk & Flor, 1999; Turk & Monarch, 2002). Applications of the biopsychosocial model specifically to FM (van Houdenhove, & Luyten, 2008) and RA (Covic, Adamson, Spencer, & Howe, 2003; Schoenfeld-Smith, Petroski, Hewett, et al., 1996) highlight the importance of how patients’ perceptions of their physical pain experience are filtered through their unique perceptions of the context in which their pain experience occurs. This includes factors such as the reactions they receive from support providers. Incorporating an emotional component into the definition of pain, the International Association for the Study of Pain (IASP) states that, “Pain is unquestionably a sensation in a part or parts of the body but
it is also always unpleasant and therefore also an emotional experience” (Merskey &
Bogduk, 1986, p. S217). Consistent with the biopsychosocial approach, Mechanic
(1986) has drawn a distinction between ‘disease’ and ‘illness’. Disease is considered the
objective, physical component, while illness incorporates the more subjective
component of the experience (Mechanic). In other words, “illness refers to how the sick
person and members of his or her family and wider social network perceive, live with,
and respond to symptoms and disability” (Turk & Monarch, p. 6). In contrast to the
biomedical model, a key assumption of the biopsychosocial model is that, every
individual, dealing with either chronic ‘disease’ or ‘illness’, has a right to participate
fully in society, including the receipt of impartial health care and support (Smith, 2002;
Turk & Monarch).

Prevalence of chronic pain. Chronic pain is the single biggest cause of
disability in both the United States (US: Sneizek, 2004) and Canada (Moulin,
Speechley, & Morley-Forster, 2002). In epidemiological studies researchers have found
that one out of five American adults report experiencing chronic pain requiring 4.9
million people to seek treatment each year (Turk & Melzack, 2001). Rates of chronic
pain in Canadian adults range from 18% (Boulanger, Clark, Squire, Cui, & Horbay,
2007; Schopflocher, Taenzer, & Jovey, 2011; Sessle, 2008) to 33.8% (Moulin et al.;
Reitsma, Tranmer, Buchanan, & Vandenkerkhof, 2011; Sessle; Statistics Canada, 2001),
with higher rates consistently observed in women (Millar, 1996; Moulin et al.;
Boulanger et al.; Schopflocher et al.). In a review of the existing literature, Schopflocher
and colleagues indicated that the differences in percentages have to do with populations
studied, methods, and definitions of chronic pain (2011). For example, in the 2002
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Statistics Canada Canadian Community Health Survey Cycle 1.1 (CCHS) 32.8% of 131,535 of the general population surveyed had at least one of the chronic pain conditions of interest in the study (FM, arthritis/rheumatism, back pain, and migraines). More recent national surveys, and studies reporting on these surveys, have differed from the previous ones by change the categories of interest (i.e., the previous category of ‘Arthritis/Rheumatism’ no longer includes rheumatic conditions (Reitsma et al., 2011; Statistics Canada, 2010). Nevertheless, Arthritis and rheumatic conditions have consistently been recognized as being responsible for a significant amount of pain and disability in the US (Sniezek) and in Canada (Moulin et al.; Murphy, Spence, McIntosh, Connor-Gerber, 2008). Sixteen percent (4.5 million) of Canadians over the age of 18 reported having been diagnosed with at least one of these conditions (Statistics Canada, 2002) and two thirds of these were women (Millar; Statistics Canada). By the year 2026, an estimated six million Canadians over the age of 18 will be diagnosed with some form of arthritis or rheumatism (Statistics Canada).

Fibromyalgia and Rheumatoid Arthritis

In the present study, the focus of investigation will be women with Fibromyalgia (FM) and Rheumatoid Arthritis (RA). RA and FM were selected for further investigation because they are two of the most prevalent forms of arthritis and they differ in diagnostic ambiguity and in the negative connotations associated with them. Women were selected for further study because they are more likely than men to report experiencing persistent, non-life-threatening pain conditions, many of which are ambiguous in origin (Chojnowska & Stannard, 2003; Jackson, 2003; Meana, Cho, & DesMeules, 2004). Two main theories as to why women tend to experience these types
of chronic conditions more commonly than men have been proposed. First, biological and hormonal factors unique to women's physiological make up (i.e., estrogen levels) have been linked to pain experiences (e.g., fluctuations in pain severity and intensity throughout menstrual cycles), the spike in onset of chronic pain conditions observed for adolescence girls relative to boys (Pamuk & Cakir, 2005), and the onset of certain pain conditions including RA (Cutolo et al., 2003), FM (Alonzo, Loevinger, Muller, & Coe, 2004), and chronic migraines (Lipton, Bigal, Diamond et al., 2007). Second, and perhaps more controversially, social and psychological factors are also thought to contribute to the higher rate of chronic pain conditions among women. Through social and gender roles conditioning, it is believed that women are taught to be more expressive and more in touch with their bodies than men and therefore tend to feel more comfortable seeking help for discomfort. Such socialization is also believed to result in women being more likely to focus on the negative, psychological aspects of pain rather than the specific physical symptoms (Miller & Newton, 2006; Myers, Riley & Robinson, 2003).

**Prevalence of FM and RA.** Although FM is a relatively new class of rheumatism, it is one of the most common rheumatic conditions that motivates help-seeking. White, Speechly, Harth, and Ostbye (1995) surveyed 100 Canadian non-pediatric rheumatologists and found that 28.1% of new rheumatology contacts were patients diagnosed with FM. It is estimated that one million Canadians are affected by FM (Fitzcharles, 2009; Jain, Carruthers, & van de Sande, 2008), although this is likely an underestimate because FM is newly recognized and the diagnostic criteria have not been universally agreed upon (Arthritis Society, 2002; Harth & Neilson, 2007). Women
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are four to nine times more likely than men to be diagnosed with FM (Arthritis Society, 2005; Goldenberg, 2004). Furthermore, rates of FM increase with age: the majority of cases are diagnosed in women over 50 years of age (Arthritis Society).

According to the American College of Rheumatology (ACR, 2002), RA impacts approximately 300,000 Canadians. Similar to FM, women are three times more likely than men to develop RA and women are at a higher risk of developing more severe forms of RA. The peak age of onset for RA is between 20 and 40 years (ACR).

Diagnostic criteria. In the recent 2012 Canadian Guidelines for the Management of Fibromyalgia Syndrome (Fitzcharles et al., 2012), FM has been defined as "a syndrome of diffuse body pain with associates of fatigue, sleep disturbance, cognitive changes, mood disturbance, and other somatic symptoms" (p. 8). Muscle pain and fatigue are the most prevalent symptoms but FM can present very differently from patient to patient and can even vary across time within the same patient (Wolfe, Ross, & Anderson, 1995). Due to these variations in presentation, FM is considered a syndrome rather than a disease and this can contribute to significant delays in diagnosis (Clauw & Crofford, 2003). An important barrier to diagnosis is the perception that FM is a psychological condition and, thus, "all in the patient's head" (LaChapelle, Lavoie, & Boudreau, 2008; Stahl, 2005). Due to this perception and the lack of objective medical tests for FM, many patients wait years for an accurate diagnosis (LaChapelle et al.).

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2 The original American College of Rheumatology (Wolfe et al., 1990) diagnostic criteria for FM require the presence of 11/18 specified tender points. While these tender points were the 'gold standard' criterion for diagnosis they were controversial because their presence could change over time within an individual (Harth & Neilson, 2007; McVeigh, Finch, Hurley, et al., 2007). As a result, tender points are no longer included as a diagnostic criterion in North America.

3 A disease is a medical condition that has a specific cause and recognizable signs and symptoms, while a syndrome is a collection of signs, symptoms, and medical problems that tend to occur together but are not related to a specific identifiable cause (Weiner, 1993; Clauw & Crofford, 2003; Chakrabarty & Zoorob, 2007).
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diagnostic delay impedes effective treatment planning and, consequently, adjustment as the patient continues to expend significant amounts of time and energy seeking a diagnosis and validation of her pain (MacFarlane, McBeth, & Silman, 2001). Long-term, this effort can lead to increased disability, less perceived pain control, and the use of maladaptive coping strategies (Geisser & Roth, 1998). In contrast, receiving a diagnosis, using the recommended American or Canadian criteria, can lead to more positive adjustment and improved quality of life (Gullackson & Lidbeck, 2004; LaChapelle et al.; Wells, Pincus, & McWilliams, 2003).

Unlike FM, RA is a disease process in which the body’s immune system attacks healthy joint tissue, resulting in swelling, inflammation, and degeneration, which can lead to visible, progressive deformities of the hands and feet over time and result in stiffness, pain, and significant disability (ACR, 2002). The most universal characteristic is morning stiffness lasting at least one hour and most commonly affecting the small joints in the hands and feet. In contrast to the diagnostic ambiguity of FM, RA has very specific diagnostic criteria and can be diagnosed on the basis of an overall pattern of symptoms, physical examination, laboratory tests, and x-rays (ACR). For a diagnosis, the patient must present with at least four of the following criteria: morning stiffness of joints that lasts at least one hour, soft tissue swelling of at least three joint areas, arthritis of finger or wrist joints, symmetric swelling, rheumatoid nodules (swelling of small blood vessels), the presence of serum rheumatoid factor (blood test), and radiographic erosions in hand or wrist joints (x-rays) (ACR).

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4 The feminine pronoun will be used throughout this document because the focus of the present study is women with FM and RA.
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Although RA can be diagnosed with objective medical tests, diagnostic delays may still occur for a number of reasons. First, RA has overlapping symptoms with other disorders (e.g., benign problems from acute injury, infection and poor circulation, cancer, osteoarthritis, and rare genetic diseases) and pain may be present before medical tests are able to detect the presence of RA (Bailey & Neilson, 1993; ACR, 2002). Secondly, one of the objective diagnostic features of RA, serum rheumatoid factor can be present in healthy individuals who will never develop RA and in individuals with other types of conditions including, Lupus, Sjogren’s syndrome, tuberculosis, and other inflammatory diseases (ACR). Lastly, major damage to joints may happen over a period of years and x-rays can only detect RA after this damage has occurred (ACR). In spite of these difficulties and delays, and although there are specific criteria available to diagnose FM, the availability of objective medical tests to definitively diagnose RA, can result in perceptions that RA is a more legitimate medical condition than FM. Despite existing diagnostic criteria for FM, this difference in perceived legitimacy can have negative implications for diagnosis and referral for existing and effective treatments for FM.

Treatment. There is now substantial evidence that early and aggressive treatment with Disease-Modifying Anti-Rheumatic Drugs (DMARDs) is essential for effective management of RA. DMARDs decrease disease severity by reducing inflammation, thereby diminishing joint degeneration (ACR; Emery et al.). Nevertheless, despite the evidence that DMARDs can slow disease progression, many family physicians do not prescribe them and waiting times to see a rheumatologist are lengthy. As a result, substantial and permanent joint damage can occur before patients
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begin treatment with DMARDs (Emery et al.). Whereas medication can be used to treat the underlying disease process in RA, pharmacological intervention can only be used to target the various symptoms of FM. Prior to 2007, the typical pharmacological intervention for FM had been anti-depressant medications (e.g., O’Malley, Balden, Tomkins et al., 2000) and, although low-dose anti-depressants are helpful in reducing pain levels and improving sleep patterns, this added to the perception that FM is a psychological condition (Clauw & Crofford, 2003). In 2007, Pregabalin, an anti-convulsant, became the first medication approved by the Federal Drug Administration (FDA) specifically for FM to help reduce pain severity and promote sleep (Crofford, Rowbotham, Mease, et al., 2005; Sumptom & Moulin, 2008; Wood, 2007). In 2008, Duloxetine, a selective serotonin norepinephrine reuptake inhibitor (SNRI), was shown to improve pain, global FM symptoms, anxiety, and depression, and was also approved by the FDA for the treatment of FM (Eli Lilly and Company, 2008; Wright, Mist, Ross, & Jones, 2010). Currently, there is a clinical trend of prescribing a combination of Pregabalin and Duloxetine and clinical trials are in progress to evaluate the efficacy of this practice (Wright et al., 2010).

In addition to pharmacological interventions, psychological interventions are recommended to assist patients in adjusting to both FM and RA (Carville, Arendt-Nielson, Bliddal, et al., 2008; Hayes, 2004; Holman, 2005; Sharpe, Allard, & Sensky, 2008; Thieme, Turk, & Flor, 2007). Examples of psychological interventions are patient education, Cognitive-Behavioural Therapy (CBT; Turk & Sherman, 2002; Goldenberg, Burckhardt, & Crofford, 2004; Thieme, et al.) and Acceptance and Commitment Based Therapies (ACT; Hayes; Hayes & Wilson, 1994; Wilson & Luciano, 2002). CBT
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typically focuses on the person’s cognitions, problem solving skills, pain coping skills and relaxation strategies and has been shown to help reduce reported pain intensity, affective distress, and health care usage and to increase positive coping and treatment adherence (Neilson & Jenson, 2004; Sharpe, et al.; Thieme, et al.) Better treatment outcomes are related to factors such as higher perceived control over the pain, the belief that the pain is not necessarily disabling, seeking support from others, maintaining an exercise program, and using positive coping self-statements (Neilson & Jensen, 2004). Acceptance and Commitment Based Therapies (ACT), the third generation of psychological therapies has also been reliably associated with lower levels of reported pain, anxiety, avoidance, depression, and disability (McCracken, 1998; 1999; Viane, Crombez, Eccleston, et al., 2003; McCracken & Eccleston, 2004) in patients with chronic pain. It is also associated with increased rates of uptime/activity (McCracken et al., 1990; McCracken et al., 2005), decreased use of the health care system (McCracken, et al., 2004) and medication (McCracken et al., 1999), and greater general functioning (McCracken, 1998). ACT incorporates many CBT components while focusing on enhancing psychological flexibility instead of changing thought patterns (Hayes, 2004). Psychological flexibility involves accepting, rather than controlling or avoiding the thoughts, emotions, and physical sensations associated with pain (Hayes & Wilson, 1994; Hayes, Strosahl, & Wilson, 1999; Wilson & Luciano, 2002). A central focus of ACT is to help the patient ‘accept’ the presence of the pain by reducing the amount of time she spends trying to find a cure while simultaneously engaging in valued activities (McCracken, 1998; McCracken & Vowles, 2008).
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Notwithstanding the empirical evidence that both CBT and ACT can significantly improve adjustment to chronic pain, psychological therapy is rarely offered or available as a treatment option (Clauw & Crofford, 2003; Sharpe et al., 2008; White, Birnbaum, Kaltenboeck, et al., 2008). Moreover, the ability of patients with FM to accept the chronicity of their condition, and, thus, engage in the process of learning to live with their pain, may be more difficult due to the uncertainty/ambiguity of their illness and the skepticism they perceive from others (Geiser, 1992; LaChapelle et al., 2008).

Consequences of Chronic Pain

Societal consequences. At the societal level, chronic pain is a significant economic burden. Workplace absenteeism, time spent in hospital, and physician visits are all higher among people living with chronic pain than within the general population (Maniadakis & Gray, 2000; Millar, 1996; Health Canada, 2003; Statistics Canada, 2002; Sessle, 2008). In Canada, arthritis and musculoskeletal pain conditions are the leading cause of disability, costing society 16.4 billion dollars per year, $12.6 billion of this in long-term disability (Health Canada). This societal cost amounts to approximately $9,723 to $14,744 in lost wages, health care visits, and medication costs per individual per year (Strauss, 2002; Health Canada).

Individual consequences.

Personal economic costs. Patients often incur substantial, non-reimbursed expenses in the form of over-the-counter medications, allied health professional fees, and housekeeping, which account for about half of their total health-related expenses (Goossens, Rutten-van Molken, Leidl, et al., 1996). Individuals can also experience a
significant drop in income due to a reduction in working hours, reduced job responsibility, or because the monetary amount for disability compensation is normally less than the amount received from employment (Sessle, 2008). For example, among 4000 Canadian adults in a 2007-2008 community survey, 33% of those with moderate to severe chronic pain lost their jobs due to their pain condition and a further 44% lost, on average, $12,000 in income over a period of one year (Sessle).

**Psychological consequences.** In a community-based study of 805 American adults recruited through a national mail panel of more than 500,000 households, more than half of the participants reported having pain great enough to impede their household chores, hobbies, socializing, walking, and sexual intercourse (Roper Starch Worldwide, 1999). Eighty percent of these individuals said they were unable to exercise on a regular basis or had trouble sleeping, 41% reported a disruption in work, and 48% resorted to changing doctors multiple times in their search for pain relief (Roper Starch Worldwide). These difficulties can, in turn, lead to secondary emotional distress (Lewis, 1983; LaChapelle et al., 2008).

Emotional distress can also arise from a variety of other factors including fear, inadequate/loss of social support, lack of diagnosis or uncertainty about the future of their quality of health, interruption of ‘normal’ life, and grief (Harris, Morley, & Barton, 2003; Turk, 2002). In the context of a chronic illness, grief was originally defined as “deep sadness or sorrow due to significant loss or the reduction of the person’s life in some way” (Lewis, 1983, p. 8). Persons with chronic pain may grieve for a multitude of things that made up their pre-pain identity, such as their former good health, independence, sense of control over their life, privacy, modesty, body-image,
relationships, established roles inside and outside the home, former social status, sense of self-confidence, possessions, financial security, sense of productivity and self-fulfillment in a job or at home, life style, plans or fantasies of the future, familiar daily routine, sleep, and sexual functioning (Gullackson, & Lidbeck, 2004; LaChapelle et al., 2008; Lewis, 1983; Sagula & Rice, 2004). Over time, factors contributing to emotional distress and grief may become chronic and lead to a diagnosis of depression or anxiety.

Compared to the general population, rates of both depression and anxiety are consistently higher among those with chronic pain (Fishbain, Cutler, Kosomoff, & Kosomoff, 1997), including those living with arthritis and musculoskeletal conditions (Turk & Monarch, 2002; Isik, Koca, Ozturk, & Mermi, 2007). Among those with FM, rates of depression have been found to vary from 20% (Kirmayer, Robbins, & Kapusta, 1988) to 71% (Alfici, Sigal, & Landau, 1989; Hassett, Cone, Patella, & Sigal, 2000; Hudson, Hudson, Pliner, Goldenberg, & Pope, 1985), while rates of anxiety have been found to range from 43% (IASP, 2003) to 63% (Aghabigi, Feinmann, & Harris, 1992; Hassett et al.). In comparison to FM, rates of depression and anxiety are lower for those with RA: rates of depression have been found to range from 13% (Dickens & Creed, 2001) to 41.5% (Dickens & Creed; Hassett et al.; Isik et al.; Lisitsyna, Fofanova, Zelten, et al., 2009) and rates of anxiety have been found to range from 13.4% (Isik et al.) to 17.8% (Hassett et al.; Zyrianova, Kelly, Gallagher, et al., 2006). The rates of anxiety and depression in FM and RA vary as a function of the sociodemographic and disease characteristics studied. For example, compared to patients in pain clinics and hospitals, patients in community samples tend to have lower reported levels of pain and disability, and, subsequently, lower levels of reported anxiety and depression (Dickens & Creed).
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The direction of the relationship between chronic pain and comorbid depression and anxiety has often been questioned (Bergman, 2005; Gatchel & Dersh, 2002; Lewandowski, 2004; Okifuji, Turk, & Sherman, 2000). Some researchers have argued that people with pre-existing depression (e.g., Alfici, Sigal, & Landau, 1989; Fishbain, Cutler, Kosomoff & Kosomoff, 1997) or anxiety (Sherman, Turk, & Okifuji, 2000; Tan, Jensen, Thornby, & Sloan, 2008; Vlaeyen, & Crombez, 2007) are more likely to experience chronic pain, while others argue there is no evidence to indicate that those with chronic pain had pre-existing depression or anxiety and that the experience of chronic pain itself is what contributes to the high co-morbidity (e.g., Aghabeigi, Feinmann, & Harris, 1992; Turk & Salovey, 1984). Regardless of the direction of the relationship, co-morbid depression and anxiety are significant concerns in their own right because they contribute to further reductions in quality of life and can exacerbate pain symptoms (Turk & Monarch, 2000).

As a result, co-morbid depression and anxiety should be key treatment targets. Nevertheless, despite the benefits of treating depression and anxiety, an overly narrow focus on the psychological symptoms can add to perceptions that chronic pain, especially ambiguous pain conditions such as FM, are purely psychological. Such perceptions can lead to women being treated for depression and anxiety, rather than for their pain. Furthermore, beliefs that depression and anxiety contribute to chronic pain can lead to stigmatization and a reliance on stereotypes related to irrelevant personal or illness characteristics, rather than relevant medical information, when making judgements of women with chronic pain (Avery, 2008; Blumer & Heilbronn, 1982; Engel, 1959; Lesage, & Morissette, 2002).
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Perceptions of People with Pain

**The process of making attributions about others.** Humans have a strong need to understand and explain events, often due to a desire to create a sense of control and predictability in their own and other’s behaviours. Making attributions involves assigning meaning (causality) or explanations to the people, behaviours, or situations we encounter (Miller, 1970). Causal attributions vary on three dimensions: locus of control (internal/external), stability (temporary/stable), and globality (specific/global) (e.g., Abramson, 1978; 1983; Taylor & Fiske, 1978). When making attributions about our own circumstances, we tend to make internal, stable, and global attributions about our successes and external, temporary, and situational attributions for our misfortunes (Anderson, 1983). In contrast, we tend to attribute other people’s success to external, temporary (e.g., luck), and situational variables and make internal, stable, and global attributions for their misfortunes (Anderson). This difference in attributions about ourselves versus others is known as the Fundamental Attribution Error (FAE; Ross, 1977). The FAE is a self-serving bias that allows us to maintain a positive view of ourselves and gives us a sense of control. This allows us to believe in a ‘just world’ (i.e., people get what they deserve).

**Illness-related attributions.** Attributions about people who are ill are influenced by observers’ cognitive appraisals of the target’s illness and by observers’ emotional reaction toward the target (Weiner, 1980; 1985). In his Attribution-Affect-Action model, Weiner (1980; 1985) purports that the attributional process is a motivational sequence in which thoughts determine what we feel and feelings determine what we do. In other words, an activating event (A) triggers a cognitive appraisal of the event (B), leading to an emotional reaction (C), which, in turn, mediates a behavioural reaction (Weiner,
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1974; 1980; 2000). For example, many people view a disease such as cancer (event) as being the result of poor personal choices such as unhealthy eating and a failure to exercise (cognitive appraisal). This enables the observer to think she has some control over whether she will get the disease. Although this attributional bias helps the observer feel safer (i.e., to believe in a ‘just world’), it can also contribute to negative perceptions of other people who do get the disease. That is, other people with the disease can be viewed as having behaviours or personal traits that led to the onset of the disease. According to Weiner (1980; 1985), attributing a target’s misfortunes to causes controllable by the target induces anger and reduces sympathy, which subsequently reduces support.

Weiner, Perry, and Magnusson (1988) further refined Weiner’s initial model on the basis of their research with introductory psychology student observers who were found to judge people with conditions considered more mental-behavioural in origin (e.g., child abuse, drug addiction, obesity, AIDS and Vietnam Veteran War Syndrome [VVWS]) as being more personally responsible for the onset and offset of their condition (Weiner et al., 1988). Such judgements resulted in less liking and more anger toward the people with mental/behavioural conditions and in the view that these individuals were less deserving of charitable donations/helping compared to the people with conditions considered more physical in origin (e.g., blindness, cancer, Alzheimer’s, heart disease, and paraplegia). The only exceptions were AIDS (personally responsible for onset but not offset) and VVWS (personally responsible for offset but not onset) (Weiner et al.). Weiner (1993; 1996; 2000) uses the distinction between ‘illness’ and ‘disease’ to describe these differences in appraisals. According to Weiner (1993; 1996;
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2000), ‘illnesses’ are considered punishment for ‘wrong doing’ and are perceived as controllable. People in this category are blamed for being sick and are thus responsible for getting better. Conditions that fall in this category generally have a mental or behavioural origin. ‘Diseases’, however, are more physical in origin (i.e., are caused by a ‘germ’ outside the individual’s control). Individuals in this category, are worthy of help because they are not responsible for their condition.

In a series of three studies using undergraduate students in introductory psychology courses, Dijiker and Koomen (2003) found supporting evidence for Weiner’s model. By testing additional variables, such as perceived illness severity, forseeability (knowingly putting oneself at risk of developing a condition), and valence of behavioural cause (violation of social norms prior to acquiring the condition), they found that an individual need not be perceived as being responsible for getting ill for pity to decrease and anger to increase. Perceived forseeability was sufficient to create the same stigmatizing effects found previously. Furthermore, the greater the extent to which the target was believed to be involved in past objectionable behaviour (negative valence of behaviour/violation of social norms) the greater the level of anger toward the target. Lastly, observers’ perceptions of greater illness severity related to increased feelings of pity, which augmented helping and charitable behaviours.

Although the research described above has involved samples of the general population or undergraduate students, similar findings were obtained in a study of HCPs’ attitudes towards patients with pain. Specifically, Brockopp, Ryan, and Warden (2003) assessed the willingness of 157 nurses and 265 nursing students’ to spend time and energy managing different groups of patients. The authors found that preconceived
notions about groups of patients with pain, rather than knowledge about pain management, influenced both the nurses’ and nursing students’ judgements of whether patients were worthy of their time. Overall, responses were most positive for patients with pain from cancer and AIDS, while responses were most negative for patients with pain from abusing substances or having attempted suicide. These differences occurred in spite of the fact that observers were informed that all patients were experiencing the same degree of pain. In follow-up qualitative interviews, the researchers found that the nurses and nursing students preferred to spend more of their time and energy managing the pain of patients who were perceived as wanting to live and who were not perceived as contributing to their condition.

In summary, researchers have demonstrated that cognitive appraisals related to illness origin, perceived level of responsibility for the illness, and personal controllability of the illness influence attributions made about targets with a health condition and that these appraisals thereby influence affective responses to the target and subsequent motivation to help (e.g., Dijiker & Koomen, 2003; Dunn, 2000; Hayes, Vaughan, Mederios, & Dubuque, 2002; Joachim & Acorn, 2000; Weiner, 1993). In his model of stigmatization, Weiner (1980) notes that attributions made about the person’s responsibility for her condition are a key factor in determining whether she is deserving of help. Individuals with health conditions that are considered more mental/behavioural in origin are generally appraised as having more responsibility and personal control for both the onset and offset of their condition (e.g., Weiner, 1980; 1993). These appraisals, in turn, contribute to negative affective reactions (i.e., anger rather than sympathy) and a reduced willingness to offer help (Dijiker, & Koomen, 2003; Weiner, 1993).
Impact of stereotypes on perceptions of people with chronic pain. Stereotypes related to attractiveness (e.g., Hadjistavropoulos et al., 1996; Lavoie, 2009), diagnostic ambiguity (e.g., Gillmore & Hill, 1981; Lavoie; Reid, Whooley, Crayford, Hotopf, 2001; Tait & Chibnall, 1994; 1997), and the visibility disability cue (e.g., Joachim, & Acorn, 2000; Lavoie: Mercer et al., 1983) have consistently been found to influence perceptions of patients’ well-being, pain/disability levels, and personal attributes. Understanding how these stereotypes influence perceptions of people with pain is important because such attitudes and misconceptions can impede accurate diagnosis and influence treatment planning (e.g., Lavoie; MacLeod, LaChapelle, Hadjistavropoulos, & Pfeifer, 2001; Tervo et al., 2002), contribute to poor adjustment via the process of self-fulfilling prophecies (e.g., Snyder, Tanke, & Berscheid, 1977), and result in insufficient levels of social support offered to the patient (e.g., Cano, Miller, & Loree, 2009; Schul, & Vinokaur, 2000; Schwartz, & Weiner, 1991).

Stereotypes. Stereotypes are cognitive frameworks that influence the processing of information and, hence, influence the attributional process. Stereotypes, which are “beliefs about social groups in terms of the traits or characteristics that they are deemed to share” (Baron, Burn, & Branscombe, 2003, p. 213) are created as a means of organizing and interpreting vast amounts of information (Myers, 1994). They provide a mental short-cut to help guide an observer’s behaviour toward others and also shape how, or to what, the observer attributes the target’s behaviours (Watson, deBortali-Tergerthan, & Frank, 1984). Stereotypes are typically based on obvious physical characteristics, such as sex, race, and physical attractiveness, because these characteristics are quickly and easily discerned from a target’s appearance (Dion,
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Berscheid, & Walster, 1972; Eagly, Ashmore, Makhijani, & Longo, 1991; Miller, 1970). Tanke (1982) has found that more than one stereotype can be activated at once, although one stereotype may prevail, depending on the situation and the type of judgement being made, as well as the amount of information available. Although stereotypes can be helpful in simplifying our complex world, they can be detrimental when they are based on irrelevant or incorrect information. Furthermore, initial impressions tend to linger even when contradictory information is subsequently obtained (e.g., Hayes, Vaughan, Mederios, & Dubuque, 2002).

Impact of stereotypes on perceptions of pain/disability and personality. The utilization of stereotypes in the context of judging someone with an illness is complicated because the attribution process is multidimensional (Green, Lightfoot, Bandy, & Buchanan, 1985). One key factor influencing attributions about targets with an illness/disease is the amount of information the observer has: the less information an observer has about the target, the more likely she is to rely on stereotypes related to readily visible cues (e.g., attractiveness, sex, disability) (Bull & Ramsey, 1988; Gillmore & Hill, 1981; Green et al.).

The physical attractiveness stereotype. An individual’s appearance is often the most salient and visible characteristic available to an observer, and, in Western cultures, beauty is typically associated with ‘goodness’ while ugliness is associated with ‘badness’ (Eagly et al., 1991). This association is clearly evident in children’s fairytales, such as Cinderella and her ugly stepsisters. In these stories, attractiveness is generally paired with positive personality traits and expectations (Miller, 1970). The fact that this association between attractiveness and ‘goodness’ is a commonly made assumption has
been demonstrated in a number of classic social psychology studies. In these studies, observers judging target photographs rate more physically attractive persons as being more socially competent (Barocas & Kardy, 1992; Dion et al., 1972; Miller), desirable (Berg & McQuinn, 1986; Cavior & Kokeki, 1973; Feingold, 1988; Snyder et al., 1977), and in general, as having more successful life outcomes, such as marital and social happiness, and occupational prestige compared to less attractive people (Dion et al., 1972; Miller). The mere fact that someone is judged to be more physically attractive leads to increased expectations that she leads a better, more fulfilling life and is more emotionally adjusted than her unattractive cohort (Dion et al., p. 285). This has been labeled the “What is Beautiful is Good” stereotype.

This ‘Beautiful is Good’ stereotype impacts target’s lives in both positive and negative ways. For example, compared to less attractive people, attractive people often get higher paying jobs, are more likely to get married, and are likely to receive less jail time in criminal trials (Dion et al., 1972). Snyder, Tanke, and Berscheid (1977) demonstrated some of these positive benefits in their study of telephone conversations between male and female undergraduate students. In this study, the male observers had more positive and longer telephone interactions with the target woman when they believed she was attractive compared to when they believed she was unattractive (based on a fictitious photograph of the female with whom they were talking). In turn, the female targets who interacted with males who were led to believe they were attractive had more positive self-ratings and rated the male observers as more likeable and attractive compared to those females who interacted with males who believed they were unattractive. The explanation offered for this positive impact is that treating attractive
people in a positive manner causes them to respond in a way consistent with our expectations. This effect has been termed a self-fulfilling prophecy. The self-fulfilling prophecy theory dictates that physically attractive people may receive more positive feedback and have more positive social interactions, which in turn, causes them to behave in a way that facilitates positive things happening for them (Ross, 1977; Snyder et al.). This may also create a 'kernel of truth' as attractive people may indeed be more socially competent as a result of their positive past experiences (Berry, 1990; 1991).

Within the context of illness/disease, a “What is Beautiful is Healthy” stereotype appears to be operating. For example, in a classic demonstration by Martin and colleagues (1977), 94% of the variance in ratings of emotional adjustment of 77 adult in-patients with schizophrenia could be accounted for by mental health professionals’ ratings of patient attractiveness. With respect to perceptions of people with chronic pain, more attractive patients are consistently rated as experiencing less anxiety/depression (Hadjistavropoulos et al., 1990; 1996), lower pain severity (Hadjistavropoulos et al., 1990;1996; Hadjistavropoulos, LaChapelle, Hale, & MacLeod, 2000; Lavoie, 2009) and less functional disability (Hadjistavropoulos et al., 1990; 1996; Hadjistavropoulos et al., 2000; Lavoie). Furthermore, although attractive patients are viewed as being more deserving of physician concern (Hadjistavropoulos et al., 1996; 2000) they are also rated as being less in need of help (Hadjistavropoulos et al, 1995; 1996; 2000). A possible explanation for such perceptions is that beautiful patients are perceived as being ‘good patients’ (e.g., Nordholm, 1980). That is, they are viewed as more socially desirable, of higher intelligence, and higher in motivation than unattractive patients and, thus, are perceived as better able to cope with their condition (Nordholm). Consistent with this
theory, there is evidence to suggest that attractiveness impacts personality judgements of patients with pain: a significant main effect of target attractiveness on personality judgements of women has been found (Lavoie; Mercer, Andrews, & Mercer, 1983). Specifically, in these two studies, attractive women with pain were rated more positively (e.g., more trustworthy and likeable) than unattractive women with pain. Although these results are consistent with existing hypotheses, they should be interpreted cautiously because they were found in a broader context with respect to interactions between the degree of visible disability and the diagnostic ambiguity of the illness. Research findings pertaining to interactions among the variables of interest are discussed in section 1.5.5.4.

According to the Kernel of Truth hypothesis, there may be actual differences in the functioning of attractive versus unattractive patients (e.g., Hadjistavropoulos et al., 1995; 1996). Some limited support for this hypothesis has been found. For example, Hadjistavropoulos et al. (1996) found that more attractive people with low back pain (LBP) self-reported lower pain levels compared to less attractive people with LBP. One possible explanation for this could be that because attractive people have more positive social experiences, they may feel they have more control over their lives (Adams, 1982). It may also be because attractive people actually use different coping strategies. Hadjistavropoulos et al. (1995), for instance, found that less attractive patients with LBP tended to use more passive and less effective coping strategies than more attractive patients; there was no difference in the use of active coping strategies between the two groups. The authors theorized that the social environment may be less responsive to patients judged to be less attractive; therefore they may be more likely to rely on passive coping strategies such as praying and hoping. Nevertheless, our knowledge regarding
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the extent to which attractive and unattractive persons with pain actually differ in their pain experience remains limited. Further research is necessary to corroborate the findings from these two studies.

Just as the "What is Beautiful is Good" stereotype has a practical impact on the target's life, the "What is Beautiful is Healthy" stereotype may have a practical impact on a patient's health via a self-fulfilling prophecy mechanism (Hadjistavropoulos et al., 1996). That is, because unattractive patients are perceived as having more pain/disability, they may be treated as such and subsequently receive more solicitous treatment. This, in turn, may reduce their sense of self-efficacy over their condition and serve to maintain maladaptive coping mechanisms. On the other hand, attractive patients may actually be denied the care they need because they are perceived as having less pain and disability and being better able to cope with their pain on their own (Hadjistavropoulos et al., 1996). Furthermore, while the attractiveness stereotype impacts judgements of both men and women, it may have a stronger impact on judgements of women. This is because attractiveness may be more central to women's ascribed gender role, as well as to women's personal identity, self-esteem, and interpersonal outcomes (e.g., Bar-Tal & Saxe, 1976; Rodin, Silberstein, & Streigel-Moore, 1985). Furthermore, Feingold (1992) suggests that attractiveness may be more important in men's implicit theories of personality; therefore the attractiveness stereotype may have a stronger influence over men's perceptions of women (Jackson, Sullivan, & Rostke, 1988). The only study to date examining the attractiveness stereotype using genuine patients with pain, of both genders, found a gender of target by attractiveness interaction (Hadjistavropoulos et al., 1996). Based on photographs
depicting male and female patients with LBP, undergraduate students rated attractive females significantly lower on pain intensity, pain unpleasantness, and trait anxiety compared to unattractive females. There was no difference, however, in ratings given to attractive versus unattractive males. This gender difference is especially important to investigate given that women with chronic pain are most likely to be seen by male HCPs (Jackson, 2003).

The visible disability cue stereotype. Balter (2006) describes five types of disabilities: physical (e.g., para/hemi/quadriplegia, diabetes, arthritis), neurological (e.g., muscular dystrophy, dementia), sensory (e.g., visual, hearing), cognitive (e.g., attention deficit disorders, learning disabilities) and mental (e.g., chronic depression, schizophrenia). Some of these disabilities have visible cues, while others are invisible. For example, people with paraplegia are in a wheelchair, people with visual impairments have canes, and people with mobility impairments have canes, crutches, or braces. Such cues can provide information about the type and severity of the illness/disease and may trigger disability-related stereotypes. For instance, people with visible physical or cognitive disabilities often do not meet societal standards of attractiveness, nor are they viewed as having job competencies comparable to persons without disabilities (Bayle, 2002; Fiske, Cuddy, Glick, & Xu, 2002).

Testing the implicitness of general perceptions of the personal characteristics of people with visible physical disabilities, Fichten and Amsel (1986) conducted two consecutive studies about attitudes of able-bodied male and female students toward males and females with or without physical disabilities. In their first study, 194 able-bodied observers viewed pictures of either able-bodied males/females or males/females
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in a wheelchair and were instructed to rate the personal characteristics of the targets. The observers were asked to make these ratings on the basis of commonly held societal views in order to reduce the effects of social desirability. In this study, Fichten and Amsel found that the observers attributed significantly fewer socially desirable and significantly more undesirable traits (e.g., aloof-introverted, lazy-submissive, calculating-arrogant) to the targets with the visible disability cue than to the able-bodied targets. In their second study, social desirability was not controlled for in the instructions (i.e., the students were told to make their ratings based on their own perceptions) and the results were comparable to the first study. In both studies, the authors also found that the visible disability stereotype was strong enough to override common gender-stereotyped traits: males with a visible disability were rated more similarly to females with disabilities than to able-bodied males (Fichten & Amsel).

These findings might be a result of persons without disabilities or ‘outsiders’ making erroneous assumptions on the basis of a ‘just world hypothesis’ (Dunn, 2000). The construction of fundamental differences between ‘us’ and ‘them’ creates a feeling of safety and separateness for those without disabilities (Balter, 2006; Dembo, Diller, Gordon, Levitan, & Rose, 1973).

Within the context of health care, persons with disabilities also encounter significant discrimination (Balter, 2006; Kinne, Patrick, & Doyle, 2004). For instance, Tervo and colleagues (2002) assessed the attitudes of first-year medical students using the Attitudes Toward Persons with Disabilities scale (ATPD: Yuker et al., 1970). The ATPD is designed to measure attitudes toward persons with disabilities as a group rather than specific disability groups (e.g., ‘physically disabled people are just as intelligent as
non-disabled people', 'most disabled people feel sorry for themselves'). General ATDP norms were developed using both able-bodied college students and college students with disabilities. The medical students' attitudes were similar to the ATPD general norms for college students, but they had less positive attitudes compared to the norms for able-bodied college students only (Tervo et al., 2002). Furthermore, compared to female medical students, male medical students had more behavioural misconceptions (e.g., more likely to view rehabilitation programs as too expensive and more likely to view children with disabilities as having an adverse effect on regular classrooms; Tervo et al.). Other researchers examining the attitudes of medical students (Paris, 1993), nurses (Au & Man, 2006; Seccombe, 2007; White & Olson, 1998), occupational therapists (Au & Man; White & Olson), physiotherapists (Au & Man), and social workers (Au & Man) toward persons with disability using the ATPD have found mixed results. In general, nurses tended to have the least favorable attitudes (Au & Man), while occupational therapists had the most favorable attitudes (Au & Man; White & Olson). A major limitation of these studies, however, is that the ATPD only measures attitudes toward disabilities in general and not toward specific populations. In addition, other factors (e.g., patient attractiveness or visibility of the disability) that would be present if the observers were dealing with real patients cannot be taken into account with this type of self-report scale.

With respect to the impact of visible disability cues on perceptions of patients with pain, our knowledge is limited. To date, this factor has been investigated in only two studies and, in both studies, was examined only in relation to the impact of other stereotypes. In the first study, Mercer and colleagues (1983) found patients with a
visible disability cue (i.e., using a wheelchair) were rated by helping professional
students as having a poorer prognosis (i.e., would have more problems and need more
assistance in the future) compared to patients without a visible disability cue. The two
groups were not rated differently, however, on their level of adjustment or the severity
of their presenting problem. In the second study, Lavoie (2009) found women with a
visible disability cue (i.e., cane) were rated by undergraduate students as having more
severe pain/disability levels than women without a visible disability cue. Thus, in
Lavoie’s study, and to some degree in Mercer et al.’s study, the main effect of a visible
disability cue on ratings of pain/disability and prognosis was consistent with
expectations: patients with a visible disability cue were rated as having greater
pain/disability and a poorer prognosis than patients without a visible disability cue.
Nevertheless, in both studies, the visibility disability cue was found to exert a main
effect that was inconsistent with the general disability literature for perceptions of
personality. That is female target patients with visible disability cues (i.e., a wheelchair
or cane) were perceived more positively with respect to their personal characteristics
(e.g., more likeable and trustworthy) than targets without visible disability cues.
Although these main effects must be interpreted cautiously, because they were tested
within the context of interactions with other stereotypes (see section 1.5.5.4), a possible
explanation can be generated to account for the unexpected personality-related finding.

Whether a disability is visible or invisible is determined by the ease with which
it is noticed by others (e.g., potential/current employers, HCPs, acquaintances, family),
not necessarily by the impact it has on the person with the disability (Davis, 2005).
However, both visible and invisible disabilities can have a significant and detrimental
impact on the person’s life. Historically, people with physical or intellectual disabilities were not well-treated by society because many people believed disabilities were a punishment from God (Linton, 1998). People with disabilities were separated from society and often treated inhumanely. Although there has been a slow, steady improvement in how people with disabilities are treated, they still face physical (accessibility), financial, and attitudinal barriers compared to people without disabilities (Beatson, 2001). These barriers hamper integration into education, careers, and intimate relationships (Fiske, Cuddy, Glick, & Xu, 2002; Fitchen & Amsel, 1986; Seccombe, 2007). Thus, having a visible disability can be disadvantageous: the visible disability cues can elicit negative stereotypes and discrimination.

Nevertheless, visible disability cues may also offer observers a cue to the legitimacy of a person’s illness (Davis, 2005). These visible cues may be particularly important in relation to chronic pain, which is typically an invisible disability associated with negative attitudes including misperceptions that a majority of people with pain are malingering or have psychiatric problems masquerading as a physical problem (Davis, 2005). Thus, a visible disability cue to chronic pain may act to legitimize the condition as a physical problem, thereby eliciting more positive views of the patient’s personal characteristics (Lavoie, 2009; Mercer et al., 1983). Thus, in the case of chronic pain, a visible disability cue may provide a tangible benefit: the patient may be taken more seriously by others, including HCPs, they may be more likely to receive needed help (e.g., workplace modifications), and they may generally encounter more positive interactions with others (Seccombe, 2007). For the majority of patients with chronic pain, however, there is no visible disability cue. As a result they may be more
susceptible to greater disbelief from others compared to patients whose conditions provide visible cues.

**The diagnostic ambiguity stereotype.** Unlike patients with specific organic pathology (e.g., a broken bone or a high serum rheumatoid factor) that accounts for their presenting complaints and that dictates a particular treatment approach (e.g., a cast or a prescription for a DMARD), patients who present with medically unexplained (MU) symptoms (i.e., no specific organic pathology), do not fit neatly into the prevailing biomedical model (Solomon, 2001). As a result, the extent to which a patient’s symptoms are medically explainable (i.e., level of diagnostic ambiguity) impacts observers’ attributions about the patient’s illness experience and her personal characteristics. In the case of chronic pain, the subjective nature of pain, coupled with the fact that the cause of chronic pain is often unknown, makes judgements about a patient’s pain highly susceptible to biasing influences (Chibnall & Tait, 1995; Tait & Chibnall, 1997; Tait, Chibnall, & Kalauokalani, 2009). In cases where pain onset is ambiguous and does not resolve with standard treatment, judgements of pain become more complicated (Prkachin, Solomon, & Ross, 2007; Tait et al., 2009). In this situation, psychosocial factors and patient characteristics, unrelated to the pain experience, have a greater impact on observer judgements (Dowrick, Ring, Humphris, & Salmon, 2004; Tait et al., 2009).

In a series of laboratory research studies using vignettes depicting male patients with or without supporting evidence for their chronic LBP, patients without supporting evidence were perceived as having less pain and pain-related disability by undergraduate students (Chibnall & Tait, 1995; Tait & Chibnall, 1994) and medical
students/physicians (Chibnall, Tait, & Ross, 1997; Tait & Chibnall, 1997). In two other experimental studies either no main effects of diagnostic ambiguity (Lundquist et al., 2002) or only modest effects (Lavoie, 2009) were found. These findings can be explained on the basis of other independent or moderator variables included in the studies. In the first study, Lundquist et al. found that the observers’ attributional style and perceptions of target compliance significantly interacted with diagnostic ambiguity (see section 1.5.7.1). In the second study, Lavoie found diagnostic ambiguity interacted with other stereotypes (attractiveness and visibility disability cues) and that these other stereotypes exerted stronger effects. In a series of clinically oriented studies, Chibnall and colleagues have demonstrated that when medical evidence is available, undergraduate students’ and medical internists’ pain ratings of low back pain tend to be comparable to patient self-report (Chibnall et al., 1997; Chibnall & Tait, 1995; Tait & Chibnall, 1997). When medical evidence is not available, however, observer ratings and patient self-report diverge: observers tend to discount patient reports and underestimate pain severity when patients report high levels of pain severity but tend to overestimate pain when patients report low levels of pain severity (Chibnall et al., 1997; Tait & Chibnall, 1997).

In two recent reviews of the existing literature on HCPs’ judgements of patient pain, Prkachin et al. (2007) and Solomon (2001) found that, compared to patient self-reports of pain, a pervasive pain underestimation bias exists. This underestimation bias has been found for nurses’ perceptions of patients with burn pain (Choiniere, Melzack, Girard, Rondeau, & Paquin, 1990) and post-operative pain (Heikkinen, Salanterra, Kettu, & Taittonen, 2005), rheumatologists’ perceptions of elderly women with
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Osteoarthritis (OA: Creamans-Smith, Stephens, Franks, et al., 2003), and physiotherapists’ perceptions of patients with LBP (Perrault & Dionne, 2006). Similar to the laboratory research findings, this underestimation bias appears to be stronger for MU pain. Puntillo, Neighbour, O’Neill, & Nixon (2003), for instance, found that, while emergency room nurses had a tendency to underestimate pain in all patients, this underestimation occurred significantly more often for patients with musculoskeletal injuries or abdominal pain (ambiguous) compared to those with fractures (unambiguous). Marquie, Raufaste, Lauque et al. (2003), however, found that, although, both novice and expert emergency room physicians systematically underestimated pain levels (in comparison to patient self-report) for patients with both ambiguous (e.g., abdominal pain/LBP/headaches) and unambiguous (e.g., falls/fractures/burns) pain complaints, the physicians gave higher pain ratings to the patients with the ambiguous pain complaints. These findings are consistent with the underestimation bias, but inconsistent with expectations for ambiguous versus unambiguous conditions. The authors speculated that the underestimation bias occurs because when patients rate their own pain they are comparing it to the worst pain they have ever felt. In contrast, when physicians rate a patient’s pain, they are comparing the patient’s pain to the worst cases of pain they, as physicians, have ever seen. In terms of the unexpected finding that these emergency room physicians gave higher pain ratings to the patients with ambiguous pain conditions, a possible explanation may be that, knowledge of the cause of pain leads to increased confidence in successfully treating the injury, thereby reducing anxieties that may magnify perceptions of pain in an emergency situation.
In addition to the impact of diagnostic ambiguity on perceptions of pain and disability, ambiguity can also influence observers’ judgements about a target’s personal characteristics (e.g., Chibnall & Tait, 1995; Gillmore & Hill, 1981; Lavoie, 2009).

Chibnall and Tait (1995), for example, examined undergraduate students’ perceptions of the personal characteristics of male patients with chronic LBP who differed in the extent to which there was medical evidence for their pain. Medical evidence significantly impacted character ratings such that the men without evidence were perceived as less honest, lazier, and more complaining. Moreover, the authors noted that patient-reported pain levels had no impact on observers’ personality ratings indicating that subjective pain reports may not have been seen as a valid basis for making character ratings. Similarly, Lavoie (2009) found that women with FM (ambiguous) were viewed more negatively (e.g., less likeable, less genuine) by undergraduate students compared to women with RA (less ambiguous).

There is also evidence to suggest that HCPs may make similar character judgements of patients with MU symptoms. In one early study, Gillmore and Hill (1981) found nursing students watching a videotaped interview between a HCP and a patient with pain had more negative views of the patients with MU pain compared to patients with a kidney stone diagnosis. Specifically, patients with MU pain were perceived as less trustworthy and less genuine in their pain than those with a concrete diagnosis. Indeed, HCP perceptions of patients with MU symptoms tend to be overwhelmingly negative. In a survey of general practitioners in the UK, for example, Reid et al. (2001) found the majority of general practitioners surveyed, perceived patients with MU symptoms as difficult to manage and felt most MU symptoms were due to psychiatric or
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personality problems. As a result, there appears to be a pervasive attitude among HCPs that MU conditions should not be diagnosed as a physical illness. For example, Ehrlich (2003) asserts that patients complaining of MU symptoms, including FM, are simply ‘exaggerating the normal strains of everyday living because they do not cope well with psychosocial stressors’ (p. 1667). That is, he purports that chronic pain is a common reality in the general population but the motivation behind diagnosing FM is typically related to a search for compensation and blame. This attitude is shared by Hadler (2003) who believes the diagnosis of FM is a social construct that leads to ‘circular treatment acts’, which only reinforce illness behaviours. He believes the construct of FM should be dismantled and the treatment focus should turn to the psychosocial aspects of this MU condition.

It stands to reason, however, that if HCP do not believe in a condition, they will be less likely to prescribe treatments that have been found to be effective for that condition. Research results consistent with this contention have been found in two studies (Dowrick et al., 2004; Reid et al., 2001). Specifically, the majority of physicians surveyed in both studies felt there were no effective treatments for MU somatic conditions and felt patients with these conditions just needed to be reassured rather than receiving referrals to pain specialists. In an experimental study, Epstein et al. (2006) found that the presence of MU symptoms influenced physician-patient communications. In this study, 100 physicians consulted with actors, trained to be credible patients, complaining of symptoms of dizziness, fatigue, chest pain and ‘not feeling quite right’ (MU condition) or symptoms of reflux disease (heartburn, chest pain, nausea, reflux, insomnia (resulting from pain), and fatigue (resulting from insomnia) (GERD
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condition). Both groups of patients reported identical pain levels and fears of a serious problem (i.e., heart disease and cancer). The researchers analyzed audiotapes from these appointments and found there were fewer instances of further exploration of symptoms and validation communication for the MU condition visits compared to GERD condition visits. The authors purported that cognitive, time management, and attitudinal issues played a role in this difference. That is, because MU symptoms do not fit into an available biomedical 'script', these patients require greater cognitive effort and create greater physician anxiety related to solving the patient's problem. An important clinical implication of symptom discounting and underestimation in health care settings is that the patients who are likely to require the most clinical attention (e.g., report higher pain levels) may be the most vulnerable to symptom discounting (Tait & Chibnall, 1997). For example, patients with FM may need more attention because they are at high risk for co-morbid issues such as disability and depression, but they are also at risk for symptom discounting due to the ambiguous nature of the diagnosis and the lack of comprehensive treatment available (Jackson, 2003). Furthermore, due to the fact that women are more likely than men to seek help for chronic conditions and have more conditions with MU symptoms, such as FM, this vulnerability to symptom discounting may affect women more so than men (Jackson, 2003).

The negative impact of MU pain on HCPs' perceptions of patients with chronic pain can, in turn, have a significant negative impact on a patient via the process of a self-fulfilling prophecy. The withholding of a diagnosis, for example, negatively affects patient adjustment and illness behaviours: without a diagnosis and its implied explanation for the cause of the pain, patients may amplify their symptoms, show
greater non-compliance or compromised motivation, or develop catastrophic fears regarding the origin of the pain and of movements that exacerbate their pain. Dowrick et al. (2004), for instance, found that, compared to patients who received normalizing explanations that included a tangible mechanism to explain their pain, patients with MU pain who received the normalization with no, or ineffective, explanations from their physicians tended to elaborate, emphasize, and persist in emphasizing the severity of their symptoms and pain-related disability. They also used language that indicated their fear and anxiety regarding their condition was increasing. In other words, patients who sense their HCP holds negative attitudes towards them may feel blamed or invalidated and, as a result, may spend significant energies seeking validation and trying to prove they are sick. Indeed, Soderberg and colleagues (1999) found women with FM reported having to fight to be taken seriously and having to expend unnecessary energy proving they were sick. Furthermore, the women described having to make themselves look sick when they visited their HCPs in order to be taken seriously and that this often left them feeling sick. As noted by Werner and Malterud (2003), 'it is hard work to be a credible patient'.

Despite the pervasive HCP attitude that diagnosing someone with an illness that has no cure (e.g., FM) is harmful, women with chronic pain report that receiving a diagnosis is a key turning point in their process of learning to live with their pain (LaChapelle et al., 2008; Roth, Horowitz, & Bachman, 1998; Soderberg, Lundman, & Norberg, 1999). LaChapelle and colleagues, for example, found that, for women living with FM or RA, receiving their diagnosis was validating because it gave them a name for their pain and a basis from which to understand their pain. Similar sentiments have
been expressed by other women living with FM (Soderberg et al., 1999) and women living other ME conditions including chronic myofacial pain (Roth et al., 1998) and Chronic Fatigue Syndrome (Clements, Sharpe, Simkin, Borrill, & Hawton, 1997). Furthermore, in the only prospective study in which the impact of diagnosing FM was directly examined, White, Nicolson, Harth, Ostbye, and Speechly, (2002) found no meaningful negative impact after 36 months between 28 patients who had a long-standing diagnosis of FM and 58 patients who were newly diagnosed. Rather, they found statistically significant improvements in satisfaction with health and a reduction in symptom reporting among the newly diagnosed group. Furthermore, in contradiction to the reported fears of many HCPs, there was no increase in health care usage over time.

Interactions among the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes. As noted by Tanke (1982), more than one stereotype can be activated at once and one of the stereotypes may exert a stronger influence on perceptions of other people than other stereotypes. To date, only two studies have examined the combined impact of attractiveness, visible disability cue, and diagnostic ambiguity on perceptions of patients with pain. In the first study, Mercer and colleagues (1983) examined the impact of attractiveness and visible disability cues (wheelchair) on observers’ initial impressions of patients complaining of ambiguous symptoms. Students in three helping professions (i.e., personal and guidance counseling, rehabilitation counseling, and social work) viewed a three-minute videotape of a simulated interview between a helping professional and a female client who was seated in either a wheelchair or a regular chair. Subsequently the students were asked to make judgements
about the client's personality and the presenting problem. As previously mentioned, there were main effects for both attractiveness (the more attractive woman was evaluated significantly more positively on all personality and adjustment variables) and visible disability cues (the woman in the wheelchair was rated more positively on the personality variables and prognosis). It is noteworthy, however, that although there was a significant multivariate effect for the attractiveness by visible disability interaction, there were no significant univariate effects in relation to the personality or adjustment variables. The lack of univariate findings may have been due to the way in which the study was designed. Specifically, a third variable, diagnostic ambiguity, was unintentionally introduced into the study design and was not controlled for or evaluated. That is, although both women complained of MU symptoms in the videotaped interviews, the instructions to observers included information that the woman in the wheelchair had her disability as a result of a childhood illness. Thus, observers may have viewed the woman in the wheelchair as having a reason for her current complaints while the woman in the regular chair may have been viewed as truly having MU symptoms. As a result of this design flaw, stereotypes related to diagnostic ambiguity may have influenced the students' ratings.

In a recent study in which this limitation was addressed, Lavoie (2009) investigated the impact of all three stereotypes on the perceptions of 114 undergraduate introductory psychology students. In this study, the students viewed pictures of attractive and unattractive women (physical attractiveness) who were photographed with or without a cane (visible disability cue), and were given a diagnosis of either FM or RA (diagnostic ambiguity). After reading a brief paragraph that described the two pain
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conditions, the students viewed each picture and rated the target woman’s pain/disability levels and personal characteristics. As noted previously, main effects were obtained for attractiveness (attractive women were rated as having lower levels of pain/disability and as having more positive personality characteristics), visible disability cue (women in the no cane condition were rated as having lower levels of pain/disability and as having less positive personality characteristics), and diagnostic ambiguity (women with the ambiguous pain condition were rated as having lower levels of pain/disability and as having less positive personality characteristics). Examination of the effect sizes indicated that the visible disability cue had the largest effect on the observers’ ratings, followed by attractiveness. Diagnostic ambiguity exerted the weakest effect on ratings. Notably, the three way interaction was significant for both pain/disability ratings and personality ratings: the less attractive women who were paired with an unambiguous diagnosis (RA) and a visible disability cue (cane) were rated as having the highest pain/disability levels and the most positive personality characteristics compared to the women in the other conditions.

While the interpretation of three-way interactions is always challenging, the three-way interaction related to the observers’ pain/disability ratings was consistent with expectations based on the corresponding main effects for each variable. In other words, in the context of the combined effects of all three stereotypes, each individual stereotype influenced observers’ perceptions of pain/disability in the expected way. It is worth emphasizing, however, that in the context of their combined effects, it appears that attractiveness became less salient in the presence of a visible disability cue. This may possibly be due to the fact that perceptions of attractiveness are impacted by disability
such that persons with a visible disability cue may not meet societal standards of attractiveness (Lavoie, 2009). A disabled body may represent a threat to the wholeness of the self and, as such, is considered undesirable when compared to the socially constructed aesthetic norm (Shildrick, 2002; Solvang, 2007; Thompson, 1997).

Thus, the visible disability cue may incorporate some of the impact of attractiveness, therefore taking precedence in influencing observers’ perceptions. Furthermore, the effects of attractiveness and visible disability cue may have overlapped and, thus, amplified each other’s effects. As a result of this combined impact, stereotypes related to diagnostic ambiguity appear to have been less strongly elicited in the observers. Thus, as Tanke (1982) suggested, when multiple stereotypes are activated at once, one or more of the stereotypes may take precedence. It may also be possible that the attractiveness and visible disability stereotypes were more strongly activated in this study because the student observers did not have experience with chronic pain, extensive knowledge about the conditions of FM and RA, or specific goals related to the judgements they were making. Thus, in this case, they appear to have responded more to the visible disability and attractiveness cues possibly because these are more readily observable and elicit more automatic stereotypes (i.e., require less cognitive effort than the ambiguity stereotype). While all patients with chronic pain may be vulnerable to the impact of stereotypes related to visible disability and attractiveness, women with a more ambiguous condition, such as FM, may be especially vulnerable to their effects. This is because most chronic pain conditions are invisible (i.e., most women with chronic pain do not require the aid of a cane or wheelchair) and ambiguous conditions, such as FM, are often stigmatized as psychosomatic conditions. Thus, without a visible disability cue
to add legitimacy to women’s MU pain complaint, observers are likely to underestimate their level of pain/disability (Lavoie, 2009).

With respect to observers’ perceptions of the women’s personality traits, however, examination of the three-way interaction revealed that only the stereotypes related to a visible disability cue and diagnostic ambiguity exerted effects in the expected direction and in a manner consistent with their corresponding main effects. In the context of the three-way interaction for ratings of personality, it appears that the stereotypes related to a visible disability cue and diagnostic ambiguity are activated more strongly and that they supersede the attractiveness stereotype. Although the underlying reason for this unexpected finding cannot be determined on the basis of Lavoie’s study, several hypotheses can be generated. First, the presence of the visible disability cue and an objective diagnosis may have added legitimacy to the woman’s pain complaint and, thus, created more positive feelings toward the woman that overrode the negative feelings typically elicited by lower levels of attractiveness. Similarly, the presence of the visible disability cue and a tangible diagnosis may have elicited a strong affective reaction in the observers (i.e., pity or sadness), which, in turn, led to observers feeling greater empathy and liking for the woman. Hence, it may be that factors such as the observers’ affective reaction to the target, general style of making attributions about targets, or experience with people who live with chronic pain may influence the extent to which particular stereotypes are activated.

Impact of stereotypes on perceptions of responsibility and affective reactions. As noted previously, observers’ perceptions about a patient’s responsibility for her condition have a significant impact on their affective response to the patient as
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well as their willingness to offer help. If patients are perceived as being responsible for
the onset (and offset) of their condition, observers are more likely to have negative
affective reactions (i.e., more anger and less sympathy) and are less likely to offer help
(Brockopp et al., 2003; Lundquist et al., 2002). While researchers have begun to clarify
the impact of stereotypes related to attractiveness, visible disability cues, and diagnostic
ambiguity on observers’ perceptions of the pain/disability levels and personal
characteristics of target patients with chronic pain, little is known about the impact of
these stereotypes on observers’ perceptions of targets’ responsibility for their pain
condition or about observers’ affective responses to the target.

With respect to the attractiveness and visible disability cue stereotypes, nothing
is known about their impact on observers’ perceptions of responsibility or affective
responses, nevertheless, hypotheses can be generated on the basis of the extant
literature. In the case of attractiveness, researchers have demonstrated that attractiveness
invokes more positive observer perceptions and feelings (e.g., more liking and trust
[Dion et al., 1972; Lavoie, 2009]). This is likely to extend to perceptions of
responsibility and affective reactions such that observers are likely to have more positive
affective responses (i.e., more sympathy and less anger) and more positive perceptions
about responsibility (i.e., less blame) for the more attractive targets with pain. In terms
of the impact of the visible disability stereotype, it is expected that the general finding
that visible cues to a target patient’s pain-related disability appear to add a level of
legitimacy to the pain complaint (Mercer et al., 1983; Lavoie) will positively influence
observers’ perceptions of responsibility (i.e., less blame) and affective reactions (i.e.,
more sympathy and less anger).
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In the case of the diagnostic ambiguity stereotype, there has been only one study reported in the literature to date in which the impact of diagnostic ambiguity on observer’s perceptions of responsibility or affective reactions towards target patients with pain has been directly evaluated5. In that study, Lunquist et al. (2002) found no main effect for ambiguity on responsibility ratings or affective reactions. In their study, perceived compliance was the most significant factor (among ambiguity, reported pain level, and observer attributional style) that affected perceptions: the non-compliant target received the highest responsibility ratings, the highest anger, and the lowest sympathy ratings. Nevertheless, abundant evidence has accumulated to demonstrate that patients with MU symptoms, including those with FM, are likely to elicit negative affective reactions (e.g., to be perceived as ‘frustrating’, ‘problem patients’, or ‘hypochondriacs’ [e.g., Epstein et al., 2006; Gordon, 2003; Reid et al., 2001]). Drawing on these findings and on the reported finding that most HCPs consider MU symptoms to stem from psychological or personality problems (Reid et al.) it is reasonable to hypothesize that, consistent with Weiner’s theory (1980), patients with pain from an ambiguous condition would be perceived as having greater responsibility over their condition and that they will elicit greater feelings of anger and less sympathy.

Factors moderating the impact of stereotypes on perceptions of persons with chronic pain.

General attributional style. As indicated previously, observers tend to make attributions that allow them to believe in a ‘just world’. This tendency contributes to the widespread persistence of the fundamental attribution error (FAE). Although the FAE is

5 Note: In studies evaluating responsibility judgements and affective reactions, these variables have generally been used as predictors variables, along with ambiguity, rather than as outcomes variables (e.g., Chibnall & Tait, 1995).
a universal phenomenon, attributions can be influenced by the observer’s characteristics and their typical affective responses to others. Researchers have identified two key personal characteristics that influence attributions about the self and others. With respect to attributions about the self, the degree to which an observer is optimistic versus pessimistic influences the extent to which she yields to the FAE (Anderson, 1983; 1994; Peterson, 1991; Higgins, 1992; Higgins & Morrison, 1998). Observers with a pessimistic attributional style (AS) tend to view personal misfortunes as internal, stable, and global, while observers with an optimistic AS tend to view personal misfortunes as external, temporary, and situation specific (Abramson et al., 1978; Peterson, 1991).

While people with a pessimistic AS tend to have more realistic views of themselves, they are also more vulnerable to depression (Anderson & Arnoult, 1985).

With respect to making attributions about others, observers can vary in the extent to which they are supportive or unsupportive of a target who encounters a misfortune (Higgins, 1992; Higgins & Morrison, 1998). Across a variety of negative life events (i.e., cancer, divorce, bankruptcy), observers with an unsupportive style typically attribute negative events to factors personally controllable (perceived responsibility) by the target; individuals with a supportive AS, however, are likely to view negative events as less controllable by the target. As a result, those with a supportive AS are less likely to make negative judgements about someone who needs support regardless of perceived controllability (Higgins & Shaw, 1999). In contrast, observers with an unsupportive AS are significantly less likely to help those they perceive as having control over the cause of their own negative outcomes (Higgins & Shaw).
While researchers have consistently found that increased perceptions of responsibility for the onset or maintenance of a health condition contribute to increased anger and less supportive responses to the target (Higgins & Shaw, 1999), Higgins and Shaw have demonstrated that AS has a moderating impact on helping. In a general study of helping behaviours, they found that undergraduate students with a supportive AS were equally willing to help students perceived as being responsible or not responsible for their situation (e.g., missed class notes due to illness versus a ski trip) whereas students with an unsupportive AS were significantly less likely to help those students they perceived as being more responsible. Similar findings have been obtained with respect to helping behaviour directed towards patients with pain. In the only study to date to examine the impact of AS on perceptions of patients with pain, Lundquist et al. (2002) had 96 undergraduate students view ten second video excerpts of male patients with shoulder pathology displaying no, moderate, or strong facial expressions of pain. The video excerpts were also accompanied by vignettes that described the nature of the target’s pain, including length of time the target had experienced pain, whether the target was compliant with his physician’s advice, and whether there was medical evidence to support the pain complaint. The observers were instructed to imagine they were a physician evaluating the patient’s pain, to rate their willingness to offer the target social support (e.g., to talk and listen), and to choose between two treatment options: an activation-based treatment that would create discomfort or an ultrasound treatment that would create no discomfort. The authors found that AS moderated the impact of medical evidence and patient compliance on observers’ ratings of helping behaviours. That is, medical evidence significantly influenced helping behaviour only when observers with
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an unsupportive AS were led to believe that the patient was non-compliant and had no supporting medical evidence. For observers with a supportive AS, medical evidence and compliance had no significant impact on their ratings of helping. Furthermore, observers with an unsupportive AS rated non-compliant patients with ambiguous symptoms lower on pain levels compared to compliant patients with supporting evidence.

Experience with pain. As noted previously, observers’ attributions about others are affected by how they organize and interpret information about the world around them. An individual’s unique personal history contributes to their unique view of the world, which can lead to different interpretations of events and may result in differences in susceptibility to various contextual cues. In addition to general AS, observers’ personal pain-related histories may influence the extent to which stereotypes impact their perceptions of targets with chronic pain. That is, having personal experience with chronic pain, either through experiencing pain oneself or through knowing someone with pain, may lead to a more in-depth processing of all the contextual variables, thus reducing reliance on stereotypes.

While no research has been conducted to date in which the impact of pain experience on the use of stereotypes in making judgements of targets with pain has been explicitly examined, there is some evidence to suggest that level of pain experience may influence observers’ perceptions of targets in pain. Specifically, in one laboratory-based study, Prkachin and colleagues (2001) demonstrated that, in comparison to students with a positive family history for chronic pain, undergraduate students with a negative history for chronic pain and HCPs with pain experience (Occupational Therapists/Physiotherapists) gave significantly lower pain ratings for male targets with shoulder
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pain undergoing a passive (HCP initiated movements) videotaped physiotherapy assessment. Thus, undergraduate students with a positive family history of pain experience, while still demonstrating the general underestimation bias, were significantly more accurate in their ratings (i.e., their ratings were more similar to the patients' self-reported rating). In a second laboratory based study, Lavoie (2009) demonstrated that undergraduate students with a negative pain experience history were strongly influenced by stereotypes related to a visible disability cue and attractiveness when making judgements about women with FM and RA. The impact of stereotypes related to diagnostic ambiguity, while still significant, was much weaker than the impact of the other stereotypes.

While the research evidence to date is lacking, there is strong theoretical rationale for hypothesizing that judgements made by persons with greater levels of pain experience will be less strongly influenced by stereotypes. First, a lack of personal experience with chronic pain conditions may lead observers to rely more on stereotypes related to the target's degree of attractiveness and a visible disability cue because these are both easily discernible without cognitive effort (Lavoie, 2009). Second, increased experience with pain may reduce the extent to which an observer subscribes to the "just world" belief, thus dispelling the belief that only 'bad' people get sick or that all attractive people live better lives. As a result, the extent to which the attractiveness and diagnostic ambiguity stereotypes influence observers' perceptions may weaken. Thirdly, increased experience with pain should help observers' better understand chronic pain and the consequences of chronic pain on patients' lives. Lastly, according to Weiner (1985), more experience with pain should contribute to observers' attributing less
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responsibility to the target for the onset and offset of her pain and to more positive affective reactions (i.e., less anger and more sympathy/empathy) regardless of the presence of stereotype cues. While the existing evidence adds moderate support for the hypothesis that increasing degrees of pain experience should reduce the extent to which stereotypes influence observers' perceptions of pain, it must be acknowledged that even the perceptions of persons with a lot of pain experience (e.g., HCPs), can still be influenced by stereotypes (Choiniere et al, 1990; Brockopp et al., 2003; Prkachin et al., 2001).

Summary and Purpose

Humans have a strong need to understand and explain events, often due to a desire to create a sense of control and predictability in their own and other's behaviours. Making attributions involves assigning meaning (causality) or explanations to the people, behaviours, or situations we encounter (Miller, 1970). In the case of making attributions about persons with chronic pain, researchers have demonstrated that observers' perceptions are influenced by stereotypes related to the patient's level of attractiveness (e.g., Hadjistavropoulos et al., 1996), the presence of visible cues to disability (Mercer et al., 1983), and the degree to which there is supporting objective medical evidence for the target's pain (i.e., the ambiguity of the diagnosis; Lundquist et al., 2002).

While research completed to date provides clear evidence that these stereotypes can have a detrimental impact on patients' lives, a major limitation of the existing research is that the variables of interest have not been evaluated in tandem (i.e., in relation to one another) or in the context of a unifying theoretical model. For instance,
the comparative impact of stereotypes related to attractiveness, visible disability cues, and diagnostic ambiguity in relation to one another has been examined in only one study to date (Lavoie, 2009). Furthermore, the extent to which observer characteristics might magnify or reduce the influence of stereotypes has so far not been examined.

In the present study, existing attributional theories, including Weiner’s (1980) Attribution-Affect-Action model, were used to develop hypotheses about how stereotypes related to attractiveness, visible disability cues, and diagnostic ambiguity influence observers’ perceptions of women with chronic pain. How these stereotypes interact with one another to influence observers’ perceptions was also examined. Moreover, two observer characteristics, AS and degree of experience with persons who have chronic pain, were selected for further study. It was anticipated that these observer characteristics would moderate the degree to which observers’ affective reactions towards, and judgements about, patients with pain were influenced by attractiveness, visible disability cues, and diagnostic ambiguity stereotypes. Overall, the purpose of this research was to gain a more comprehensive understanding of how patient, illness, and observer characteristics interact to influence perceptions of patients with pain.

Hypotheses

**Physical attractiveness stereotype (Hypothesis 1).** Compared to less attractive women, observers were expected to rate attractive women as having lower Pain/Disability levels, more positive Personality Traits, and lower levels of Responsibility for their condition. Compared to less attractive women, observers were also expected to report feeling less Anger and more Sympathy, and being more Willing to Help attractive women. See Figure 1.
Figure 1. Hypothesized impact of Attractiveness, Visibility, and Ambiguity on observers' personal reactions to targets and their perceptions of targets' Pain/Disability levels and Personality Traits.
Visible disability cue stereotype (Hypothesis 2). Compared to the women with a visible disability cue (cane), observers were expected to rate women without a visible cue as having lower Pain/Disability levels, less positive Personality Traits, and higher levels of Responsibility for their condition. Compared to women with a visible disability cue, observers were also expected to report feeling more Anger and less Sympathy, and to be less Willing to Help women with no visible disability cue. See Figure 1.

Diagnostic ambiguity stereotype (Hypothesis 3). Compared to the women paired with a diagnosis of RA, observers were expected to rate women paired with a diagnosis of FM as having lower Pain/Disability levels, less positive Personality Traits, and higher levels of Responsibility for their condition. Compared to women in the RA condition, observers were also expected to report feeling more Anger and less Sympathy, and to be less Willing to Help women in the FM condition. See Figure 1.

Interactions. The two and three-way interactions among the independent variables were examined on an exploratory basis.

Moderating effects.

Attributional Style (Hypothesis 4). Observers with an Unsupportive AS were expected to be more susceptible to contextual variables. Thus, it was hypothesized that having an Unsupportive AS would amplify the impact of the stereotypes on each of the dependent variables while having a Supportive AS would weaken the impact of the stereotypes on each of the dependent variables.

Pain Experience (Hypothesis 5). Increased observer Pain Experience was expected to reduce the impact of the stereotypes on each of the dependent variables.
Method

Participants (Observers)

In order to recruit a sufficient amount of participants, recruitment took place in two major cities: Fredericton, NB and Halifax, NS. Participants were recruited through local and provincial organizations (e.g., the New Brunswick Arthritis Society, YMCA), community flyers, newspapers, online social networking websites (e.g., Facebook and Kijiji), the University of New Brunswick’s electronic student and faculty newsletters, and through the snowballing technique (i.e., a word of mouth technique in which future participants are recruited from the social networks of past participants; Appendix A). These announcements instructed interested persons to contact the researcher by phone or electronic mail (e-mail). At that time, they were given general information about the study and their suitability for the study was ascertained. Inclusionary criteria for all participants included ability to read and understand English and being over the age of 18. There were no exclusionary criteria. Individuals who were suitable for the study and who were interested in participating, were sent detailed information about the study by mail or e-mail (Appendix B). A follow-up phone call was made after one week in order to answer any further questions and to schedule a time to complete the study.

A total of 97 participants acted as observers in this study. While “Pain Experience” can be defined in several ways, for the purpose of this study, observers were grouped into three levels of experience: (i) No Pain Experience (i.e., observer did not have chronic pain), (ii) Personal Pain Experience (i.e., observer had chronic pain themselves), and (iii) Acquaintance Pain Experience (i.e., observer had no personal pain

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⁶ 98 participants were recruited but one observer with chronic pain became distressed while making judgements toward other women with chronic pain and was unable to complete the questionnaires.
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experience but had a loved one (e.g., mother/spouse/friend) with chronic pain). There were 32 observers with Personal Pain Experience, 33 observers with No Pain Experience, and 32 observers with Acquaintance Pain Experience. Observers in the Personal Pain Experience group had a mean age of 43.65 (SD= 11.70) years, a majority were female (78.1%) with a college or university degree (37.5%) and a household income of more than $50,000 (53.1%). The No Pain Experience group had a mean age of 37.85 (SD = 13.51). There was an approximately even gender split (51.5% males) and a majority had a college/university degree (56.6%) and a household income above $50,000 (51.5%). The Acquaintance Pain Experience group had a mean age of 41.63 (SD = 12.39). The majority were female (65.6%), had a college or university degree (40.6%) and had a household income of more than $50,000 (46.9%). Refer to Table 1 for complete demographic detail.

Results of a one-way ANOVA indicated there were no significant age differences between the three observer groups, F(2, 94) = 1.79, p = .17. Chi-Square analysis indicated there were no significant differences among the three observer groups for gender, χ²(2) = 5.06, p = .08. Fisher’s Exact tests indicated there were no significant differences between the observer groups on level of education, income, or ethnicity, ps > .08

Stimulus Package

A package of stimulus materials, developed for use in a previous study (Lavoie, 2009) was used. The package included instructions, a brief description of FM and RA (illustrating the Ambiguity independent variable), and eight target photographs (depicting the Attractiveness and Visibility independent variables) (see Appendix C3).
Table 1

**Summary of Observers’ Demographic Information by Level of Pain Experience Group**

<table>
<thead>
<tr>
<th></th>
<th>Pain</th>
<th>No Pain</th>
<th>Acquaintance Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age M (SD)</strong></td>
<td>43.65 (11.70)</td>
<td>37.85 (13.51)</td>
<td>41.63 (12.39)</td>
</tr>
<tr>
<td><strong>Gender N (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>7 (21.9)</td>
<td>16 (51.5)</td>
<td>11 (34.4)</td>
</tr>
<tr>
<td>Female</td>
<td>25 (78.1)</td>
<td>17 (48.5)</td>
<td>21 (65.6)</td>
</tr>
<tr>
<td><strong>Education Level N (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>4 (12.5)</td>
<td>0 (0)</td>
<td>1 (3.1)</td>
</tr>
<tr>
<td>Some college/university</td>
<td>7 (21.9)</td>
<td>4 (12.1)</td>
<td>9 (28.1)</td>
</tr>
<tr>
<td>College/university degree</td>
<td>12 (37.5)</td>
<td>19 (56.6)</td>
<td>13 (40.6)</td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>9 (28.1)</td>
<td>10 (30.3)</td>
<td>9 (28.1)</td>
</tr>
<tr>
<td><strong>Household Income N (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $30,000</td>
<td>7 (21.9)</td>
<td>6 (18.2)</td>
<td>8 (25.0)</td>
</tr>
<tr>
<td>$30,000 to $50,000</td>
<td>7 (21.9)</td>
<td>6 (18.2)</td>
<td>6 (18.8)</td>
</tr>
<tr>
<td>&gt; $50,000</td>
<td>17 (53.1)</td>
<td>17 (51.5)</td>
<td>15 (46.9)</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>1 (3.1)</td>
<td>4 (12.1)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td><strong>Ethnicity N (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>32 (100)</td>
<td>32 (97.0)</td>
<td>29 (90.6)</td>
</tr>
<tr>
<td>Asian origin</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>3 (9.4)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0)</td>
<td>1 (3.0)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>
PERCEPTIONS OF WOMEN WITH FM AND RA

In order to develop target photographs that represented the three independent variables of interest, upper body (mid-thigh and above) photographs were taken of 18 female volunteers of varying degrees of attractiveness and in each of two visible disability cue conditions (i.e., with and without a cane). The women were instructed to maintain a neutral facial expression. All of the volunteers were Caucasian and between the ages of 25 and 40 ($M = 31.8$ years, $SD = 5.06$). This ensured the possible impact of stereotypes related to age, gender, and race/ethnicity were reduced or eliminated. The photographs of each woman without a cane were rated for level of attractiveness by five male and five female volunteers. Similar to Hadjistavropoulos et al. (1996), attractiveness was rated on a seven-point Likert scale, anchored with the bi-polar descriptives of 'very physically attractive' and 'very physically unattractive'. High inter-rater reliability was obtained for the ten raters ($\alpha = .94$: Lavoie, 2009) though the female raters ($M = 3.16$, $SD = .22$) gave higher overall ratings of attractiveness than did the male raters ($M = 2.13$, $SD = .64$), $t(1, 8) = -3.37, p = .01$.

Subsequently, the four photographs of women with the highest attractiveness rating ($M = 3.93$, $SD = .24$) and four photographs of women with the lowest attractiveness ratings ($M = 1.23$, $SD = .21$) were selected for inclusion in the stimulus package. A simple t-test comparison confirmed the two attractiveness conditions were significantly different from one another, $t(1, 6) = .85, p = .000$. Half of the women in each category were then randomly assigned to the visible disability cue and diagnostic ambiguity conditions (see Table 2 for a summary of target photographs and their assigned independent variable categorization).
Table 2

*Target Photographs by Condition*

<table>
<thead>
<tr>
<th>Target Pseudonym</th>
<th>Attractiveness Condition</th>
<th>Ambiguity Condition</th>
<th>Visibility Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Sarah)</td>
<td>Attractive</td>
<td>FM</td>
<td>Cane</td>
</tr>
<tr>
<td>(Diane)</td>
<td>Attractive</td>
<td>FM</td>
<td>No Cane</td>
</tr>
<tr>
<td>(Jessica)</td>
<td>Unattractive</td>
<td>FM</td>
<td>Cane</td>
</tr>
<tr>
<td>(Becky)</td>
<td>Unattractive</td>
<td>FM</td>
<td>No Cane</td>
</tr>
<tr>
<td>(Beth)</td>
<td>Attractive</td>
<td>RA</td>
<td>Cane</td>
</tr>
<tr>
<td>(Joanne)</td>
<td>Attractive</td>
<td>RA</td>
<td>No Cane</td>
</tr>
<tr>
<td>(Jane)</td>
<td>Unattractive</td>
<td>RA</td>
<td>Cane</td>
</tr>
<tr>
<td>(Sally)</td>
<td>Unattractive</td>
<td>RA</td>
<td>No Cane</td>
</tr>
</tbody>
</table>
PERCEPTIONS OF WOMEN WITH FM AND RA

Procedure

Observers were invited to the UNB psychology department to complete the study. A home visit was offered to participants who were unable to come to the university or who were recruited in Halifax. The procedure was carried out with individuals and in groups of two to five participants. Participants who completed the study in a group were spaced sufficiently apart to complete their questionnaires in privacy.

Upon arrival, each participant was first provided with a verbal description of the study and then asked to read and sign the consent form (Appendix D). All participants were instructed to fill out the questionnaires in order and not to return to previously completed questions. The questionnaire package included a 20-item rating scale with questions pertaining to perceptions of the targets’ Pain/Disability experiences, Personality Traits, and Responsibility for the pain condition and observers’ personal reactions to the target including their affective reactions (Anger and Sympathy) and Willingness to Help each target (Appendix C1). The questionnaire package also included the Reasons for Misfortune Questionnaire (RMQ: Higgins, 1992; Appendix C2) and a demographic/concluding questionnaire (Appendix C3). The concluding questions assessed observers’ beliefs about the purpose and nature of the study in order to identify any observers who may have identified the true purpose of the study. To control for order effects, the photographs were presented according to a Latin Square design and half of the observers in each experience group completed the RMQ before rating the target photographs.
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Once each participant was finished he or she received a debriefing letter and a verbal overview of the purpose of the study as well as an opportunity to ask questions or discuss his or her experience (Appendix E). The participants were informed that the women in the pictures were paid volunteers who did not have the diagnosis with which they were paired. Included in the verbal explanation and debriefing letter was an explanation of the purpose of using partial disclosure in research (see Appendix E for full explanation). Finally, they were asked not to share the full purpose of the study with any other potential participants.

Measures

**Demographic/concluding questionnaire.** A concluding questionnaire (Appendix C3) developed for the purpose of this study was used to gather data pertaining to observers' personal characteristics (e.g., age, education, ethnicity), type of Pain Experience (e.g., No Pain, Personal Pain, Acquaintance Pain), and whether they thought the study had an alternative purpose. Additional questions relevant to the type of chronic pain experienced for those in the Personal Pain Experience group and the nature of the personal relationship for those in the Acquaintance Pain Experience group were also included in this questionnaire.

**Observers’ judgements about the target.** Observers rated each target photograph on 20 items using a seven-point Likert scale, anchored with relevant bipolar adjectives (e.g., not at all intense pain- extremely intense pain; not at all trustworthy- extremely trustworthy, not at all responsible- completely responsible; not at all angry- extremely angry; no sympathy-extreme sympathy; would not go out of my way at all- I would really go out of my way). Seven items were used to evaluate observers’
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perceptions of the target’s Pain/Disability including pain intensity, pain severity, need for compensation, social disability, family disability, work-related disability, and need for treatment (Hadjistavropoulos et al., 1996; Lavoie, 2009) (Appendix C1). Seven items were used to evaluate the observers’ perceptions of the target’s Personality Traits including trustworthiness, likability, honesty, friendliness, intelligence, agreeableness, and emotional strength (Gillmore & Hill, 1981; Lavoie) (Appendix C1). In a previous study (Lavoie) these 14 items were found to form two conceptually coherent and non-overlapping scales labeled “Pain/Disability” and “Personality” with internal consistencies of .95 and .98, respectively.

In addition to rating the target photographs on Pain/Disability levels and Personality Traits, observers also rated the extent to which they believed each target was Responsible for the onset and offset of the pain condition and to indicate their own affective reaction (i.e., Sympathy and Anger) to the target and their Willingness to Help and Offer Support to the target. Single item numeric rating scales such as these are commonly used in studies testing Weiner’s model to investigate these types of perceptions as dependent variables (e.g., Weiner et al., 1988; Dijker & Koomen, 2003; Lundquist et al., 2002). See Appendix F for summary of variables and their definitions.

Attributional style (AS). The Reasons for Misfortune Questionnaire (RMQ: Higgins 1992) was used to assess observers’ general AS. Scores on the RMQ were used to group participants into two AS categories: (i) Unsupportive AS (the tendency to attribute negative events to factors personally controllable by the target) and (ii) Supportive AS (the tendency to attribute negative events to factors personally uncontrollable by the target). The RMQ includes six negative scenarios (i.e., cancer,
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divorce, bankruptcy, facial disfigurement, friendlessness, and loss of all possessions) that might happen to hypothetical people. Respondents are instructed to think of a cause for each scenario and then to rate that cause on 12, 9-point scales measuring three attributional dimensions (personal control, external control, and stability factors) (Appendix E2). The RMQ generates a total of 12 scales (3 locus of causality, 3 internal control, 3 external control, and 3 stability scales) and, for each scale, the scores are averaged across the six negative outcomes, resulting in one score for each of the 12 scales. AS is calculated as the average of the three locus of causality and the three internal control scales. Higher scores represent a greater perceived internal locus of causality and greater perceived personal control and are indicative of an Unsupportive AS. In contrast, lower scores are indicative of a Supportive AS. Consistent with the recommendations of the scales' developer (Higgins, 1992) and past use of the RMQ in empirical studies, observers in the bottom third of the AS distribution were classified as having a Supportive AS while those in the top third of the distribution were classified as having an Unsupportive AS.

In order to assess the construct validity of the RMQ, Higgins and Morrison (1998) have provided evidence to support the three dimensional structure by having 710 undergraduate students complete the RMQ. Internal consistency coefficient alpha reliabilities across the causal dimensions (locus of causality, control (personal, external), and stability) ranged from .51-.90 for cancer, .56-.79 for divorce, .60-.87 for bankruptcy, .60-.82 for facial disfigurement, .70-.84 for friendlessness, and .56-.87 for loss of all possessions. The authors reported that the internal consistencies of the RMQ scales compared well to the findings of other studies of AS. The negative outcomes of facial
disfigurement and loss of all possessions were usually perceived as stemming from
highly uncontrollable causes, while cancer, divorce, bankruptcy, and friendlessness
formed a cluster of internally controllable outcomes. Friendlessness was perceived as
the most personally controllable negative outcome.

More recently, Higgins and Zumbo (2010) found further support that these
attributional dimensions are cohesive factors that can be discriminated from one another
in two samples of university students. Locus of control, internal control, stability, and
external control all loaded on separate factors and had moderate to high internal
consistencies ($\alpha = .69-.70, .84-.86, .62-.64,$ and $ .87-.88$ respectively). Similar internal
consistencies were found for the scales in the current study: $\alpha = .69$ for locus of control,$
\alpha = .94$ for internal control, $\alpha = .51$ for stability, and $\alpha = .85$ for external control. While
an alpha of .51 is a low internal consistency, this particular scale is not used in
determining Supportive and Unsupportive AS.
Results

Data Reduction and Creation of Final Dependent Variables

Principal-components factor analysis with varimax rotation of the 20 rating items was performed to determine whether the dependent variables could be reduced to fewer dimensions. Nineteen of the 20 items grouped into four coherent and non-overlapping scales (Kaiser-Meyer, Olkin, measure sampling = .80). Consistent with our previous study (Lavoie, 2009), the seven items related to Pain/Disability and the seven items related to Personality Traits formed two factors. Sympathy, Support, and Willingness to Help formed a third factor (Sympathy/Desire to Help), while the two responsibility items loaded on a fourth factor labeled Responsibility (See Table 3). The 20th item, Anger, did not load highly on any of the 4 components. Together, the four factors accounted for 80.19% of the total variance. All of the items in the four factor solution had a minimum item-factor loading of .73. The internal consistencies for the Pain/Disability, Personality, Sympathy/Desire to Help, and Responsibility factors were .95, .90, .92, and .85, respectively. Sympathy/Desire to Help had a moderately positive correlation with Pain/Disability, a small positive correlation with Personality, and a small negative correlation with Responsibility. There was also a small positive correlation between Responsibility and Anger (see Table 4).

Data Conditioning

Missing data and outliers. Prior to examining the hypotheses, the data were screened to identify missing data, as well as univariate and multivariate outliers. There was no missing data. Z-scores were examined to identify univariate outliers for each of
### Rotated Factor Loadings of the 20 Rating Items

<table>
<thead>
<tr>
<th>Scale Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Severity (1)</td>
<td></td>
<td>.868</td>
<td>.121</td>
<td>.777</td>
<td></td>
</tr>
<tr>
<td>Pain Intensity (2)</td>
<td>.102</td>
<td>.884</td>
<td></td>
<td></td>
<td>.796</td>
</tr>
<tr>
<td>Need for Compensation (3)</td>
<td>.791</td>
<td>.206</td>
<td></td>
<td></td>
<td>.678</td>
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<tr>
<td>Social Disability (4)</td>
<td>.927</td>
<td></td>
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<td></td>
<td>.868</td>
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<td>Family Disability (5)</td>
<td>.875</td>
<td>.175</td>
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<td>.799</td>
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<tr>
<td>Work-Related Disability (6)</td>
<td>.886</td>
<td>.154</td>
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<td>.834</td>
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<td>Need for Treatment (7)</td>
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<td>.804</td>
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<td>.704</td>
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<td>Trustworthiness (8)</td>
<td>.934</td>
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<td></td>
<td></td>
<td>.886</td>
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<tr>
<td>Likeability (9)</td>
<td>.956</td>
<td>.106</td>
<td></td>
<td></td>
<td>.930</td>
</tr>
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<td>Honesty (10)</td>
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<td>.905</td>
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<tr>
<td>Friendliness (11)</td>
<td>.946</td>
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<td>.904</td>
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<td>.897</td>
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<tr>
<td>Agreeableness (13)</td>
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<td></td>
<td></td>
<td>.838</td>
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<tr>
<td>Emotional Strength (14)</td>
<td>.738</td>
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<td>.288</td>
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<tr>
<td>Anger (15)</td>
<td>-.180</td>
<td>.237</td>
<td>-.542</td>
<td>.382</td>
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<tr>
<td>Responsibility for Acquiring Illness (16)</td>
<td></td>
<td>.253</td>
<td>.892</td>
<td>.860</td>
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</tr>
<tr>
<td>Responsibility for Maintaining Illness (17)</td>
<td></td>
<td>-1.67</td>
<td>.203</td>
<td>.819</td>
<td>.746</td>
</tr>
<tr>
<td>Sympathy (18)</td>
<td>.271</td>
<td>.805</td>
<td>.288</td>
<td>.813</td>
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<tr>
<td>Willingness to Help (19)</td>
<td>.157</td>
<td>.255</td>
<td>.893</td>
<td>.888</td>
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<tr>
<td>Amount of Support Offered (20)</td>
<td>.149</td>
<td>.277</td>
<td>.894</td>
<td>-.522</td>
<td>.898</td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>6.97</td>
<td>5.19</td>
<td>2.41</td>
<td>1.45</td>
<td></td>
</tr>
</tbody>
</table>

Note: Factor 1 = Personality Traits, Factor 2 = Pain/Disability, Factor 3 = Responsibility, Factor 4 = Sympathy/Desire to Help.
Table 4

*Intercorrelations Among Scores on the Five Dependent Variables*

<table>
<thead>
<tr>
<th></th>
<th>Pain/Disability</th>
<th>Personality Traits</th>
<th>Anger</th>
<th>Sympathy/Desire to Help</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain/Disability</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality Traits</td>
<td>.11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger(^7)</td>
<td>.05</td>
<td>-.15</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sympathy/Desire to Help</td>
<td><strong>.43</strong></td>
<td><em>23</em></td>
<td>.03</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>.07</td>
<td>.06</td>
<td><em>22</em></td>
<td>-.25*</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: N= 97, *p < .05 (2-tailed), **p < .01 level (2-tailed)

\(^7\) Although Anger did not load on any of the factors, it is included in this table of intercorrelations because it is one of the final dependent variables that will be examined in the subsequent analysis.
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the final dependent variables. Consistent with the recommendations of Tabachnick & Fidell (2007), Z-scores greater or less than 3.29 were considered outliers. Univariate outliers for Anger ratings across all eight models were identified. Upon examination, the decision was made not to change these outliers for several reasons. First, the majority of the observers indicated they had little or no Anger toward any of the models, thus the range of values was truncated. Second, each of the outliers was only one point higher than the next highest non-outlying score and, thus, were not discontinuous from the distribution. Lastly, the majority of the outlying Anger ratings were made by observers with an Unsupportive AS and occurred in the direction predicted by research on AS (i.e., those with Unsupportive AS would experience more Anger). One multivariate outlier was identified: one participant had high Anger ratings towards several of the models. Given this observer had one of the highest Unsupportive AS scores and his ratings were only one point higher than the next highest rating, the decision was again made not to change the scores.

Normality, linearity, and homoscedasticity. Skewness and kurtosis issues were identified for the dependent variables Anger and Responsibility. The Anger ratings for the eight models were positively skewed. Given the aforementioned issues with the variability and truncated range, this skewness pattern was not surprising. Tabachnick and Fidell (2007) suggest that if all of the variables are skewed to the same extent, the improvements made through transformations would only be marginal and given that the interpretation of transformed variables can be more complicated, the Anger variable was not transformed\(^8\). Responsibility ratings were also positively skewed. Although the range of scores was not as significantly truncated as the Anger ratings, the majority of

\(^8\) All analyses were completed with the transformed variables and no differences were found.
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the observers’ Responsibility ratings fell within a smaller range as they did not assign high levels of Responsibility to the models. Again, to reduce the complications associated with interpretation of a transformed variable, Responsibility ratings were not transformed.

Examination of Moderator Variables and Determination of Final Sample

It was hypothesized that two moderator variables would impact the relationship among the independent and dependent variables. The first moderator variable was observers’ degree of Pain Experience as defined on page 54. The second moderator variable was AS. In order to create the two AS groups (Unsupportive versus Supportive), the observers’ scores on the personal control scale of the RMQ were examined to identify the top third (Unsupportive AS) and bottom third (Supportive AS) of the entire sample of 97 observers. Participants whose scores fell in the middle third of the distribution were removed from the database because they are considered to have a mixed AS. The resulting sample consisted of 33 participants with an Unsupportive AS and 33 with a Supportive AS. Thus, the final sample utilized in all subsequent analyses consisted of this subset of 66 observers.

Detailed demographic information for the two AS groups is presented in Table 5. Results of a one-way ANOVA indicated there were no significant age differences between the AS groups, $F(2, 94) = 2.34, p = .23$, while a Chi-Square analysis indicated there were no significant differences among the AS groups on gender, $\chi^2(2) = 1.38, p = .23$. 

9 Note: given that the AS calculations made it necessary to significantly reduce the sample size, all analyses were also run without the AS variable to determine whether increasing the sample size (and thus level of power) would impact the findings. The pattern of findings for the remaining variables did not change, thus AS was kept in the analyses as it was an important component of the model.
10 In order to have equal numbers in each AS group it was decided to select 33 observers for each group.
Table 5

Summary of Observers' Demographic Information by Level of Attributional Style

<table>
<thead>
<tr>
<th></th>
<th>Unsupportive AS</th>
<th>Supportive AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age M (SD)</td>
<td>44.06 (12.08)</td>
<td>39.48 (12.16)</td>
</tr>
<tr>
<td>Gender N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14 (42.4)</td>
<td>13 (60.6)</td>
</tr>
<tr>
<td>Female</td>
<td>19 (57.6)</td>
<td>20 (39.4)</td>
</tr>
<tr>
<td>Education N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High School</td>
<td>0</td>
<td>1 (3.0)</td>
</tr>
<tr>
<td>High School/GED</td>
<td>2 (6.1)</td>
<td>0</td>
</tr>
<tr>
<td>Some College/University</td>
<td>9 (27.3)</td>
<td>4 (12.1)</td>
</tr>
<tr>
<td>Degree</td>
<td>15 (45.5)</td>
<td>15 (45.5)</td>
</tr>
<tr>
<td>Post-graduate</td>
<td>7 (21.2)</td>
<td>13 (39.4)</td>
</tr>
<tr>
<td>Income N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $30,000</td>
<td>5 (15.2)</td>
<td>5 (15.2)</td>
</tr>
<tr>
<td>$30,000-50,000</td>
<td>9 (27.3)</td>
<td>9 (27.3)</td>
</tr>
<tr>
<td>&gt; $50,000</td>
<td>18 (54.5)</td>
<td>16 (48.5)</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>1 (3.0)</td>
<td>3 (9.1)</td>
</tr>
<tr>
<td>Ethnicity N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>33 (100)</td>
<td>30 (90.9)</td>
</tr>
<tr>
<td>Asian Origin</td>
<td>0</td>
<td>2 (6.1)</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1 (3.0)</td>
</tr>
</tbody>
</table>
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.55. Fisher’s Exact tests indicated there were no significant differences between the AS groups for levels of education, income, or ethnicity, \( ps > .10 \). The observers’ demographic information for the observer Pain Experience x AS groups is presented in Table 6. Results of a one-way ANOVA indicated there were no significant age differences between the six observer Pain Experience x AS groups, \( F(5, 60) = .81, p = .55 \). Fisher’s Exact tests indicated there were no significant differences among the six groups for gender, education, income, or ethnicity, \( ps > .08 \).

**Descriptive Findings**

Observers’ overall ratings of the targets on the five dependent variables are presented in Table 7. The observers perceived the targets had moderate levels of Pain/Disability but had low levels of Responsibility for the onset/offset of that Pain/Disability. In terms of observers’ experiences of Anger toward the targets, the ratings were very low and there was little variability among observers. In contrast, ratings of Sympathy/Desire to Help were moderately high, indicating observers had a strong desire to provide assistance. Lastly, observers had moderately positive views of the targets’ Personality Traits.

The intercorrelations among the five dependent variables for the final sample of 66 participants are presented in Table 8. Sympathy/Desire to Help was moderately positively correlated with the Pain/Disability and Personality variables and was moderately negatively correlated with Responsibility. Responsibility and Anger were no longer correlated in the final sample.

The observers’ ratings, subdivided by the levels of each independent variable, are presented in Table 9, while Table 10 outlines their ratings subdivided
**Table 6**

Summary of Observers’ Demographic Information by Level of Pain Experience and Attributional Style

<table>
<thead>
<tr>
<th></th>
<th>Unsupportive AS</th>
<th></th>
<th>Supportive AS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pain N=13</td>
<td>No Pain N=9</td>
<td>Acquaintance</td>
<td>Pain N=7</td>
</tr>
<tr>
<td>Age M (SD)</td>
<td>43.77 (12.11)</td>
<td>43.88 (13.61)</td>
<td>44.55 (11.94)</td>
<td>42.57 (9.91)</td>
</tr>
<tr>
<td>Gender N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3 (23.1)</td>
<td>6 (66.7)</td>
<td>5 (45.5)</td>
<td>2 (28.6)</td>
</tr>
<tr>
<td>Female</td>
<td>10 (76.9)</td>
<td>3 (33.3)</td>
<td>6 (54.5)</td>
<td>5 (71.4)</td>
</tr>
<tr>
<td>Education N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School/GED</td>
<td>1 (7.7)</td>
<td>0</td>
<td>1 (9.1)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>Some College/University</td>
<td>4 (30.8)</td>
<td>0</td>
<td>5 (45.5)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>College/University Degree</td>
<td>5 (38.5)</td>
<td>6 (66.7)</td>
<td>4 (36.4)</td>
<td>4 (57.1)</td>
</tr>
<tr>
<td>Post-graduate Degree</td>
<td>3 (23.1)</td>
<td>3 (33.3)</td>
<td>1 (9.1)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>Income N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $30,000</td>
<td>3 (23.1)</td>
<td>0</td>
<td>2 (18.2)</td>
<td>0</td>
</tr>
<tr>
<td>$30,000-50,000</td>
<td>5 (38.5)</td>
<td>1 (11.1)</td>
<td>3 (27.3)</td>
<td>2 (28.6)</td>
</tr>
<tr>
<td>&gt; $50,000</td>
<td>5 (38.5)</td>
<td>8 (88.9)</td>
<td>5 (45.5)</td>
<td>4 (57.1)</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>0</td>
<td>0</td>
<td>1 (9.1)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>Ethnicity N (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>13 (100)</td>
<td>9 (100)</td>
<td>11 (100)</td>
<td>7 (100)</td>
</tr>
<tr>
<td>Asian Origin</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 7

*Observers' Overall Mean (SD) Ratings of the Five Dependent Variables*

<table>
<thead>
<tr>
<th></th>
<th>Pain/Disability</th>
<th>Personality</th>
<th>Anger</th>
<th>Sympathy/Desire to Help</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M</strong></td>
<td>3.44</td>
<td>4.05</td>
<td>.52</td>
<td>4.15</td>
<td>1.08</td>
</tr>
<tr>
<td><strong>SD</strong></td>
<td>.71</td>
<td>.62</td>
<td>.95</td>
<td>1.00</td>
<td>1.14</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>1.1-5.3</td>
<td>2.0-5.2</td>
<td>0-4.5</td>
<td>.6-6</td>
<td>1-6</td>
</tr>
</tbody>
</table>

^bPossible range for all scales is 0-6

Note: *N* = 66. Higher scores are indicative of higher levels of Pain/Disability, more positive views of Personality Traits, higher levels of Anger, higher levels of Sympathy/Desire to Help, and higher levels of Responsibility.
Table 8

*Intercorrelations Among Scores on the Five Dependent Variables for the Final Sample*

<table>
<thead>
<tr>
<th></th>
<th>Pain/Disability</th>
<th>Personality Traits</th>
<th>Anger</th>
<th>Desire to Help</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain/Disability</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality Traits</td>
<td>.22</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>.11</td>
<td>-.03</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sympathy/Desire to Help</td>
<td><strong>.42</strong></td>
<td><strong>.34</strong></td>
<td>-.02</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>-.07</td>
<td>.04</td>
<td>.24</td>
<td><strong>-.32</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

**p < .01 level (2-tailed).**
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Table 9

*Observers' Mean (SD) Ratings on the Dependent Variables by Level of Attractiveness, Visibility, and Ambiguity*

<table>
<thead>
<tr>
<th></th>
<th>Attractiveness</th>
<th>Visibility</th>
<th>Ambiguity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attractive</td>
<td>Unattractive</td>
<td>Cane</td>
</tr>
<tr>
<td>Pain/Disability</td>
<td>3.20 (.72)</td>
<td>3.68 (.76)</td>
<td>3.75 (.75)</td>
</tr>
<tr>
<td>Personality Traits</td>
<td>4.13 (.62)</td>
<td>3.96 (.65)</td>
<td>3.99 (.66)</td>
</tr>
<tr>
<td>Anger</td>
<td>.49 (.91)</td>
<td>.55 (1.05)</td>
<td>.61 (1.07)</td>
</tr>
<tr>
<td>Sympathy/Desire to Help</td>
<td>4.12 (1.03)</td>
<td>4.18 (1.00)</td>
<td>4.20 (1.01)</td>
</tr>
<tr>
<td>Responsibility</td>
<td>1.08 (1.23)</td>
<td>1.08 (1.11)</td>
<td>1.19 (1.21)</td>
</tr>
</tbody>
</table>
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Table 10

*Observers' Mean (SD) Ratings on the Dependent Variables by Level of Pain Experience and Attributional Style*

<table>
<thead>
<tr>
<th>Pain Experience Group</th>
<th>Pain/Disability (SD)</th>
<th>Personality Traits (SD)</th>
<th>Anger (SD)</th>
<th>Sympathy/Desire To help (SD)</th>
<th>Responsibility (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Pain</td>
<td>3.47 (.63)</td>
<td>3.94 (.69)</td>
<td>.45 (.95)</td>
<td>4.66 (.99)</td>
<td>.88 (1.03)</td>
</tr>
<tr>
<td>No Pain</td>
<td>3.19 (.86)</td>
<td>3.92 (.55)</td>
<td>.34 (.53)</td>
<td>3.60 (.95)</td>
<td>1.21 (1.13)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AS</th>
<th>Pain/Disability (SD)</th>
<th>Personality Traits (SD)</th>
<th>Anger (SD)</th>
<th>Sympathy/Desire to Help (SD)</th>
<th>Responsibility (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>3.51 (.73)</td>
<td>3.98 (.59)</td>
<td>.50 (.80)</td>
<td>4.33 (.89)</td>
<td>.86 (.95)</td>
</tr>
<tr>
<td>Unsupportive</td>
<td>3.37 (.69)</td>
<td>4.11 (.64)</td>
<td>.53 (1.10)</td>
<td>3.97 (1.08)</td>
<td>1.30 (1.27)</td>
</tr>
</tbody>
</table>

Note: Possible range of scores is 0-6.
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by the between-subjects factors.

As illustrated in Table 9, observers’ ratings of the targets on the dependent variables varied across the levels of the independent variables. In terms of Attractiveness, observers tended\textsuperscript{11} to rate the more attractive targets as having lower levels of Pain/Disability and more positive Personality Traits. Observers also tended to report slightly lower levels of Anger and Sympathy/Desire to Help toward the more attractive targets and comparable levels of perceived Responsibility across the two attractiveness groups. Visibility also appeared to impact ratings such that observers tended to rate those with a visible disability cue as having higher levels of Pain/Disability, less positive Personality Traits, and higher Responsibility. Despite reporting higher levels of Anger towards the targets with a visible disability cue, the observers also reported more Sympathy/Desire to Help these targets. Lastly, Ambiguity also influenced observers’ ratings such that targets with the more ambiguous diagnosis of FM tended to receive more positive Personality ratings, higher ratings of Responsibility and Sympathy/Desire to Help and lower ratings of Anger. Ratings of Pain/Disability were slightly higher for those in the less ambiguous diagnostic condition of RA.

Finally, as shown in Table 10, observers with higher levels of Pain Experience tended to rate the targets as having lower levels of Responsibility for the onset/offset of the pain condition and reported having higher levels of Sympathy/Desire to Help the target. The relationships between observer Pain Experience and ratings of Pain/Disability, Personality Traits, and Anger were more complicated and did not

\textsuperscript{11} Note: The following paragraphs will be providing descriptors of mean directions only and are not intended to imply significance. The results of the analyses for significant differences are presented in the next section.
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appear to be linear. Specifically, ratings of Pain/Disability, Personality Traits, and Anger were all highest among observers' in the Acquaintance Pain group and lowest among those in the No Pain Experience group while the ratings of those with Personal Pain Experience fell between these two other groups.

Also shown in Table 10 are the observers' ratings subdivided by AS. As shown, ratings of the five dependent variables were fairly consistent between those with a Supportive versus Unsupportive AS. Differences between the ratings of the two groups were minimal but did occur in the direction suggested by AS theory: Those with a Supportive AS tended to provide higher ratings of Pain/Disability and Sympathy/Desire to Help, and lower ratings of Anger and Responsibility compared to those with an Unsupportive AS. Unexpectedly, those with a Supportive AS also tended to give less positive ratings of Personality compared to those with an Unsupportive AS.

Lastly, as illustrated in Table 11, observers’ ratings of the targets on the five dependent variables varied across the combined levels of the independent (Attractiveness, Visibility, and Ambiguity) variables. To determine whether these variations were significant and whether they were influenced by the two proposed moderators, two ANOVAs and one MANOVA were completed. An experimental within- and between-subject mixed design was used to investigate how the independent within-subjects variables and the moderator between-subjects variables impacted the dependent variable ratings.

Observers’ ratings of targets’ Responsibility for pain onset/offset. In order to assess the extent to which observers’ ratings of the targets’ Responsibility for their pain varied across the independent and moderator variables a 2 (level of Attractiveness) x 2
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Table 11

*Observers’ Mean (SD) Ratings for the Dependent Variables Subdivided by the Combined Levels of the Independent Variables*

<table>
<thead>
<tr>
<th></th>
<th>FM</th>
<th>RA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cane</td>
<td>No Cane</td>
</tr>
<tr>
<td>Pain/Disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>3.25 (1.00)</td>
<td>2.96 (.95)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>3.76 (1.03)</td>
<td>3.72 (.90)</td>
</tr>
<tr>
<td>Personality Traits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>4.40 (.76)</td>
<td>4.06 (.74)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>3.76 (.79)</td>
<td>4.27 (.72)</td>
</tr>
<tr>
<td>Anger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>.49 (1.07)</td>
<td>.41 (1.01)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>.58 (1.11)</td>
<td>.36 (.89)</td>
</tr>
<tr>
<td>Sympathy/Desire to Help</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>4.19 (1.19)</td>
<td>4.15 (1.18)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>4.15 (1.17)</td>
<td>4.32 (1.07)</td>
</tr>
<tr>
<td>Responsibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>1.09 (1.27)</td>
<td>.99 (1.33)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>1.42 (1.47)</td>
<td>.92 (1.17)</td>
</tr>
</tbody>
</table>

Note: Possible range of scores is 0-6.
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(level of Visibility) x 2 (level of Ambiguity) within subjects x 2 (AS) x 3 (level of Pain Experience) between subjects ANOVA with repeated measures was completed.

**Main effects.** Examination of the results revealed Box's test of equality of covariance matrices was significant, indicating the assumption of homoscedasticity was violated; therefore Pillai’s criterion was utilized to evaluate significance as it is more robust to this violation. Based on Pillai’s criterion, significant main effects were found for Visibility only, which had a large effect on ratings of Responsibility (ANOVA results are presented in Table 12). In opposition to Hypothesis 2, targets in the no cane visible condition were rated as having less Responsibility for their pain compared to targets in the cane visible condition (See Table 9 for applicable mean ratings).

**Interaction effects.** Further examination of the ANOVA results (Table 12) revealed significant 2-way interactions for Attractiveness x Visibility and Attractiveness x Ambiguity. There was also a significant 3-way interaction for Attractiveness x Ambiguity x AS. Examination of the follow-up pair-wise comparisons for the two significant 2-way interactions revealed observers' ratings of Responsibility did not vary across levels of Attractiveness within either of the Visibility or Ambiguity conditions.

To further evaluate the 3-way interaction, two follow-up 1-way ANOVAs were conducted in which the Attractiveness x Ambiguity interaction was examined within each level of the AS variable. Observers' mean ratings of Responsibility subdivided by the Attractiveness, Ambiguity, and AS variables are presented in Table 13. Among observers with a Supportive AS, the Attractiveness x Ambiguity interaction was not significant, $F(1, 32) = .12, p > .05, \eta_p^2 = .00^{12}$. Among observers with an Unsupportive

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12 Note: Partial eta-squared ($\eta_p^2$) is the proportion of total variance in the dependent variable accounted for by a factor excluding other factors from the total non-error variation (Pierce, Block, & Aguinis, 2004).
Table 12

ANOVA Results: Impact of Attractiveness, Visibility, Ambiguity, Observer Pain Experience, and Attributional Style (AS) on Observers' Ratings of Level of Responsibility

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Table 13

*Observers’ Mean (SD) Responsibility Ratings Subdivided by Attractiveness, Ambiguity, and Attributional Style*

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<th>RA</th>
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<td><strong>Unsupportive AS</strong></td>
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<td>1.20 (1.36)</td>
<td>1.33 (1.47)</td>
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<tr>
<td>Unattractive</td>
<td>1.55 (1.28)</td>
<td>1.11 (1.28)</td>
</tr>
<tr>
<td><strong>Supportive AS</strong></td>
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<tr>
<td>Attractive</td>
<td>.88 (1.16)</td>
<td>.90 (1.09)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>.79 (.95)</td>
<td>.87 (1.01)</td>
</tr>
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</table>
PERCEPTIONS OF WOMEN WITH FM AND RA

AS, however, the interaction was significant, $F(1, 32) = 11.03, p = .002$, and this was a large effect, $\eta^2_p = .26$. Post-hoc testing with Bonferroni correction of this significant interaction revealed Attractiveness had a significant impact on ratings of Responsibility only when the targets were paired with the more ambiguous diagnosis of FM, $F(1, 32) = 8.35, p = .007, \eta^2_p = .21$. In this case, less attractive targets were rated as having more Responsibility for their pain as compared to more attractive targets (See Figure 2).

**Observers’ ratings of Anger.** In order to assess the extent to which observers’ feelings of Anger toward the targets varied across levels of the independent and moderator variables a 2 (level of Attractiveness) x 2 (level of Visibility) x 2 (level of Ambiguity) within subjects x 2 (AS) x 2 (level of Pain Experience) between subjects ANOVA with repeated measures was completed.

**Main effects.** Examination of the ANOVA results (Table 14) revealed that based on Pillai’s criterion, significant main effects were obtained for Visibility and Ambiguity only. In opposition to Hypothesis 2, observers reported higher Anger toward targets pictured with a cane compared to those pictured without a cane (See Table 9 for relevant mean ratings). Similarly, results related to the impact of Ambiguity were in opposition to Hypothesis 3. Observers reported higher levels of Anger toward targets paired with a diagnosis of RA compared to targets paired with a diagnosis of FM (See Table 9). Ambiguity had a moderate impact on ratings of Anger, while the Visibility had a stronger effect.

**Interaction Effects.** There were no significant interactions among the three independent variables or two moderator variables.
Figure 2. Attractiveness x Ambiguity x Unsupportive AS Interaction for Responsibility.
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Table 14

ANOVA Results: Impact of Attractiveness, Visibility, Ambiguity, Observer Pain Experience, and Attributional Style on Observers’ Ratings of Anger Toward the Targets

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Observers’ ratings of the targets’ Pain/Disability and Personality Traits and observers’ level of Sympathy/Desire to Help. Observers’ perceptions of the targets’ Pain/Disability and Personality Traits, and observers’ Sympathy/Desire to Help were examined with a 2 (level of Attractiveness) x 2 (level of Visibility) x 2 (level of Ambiguity) within subjects x 2 (AS) x 2 (level of Pain Experience) between subjects MANOVA with repeated measures. These three dependent variables were included in a single MANOVA due to their moderately strong correlations.

**Main effects.** At the multivariate level, significant within-subjects main effects for Attractiveness, Visibility, and Ambiguity and significant between-subjects main effects for observer’s Pain Experience and AS were found (see Table 15). Subsequent examination of the univariate results revealed the main effects of Attractiveness and Visibility were significant for observers’ ratings of Pain/Disability and Personality Traits but not Sympathy/Desire to Help (see Table 15). Both Attractiveness and Visibility exerted stronger effects on Pain/Disability ratings compared to Personality Traits. Consistent with Hypothesis 1, observers rated the less attractive targets’ higher on Pain/Disability levels and less positively on Personality Traits compared to the more attractive targets’ (See Table 9 for relevant mean ratings). Consistent with Hypothesis 2, observers gave significantly higher Pain/Disability ratings to targets in the cane visible condition compared to those in the no cane condition (See Table 9). In opposition to Hypothesis 2, however, those in the no cane condition were perceived as significantly more positive on Personality Traits compared to targets in the cane visible condition (See Table 9). Lastly, the univariate findings for Ambiguity revealed a significant main effect for ratings of Personality Traits only and this was a large effect. In opposition to
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Table 15
MANOVA Results: Impact of Attractiveness, Visibility, Ambiguity, Observer Pain Experience, and Attributional Style on Observers' Ratings of Pain/Disability, Personality, and Sympathy/Desire to Help

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Table 15 Continued

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</tr>
<tr>
<td><strong>Visibility</strong></td>
<td>7.66</td>
<td>1, 62</td>
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<td>.11</td>
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<tr>
<td><strong>Ambiguity</strong></td>
<td><strong>16.35</strong></td>
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<td>Pain Experience</td>
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<td>2, 62</td>
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<td>AS</td>
<td>.95</td>
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<td>.99</td>
<td>2, 62</td>
<td>.377</td>
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<td>Attractiveness x AS</td>
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<td>1, 62</td>
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<td>.03</td>
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### Table 15 Continued

#### Univariate Results

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<tr>
<th>Sympathy/Desire to Help Ratings</th>
<th>F</th>
<th>df</th>
<th>Sig.</th>
<th>Partial $\eta^2$</th>
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<tr>
<td>Visibility</td>
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<td>1, 62</td>
<td>.166</td>
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<td>Ambiguity</td>
<td>1.78</td>
<td>1, 62</td>
<td>.188</td>
<td>.03</td>
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<td>Pain Experience</td>
<td>10.05</td>
<td>2, 62</td>
<td>.000**</td>
<td>.25</td>
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<td>AS</td>
<td>6.41</td>
<td>1, 62</td>
<td>.014*</td>
<td>.09</td>
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<td>2, 62</td>
<td>.478</td>
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<td>Attractiveness x AS</td>
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<td>.645</td>
<td>.00</td>
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<tr>
<td>Visibility x Pain Experience</td>
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<td>2, 62</td>
<td>.197</td>
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<td>Ambiguity x Pain Experience</td>
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<td>.734</td>
<td>.01</td>
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<td>Ambiguity x AS</td>
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<td>.754</td>
<td>.00</td>
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<tr>
<td>Attractiveness x Visibility</td>
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<td>Attractiveness x Ambiguity</td>
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<td>.752</td>
<td>.00</td>
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<td>Visibility x Ambiguity</td>
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<td>.006**</td>
<td>.12</td>
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<td>1, 62</td>
<td>.219</td>
<td>.02</td>
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<tr>
<td>Attractiveness x Visibility x Pain Experience</td>
<td>2.53</td>
<td>2, 62</td>
<td>.088</td>
<td>.08</td>
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<tr>
<td>Attractiveness x Visibility x AS</td>
<td>.48</td>
<td>1, 62</td>
<td>.490</td>
<td>.01</td>
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<td>Attractiveness x Ambiguity x Pain Experience</td>
<td>.24</td>
<td>2, 62</td>
<td>.784</td>
<td>.01</td>
</tr>
<tr>
<td>Attractiveness x Ambiguity x AS</td>
<td>.13</td>
<td>1, 62</td>
<td>.720</td>
<td>.00</td>
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<tr>
<td>Visibility x Ambiguity x Pain Experience</td>
<td>.61</td>
<td>2, 62</td>
<td>.545</td>
<td>.02</td>
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<tr>
<td>Visibility x Ambiguity x AS</td>
<td>.97</td>
<td>1, 62</td>
<td>.328</td>
<td>.02</td>
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<tr>
<td>Attractiveness x Visibility x Ambiguity x Pain Experience</td>
<td>1.10</td>
<td>2, 62</td>
<td>.340</td>
<td>.03</td>
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<tr>
<td>Attractiveness x Visibility x Ambiguity x AS</td>
<td>1.15</td>
<td>1, 62</td>
<td>.288</td>
<td>.02</td>
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</table>
Hypothesis 3, Personality was perceived as significantly more positive for targets paired with the more ambiguous diagnosis of FM compared to targets with RA (See Table 9). Examination of the univariate results for the between-subjects factors revealed the observers’ Pain Experience and AS only had a significant impact on ratings of Sympathy/Desire to Help (See Table 15). Post-hoc analysis with Bonferroni correction for multiple comparisons revealed significant between-group differences due to Pain Experience at $p < .03$. Level of Pain Experience had a large effect on ratings of Sympathy/Desire to Help. Observers in the Personal Pain Experience and Acquaintance Pain Experience groups reported significantly more Sympathy/Desire to Help than observers in the No Pain Experience group (See Table 10 for relevant mean ratings). There was no significant difference between observers with Personal Pain Experience and those with Acquaintance Pain Experience. In terms of observers’ AS, those with an Unsupportive AS reported lower levels of Sympathy/Desire to Help the targets compared to observers with a Supportive AS and this effect was moderate (See Table 10 for relevant mean ratings).

**Interactions effects.** Examination of the multivariate effects for the within- and between-subjects factors revealed significant two-way interactions for Attractiveness x Visibility, Attractiveness x Ambiguity, Visibility x Ambiguity, and Visibility x observer Pain Experience (See Table 15). There was also a significant three-way interaction for Attractiveness x Visibility x Ambiguity (See Table 15).

At the univariate level the Attractiveness x Visibility interaction revealed significant effects for both Pain/Disability and Personality ratings at $p < .01$ (See Table 15). Observers’ mean ratings of Pain/Disability and Personality subdivided by
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Attractiveness and Visibility are presented in Table 16. Results of follow-up one-way ANOVAs examining the nature of the significant Attractiveness x Visibility interaction on Pain/Disability ratings revealed Attractiveness significantly impacted ratings in both the no cane visible condition, $F(1, 65) = 92.16, p = .000, \eta_p^2 = .59$, and the cane visible condition, $F(1, 65) = 14.82, p = .000, \eta_p^2 = .19$. In both Visibility conditions, the less attractive targets were rated as having more Pain/Disability than the more attractive targets; however the effect of Attractiveness was much stronger when no cane was visible (See Figure 3).

Follow-up one-way ANOVAs for the Attractiveness x Visibility interaction for Personality ratings revealed Attractiveness significantly impacted ratings of Personality when the cane was visible, $F(1, 65) = 29.15, p = .000, \eta_p^2 = .31$, but not when the cane was not visible, $F(1, 65) = .17, p > .05, \eta_p^2 = .00$ (See Table 16 for observers’ mean ratings). When a cane was visible, the more attractive targets received significantly higher Personality ratings compared to less attractive targets (See Figure 3).

At the univariate level the Attractiveness x Ambiguity interaction was found to be significant for observers’ ratings of Pain/Disability only and this effect was moderate. Observers’ ratings of Pain/Disability subdivided by Attractiveness and Ambiguity are presented in Table 17. The results of follow-up one-way ANOVAs examining the nature of this significant interaction revealed Attractiveness significantly impacted Pain/Disability ratings in both the FM, $F(1, 65) = 79.70, p = .000, \eta_p^2 = .55$, and RA conditions, $F(1, 65) = 16.18, p = .000, \eta_p^2 = .20$. In both diagnostic conditions, the less attractive targets were rated as having more Pain/Disability than the more attractive
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Table 16

*Observers' Mean (SD) Pain/Disability and Personality Ratings Subdivided by Attractiveness and Visibility*

<table>
<thead>
<tr>
<th></th>
<th>Cane</th>
<th>No Cane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain/Disability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>3.62 (.74)</td>
<td>2.78 (.82)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>3.88 (.85)</td>
<td>3.47 (.79)</td>
</tr>
<tr>
<td><strong>Personality Traits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attractive</td>
<td>4.15 (.66)</td>
<td>4.11 (.65)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>3.83 (.74)</td>
<td>4.10 (.67)</td>
</tr>
</tbody>
</table>
Figure 3. Attractiveness x Visibility Interaction for Pain/Disability and Personality.
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Table 17

*Observers’ Mean (SD) Pain/Disability Ratings Subdivided by Attractiveness and Ambiguity*

<table>
<thead>
<tr>
<th>Pain/Disability</th>
<th>FM</th>
<th>RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attractive</td>
<td>3.11 (.83)</td>
<td>3.29 (.74)</td>
</tr>
<tr>
<td>Unattractive</td>
<td>3.74 (.86)</td>
<td>3.62 (.81)</td>
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</table>
targets; however, the effect of Attractiveness was much stronger when the target was described as having FM (See Figure 4).

Examination of univariate findings for Visibility x Ambiguity interaction revealed significant effects for observers’ ratings of Pain/Disability and Sympathy/Desire to Help (See Table 15). The overall impact of this interaction was stronger for Pain/Disability ratings than Sympathy/Desire to Help. Observers’ ratings of Pain/Disability and Sympathy/Desire to Help subdivided by Visibility and Ambiguity are presented in Table 18. The results of follow-up one-way ANOVAs examining the nature of the significant interaction for Pain/Disability revealed Visibility significantly impacted ratings in the RA condition, \( F(1, 65) = 152.47, p = .000, \eta^2_p = .70 \), but not the FM condition, \( F(1, 65) = 3.47, p = .067, \eta^2_p = .05 \). In this case, observers rated targets in the cane visible condition as having higher levels of Pain/Disability compared to those in the no cane visible condition (See Figure 5). The results of follow-up one-way ANOVAs regarding the nature of the Visibility x Ambiguity interaction on observers’ levels of Sympathy/Desire to Help revealed Visibility significantly impacted ratings in the RA condition, \( F(1, 65) = 9.64, p = .003, \eta^2_p = .13 \), but not the FM condition, \( F(1, 65) = 1.01, p = .319, \eta^2_p = .02 \). In the RA condition, observers reported higher levels of Sympathy/Desire to Help targets in the cane visible versus the no cane visible condition (See Figure 5).

Lastly, examination of the univariate results for the Visibility x observer Pain Experience interaction revealed significant group difference for observers’ ratings of Pain/Disability only (See Table 15). Observers’ ratings of Pain/Disability subdivided by Visibility and Pain Experience are presented in Table 19. Results of follow-up one-way
Figure 4. Attractiveness x Ambiguity Interaction for Pain/Disability.
Table 18

*Observers’ Mean (SD) Pain/Disability and Sympathy/Desire to Help Ratings Subdivided by Visibility and Ambiguity*

<table>
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<tr>
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<th>Cane</th>
<th>No Cane</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain/Disability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>3.51 (.93)</td>
<td>3.34 (.81)</td>
</tr>
<tr>
<td>RA</td>
<td>4.00 (.70)</td>
<td>2.91 (.87)</td>
</tr>
<tr>
<td><strong>Sympathy/Desire to Help</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>4.15 (1.04)</td>
<td>4.23 (1.08)</td>
</tr>
<tr>
<td>RA</td>
<td>4.24 (1.07)</td>
<td>3.98 (1.14)</td>
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</table>
Figure 5. Visibility x Ambiguity interaction for Pain/Disability and Sympathy/Desire to Help.
Table 19

Observers' Mean (SD) Pain/Disability Ratings Subdivided by Visibility and Observer

<table>
<thead>
<tr>
<th>Pain Experience</th>
<th>Personal Pain</th>
<th>Acquaintance Pain</th>
<th>No Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cane</td>
<td>3.66 (.73)</td>
<td>4.05 (.53)</td>
<td>3.54 (.87)</td>
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<tr>
<td>No Cane</td>
<td>3.28 (.60)</td>
<td>3.27 (.64)</td>
<td>2.84 (.89)</td>
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</table>
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ANOVAAs examining the nature of the significant interaction revealed Visibility significantly impacted observers’ ratings of Pain/Disability in all three Pain Experience groups. In each case, observers perceived higher levels of Pain/Disability when the cane was visible versus when the cane was not visible and the strength of this effect increased as personal experience with pain decreased (See Figure 6).

As noted previously, there was one significant 3-way interaction: Attractiveness x Visibility x Ambiguity was significant at the univariate level only for observers’ ratings of target Personality Traits. To deconstruct this interaction, two follow-up one-way ANOVAs were conducted in which the Attractiveness x Visibility interaction was examined within each level of the Ambiguity variable. Observers’ ratings of targets’ Personality Traits subdivided by Attractiveness, Visibility, and Ambiguity were presented previously in Table 11. Within the more ambiguous diagnostic condition (FM), the Attractiveness x Visibility interaction was significant, $F(1, 65) = 36.25, p = .000, \eta_p^2 = .36$. Post-hoc testing with Bonferroni correction revealed the impact of attractiveness differed between the two levels of Visibility. When the cane was visible, the more attractive targets were rated more positively on Personality Traits compared to the less attractive targets, $F(1, 65) = 40.10, p = .000, \eta_p^2 = .38$.

In contrast, when the cane was not visible, it was the less attractive targets who were rated more positively on Personality, $F(1, 65) = 8.27, p = .005, \eta_p^2 = .11$ (See Figure 7). Within the less ambiguous diagnostic condition (RA), the Attractiveness x Visibility interaction was also significant, $F(1, 65) = 4.11, p = .047, \eta_p^2 = .06$. Post-hoc testing with Bonferroni correction revealed the impact of Attractiveness differed only within the no cane visible condition. When no cane was visible, the less attractive
Figure 6. Visibility x Observer Pain Experience Interaction for Pain/Disability.
Figure 7. Attractiveness x Visibility x Ambiguity Interaction for Personality.
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targets were rated more positively compared to the more attractive targets, $F(1, 65) = 11.85, p = .001, \eta_p^2 = .15$ (See Figure 7). When the cane was visible, there was no significant difference between the observers’ ratings of the more or less attractive targets, $F(1, 65) = .002, p = .963, \eta_p^2 = .000$ (See Figure 7).
Discussion

Summary of Research Rationale and Purpose

Previous research has demonstrated that multiple patient and illness characteristics that are unrelated to, or are inadequate indicators of, actual patient functioning can influence observers' judgements of targets living with chronic pain. Specifically, stereotypes related to the targets' physical attractiveness (Hadjistavropoulos et al., 1990; 1995; 1996; Lavoie, 2009), visible disability cues (Joachim & Acorn, 2000; Lavoie; Mercer et al., 1983), and diagnostic ambiguity (Chibnall et al., 2002; Lavoie; Lundquist et al., 2002; Tait & Chibnall, 1994; 1997) have consistently been shown to influence observers' judgements of targets' Pain/Disability levels and Personality Traits. How these stereotyped judgements impact observers' affective reactions or translate into support decisions and helping behaviours is less clear. The extent to which these stereotypes interact with one another to influence observers' judgements is also relatively unknown because they have normally been studied in isolation. Lastly, little is known about the impact of observer characteristics on judgements about patients. Although a limited number of studies have shown that observers' attributional style (i.e., Supportive versus Unsupportive; Lundquist et al., 2002) and level of experience in working with patients with chronic pain (Prkachin et al., 2001) can influence perceptions of the targets' Pain/Disability and Personality Traits, it is unknown to what extent observer characteristics interact with stereotypes based on characteristics of the target or illness. There is also little information available about the extent to which observer characteristics impact observers' affective reactions or support decisions and helping behaviours, though one study found observers with an
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Unsupportive AS were more susceptible to an ambiguity cue and were only more likely to choose the less painful of two treatment options when they were led to believe the target was compliant (Lundquist et al., 2002).

The purpose of the present study was therefore threefold. First, beyond examining their impact on perceptions of Pain/Disability and Personality Traits, the impact of the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes were investigated within the framework of Weiner’s Attribution-Affect-Action mediation model, which theorizes that observers’ attributions about a target’s Responsibility for their illness impacts their affective and behavioural response to the target (Weiner, 1980; 1985; 1993). Thus, our understanding of how these stereotypes influence attributions about the target was expanded. Second, the extent and nature of the interactions among the three stereotypes was evaluated in order to increase generalizability to real-life scenarios where observers’ judgements are influenced by multiple factors simultaneously. Lastly, the extent to which observers’ AS and level of previous Pain Experience moderates the impact of the three stereotypes on observers’ judgements was also evaluated.

Summary of Results

Given the complexity of the study design and analyses, a summary of the key findings is presented here. In order to provide clarity, the summary is organized by research hypothesis, rather than by the separate ANOVA and MANOVA analyses.

Physical attractiveness stereotype (Hypothesis 1). Compared to less attractive targets, observers were expected to rate more attractive targets as having lower Pain/Disability levels, more positive Personality Traits, and less Responsibility for their
illness. Observers were also expected to report feeling less Anger towards, and more Sympathy/Desire to Help, the more attractive targets. Partial support for this hypothesis was found: As expected the “What is Beautiful is Good/Healthy” effects were found in relation to observers’ ratings of Pain/Disability and Personality Traits, but attractiveness had no direct effect on ratings of Responsibility, Anger, or Sympathy/Desire to Help. Target level of attractiveness had a moderate effect on ratings of Personality Traits and a strong effect on ratings of Pain/Disability.

Visible disability cue stereotype (Hypothesis 2). In the absence of a visible disability cue, observers were expected to rate targets as having lower levels of Pain/Disability, less positive Personality Traits, and higher levels of Responsibility. Observers were also expected to report more Anger and less Sympathy/Desire to Help when the targets were pictured without a cane. This hypothesis was largely unsupported. Although observers rated Pain/Disability levels as expected, the other dependent variables were rated contrary to expectations: Targets pictured without a cane were perceived as having more positive Personality Traits and lower levels of Responsibility (small and moderate effects respectively), and elicited less Anger (a small effect). Finally, the presence of a visible disability cue had no significant impact on observers’ ratings of Sympathy/Desire to Help. Among the three stereotypes evaluated, the visible disability cue impacted the highest number of dependent variables and had an overall negative impact on observers’ perceptions. While offering a level of legitimacy to the pain condition (i.e., more Pain/Disability was associated with having a cane), the visibility disability cue also triggered feelings of Anger and blame (i.e., higher ratings of...
Responsibility) and was associated with more negative views of the targets’ Personality Traits.

**Diagnostic ambiguity stereotype (Hypothesis 3).** It was hypothesized that more diagnostic ambiguity (FM) would be associated with lower Pain/Disability ratings, less positive ratings of Personality, higher ratings of Responsibility, higher levels of Anger, and lower levels of Sympathy/Desire to Help. No support was found for Hypothesis 3. The only significant associations obtained were small effects of diagnostic ambiguity on observers’ ratings of Anger and Personality Traits, and the direction of these associations was in opposition to the hypothesis. That is, less Anger was expressed toward targets with FM, and targets with FM were also rated more positively in terms of their Personality Traits.

**Interactions (exploratory analyses).** Although no specific hypotheses were made regarding the two- and three-way interactions among the independent variables, the interactions were examined on an exploratory basis. There were three significant two-way interactions among the independent variables. First, attractiveness interacted with both the visible disability cue and diagnostic ambiguity for Pain/Disability ratings. In both cases, the presence of either a visible disability cue or medical evidence reduced the strength of the attractiveness effect. Second, there was a significant interaction between attractiveness and the visible disability cue for observers’ ratings of targets’ Personality Traits such that attractiveness was found to only impacted observers’ ratings of Personality Traits when the visible disability cue was present. Specifically, when the cane was visible, the less attractive targets received more positive ratings of Personality Traits. Third, a significant visible disability cue and diagnostic ambiguity interaction
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was found for ratings of Pain/Disability and Sympathy/Desire to Help. The visible
disability cue only influenced ratings of Pain/Disability and Sympathy/Desire to Help
when the targets were paired with the less ambiguous diagnosis (RA) in which case
those pictured with a cane received higher ratings of Pain/Disability and
Sympathy/Desire to Help.

Finally, there was one significant three-way interaction among attractiveness,
visible disability cue, and diagnostic ambiguity. Comparisons of observers’ ratings of
the targets’ Personality Traits indicated the impact of attractiveness and visible disability
cue differed depending on the level of diagnostic ambiguity. When the targets were
paired with the more ambiguous diagnosis of FM, the more attractive targets received
more positive Personality ratings than less attractive targets when the cane was visible.
In contrast, when the cane was not visible, it was the less attractive targets with FM that
received more positive Personality ratings. When the targets were paired with the less
ambiguous diagnosis of RA, the less physically attractive targets received more positive
Personality ratings when the cane was not visible. The impact of attractiveness and
visible disability cue had no impact when the targets had RA and the cane was visible.

Moderating effects of observer AS (Hypothesis 4). Having an Unsupportive
AS was expected to amplify the negative impact of the three investigated stereotypes on
each of the dependent variables. Minimal support was found for this hypothesis: Only
one significant interaction involving AS was obtained (AS x Attractiveness x Ambiguity
for ratings of Responsibility). Nevertheless, the findings in relation to this significant
interaction were consistent with expectations. As hypothesized, observers with a
Supportive AS were not influenced by the attractiveness or diagnostic ambiguity
stereotypes while those with an Unsupportive AS were influenced by both stereotypes. When there was a more ambiguous diagnosis (FM), those with an Unsupportive AS gave higher ratings of Responsibility to the less attractive women. In contrast, when there was a less ambiguous diagnosis (RA), the effect of attractiveness was overshadowed and no longer relevant for those with an Unsupportive AS. Thus, the perceptions of observers with an Unsupportive AS were more strongly influenced by the attractiveness stereotype when the target lacked medical evidence for their pain condition (FM). Lastly, it should also be noted, that although no hypotheses were made pertaining to the direct effect of AS on the dependent variables, observers with an Unsupportive AS reported lower levels of Sympathy/Desire to Help the targets compared to observers with a Supportive AS.

Moderating effects of observer level of Pain Experience (Hypothesis 5). It was hypothesized that greater personal Pain Experience would weaken the negative impact of the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes on each of the dependent variables. Minimal support was found for this hypothesis: Observers’ level of Pain Experience interacted only with the visible disability cue and only for ratings of Pain/Disability. Consistent with the main effect for the visible disability cue, targets pictured with a cane received higher ratings of Pain/Disability in all Pain Experience groups and consistent with Hypothesis 5, the impact of the visible disability stereotype decreased as personal Pain Experience increased. It should also be noted that observers’ level of Pain Experience had a direct effect on ratings of Sympathy/Desire to Help. Specifically, observers with either Personal or Acquaintance
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Pain Experience reported significantly more Sympathy/Desire to Help compared to observers with No Pain Experience.

Impact of Stereotypes on Attributions about Women with Chronic Pain

In this study the impact of three stereotypes (attractiveness, visible disability cue, and diagnostic ambiguity) on attributions about women with chronic pain were examined. An important contribution of this study is that the experimental design also enabled an examination of how these stereotypes interacted with one another to influence attributions. Moreover, our knowledge of the attributional process was expanded by not just evaluating observers’ perceptions of the target’s Pain/Disability and Personality Traits, but also the observers’ affective reactions, desire to help the target, and their attributions of the target’s Responsibility for the pain condition. Lastly, measurement of the observers’ AS and level of Pain Experience allowed testing of a moderated model in which these observer characteristics were expected to influence the extent to which the observers’ perceptions were influenced by the three stereotypes.

Impact of stereotypes on perceptions of the targets’ Pain/Disability levels.

Stereotypes related to target attractiveness, visible disability cues, and ambiguity of the target’s diagnosis have been shown to influence observers’ perceptions of targets’ Pain/Disability levels. With respect to attractiveness, researchers have consistently demonstrated an attractiveness bias such that higher levels of attractiveness have been linked to perceptions of better health. In the context of pain, higher levels of attractiveness among targets with lower back pain (Hadjistavropoulos 1990; 1996), FM and RA (Lavoie, 2009), dysmenorrhea (Damrosch, 1982), and physical disabilities (Mercer et al., 1983) have been associated with perceptions of better emotional
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adjustment (Damrosch; Mercer et al.), lower levels of anxiety and depression (Hadjistavropoulos, 1990; 1996), less pain severity (Hadjistavropoulos, 1990; 1996; Lavoie), and less functional disability (Hadjistavropoulos, 1990; 1996; Lavoie). Hadjistavropoulos and colleagues (1990) coined the phrase “What is Beautiful is Healthy” to reflect this stereotype.

In terms of diagnostic ambiguity, there is fairly consistent evidence that a lack of supporting medical evidence (i.e., greater diagnostic ambiguity) is associated with perceptions of better health (Chibnall & Tait, 1995; Chibnall et al., 1997; Chibnall et al., 2000; Gillmore & Hill, 1981; Tait & Chibnall, 1997). Nevertheless, there is some contrasting evidence: Lundquist et al. (2002) and Lavoie (2009) found no direct association between ambiguity and perceptions of Pain/Disability among targets with shoulder injuries and FM/RA respectively. With respect to the impact of visible disability cues, less research is available and what is available is inconsistent. Specifically, in keeping with Balter’s (2006) suggestion that disability cues trigger perceptions of higher functional disability, Lavoie (2009) found targets with FM and RA who were pictured with a cane were perceived as having higher Pain/Disability levels compared to targets pictured without a cane. In contrast, although Mercer et al. (1983) found the presence of a wheelchair caused observers to perceive targets presenting with medically unexplained pain symptoms had a poorer prognosis, the observers did not perceive those in the wheelchair had a more severe presenting illness.

In the present study, examination of the impact of attractiveness on perceptions of Pain/Disability levels added additional strong support for the “What is Beautiful is Healthy” stereotype. Nevertheless, although the “What is Beautiful is Healthy”
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stereotype is a strong and robust finding in this and previous research, the visible disability cue stereotype had an even larger effect on Pain/Disability ratings in this study. This finding replicates and extends the findings from an earlier study by Lavoie (2009) and implies that a visible disability cue may provide observers with information about the legitimacy of a target's pain condition (i.e., only someone who is more severely disabled would require a physical aid). The importance of the visible disability cue is further emphasized by the significant interaction between the attractiveness and diagnostic ambiguity stereotypes. This significant interaction revealed that, while the expected "What is Beautiful is Healthy" stereotype held regardless of whether the visible disability cue was present, the presence of the visible disability cue weakened the impact of the attractiveness stereotype. That is, when the visible disability cue was present, observers placed less emphasis on attractiveness.

In terms of the diagnostic ambiguity stereotype, no direct effect on Pain/Disability ratings was observed in the present study. While this is consistent with previous studies by Lundquist et al. (2002) and Lavoie (2009), it does contradict the majority of previous research (i.e., (Chibnall & Tait, 1995; Chibnall et al., 1997; Chibnall et al., 2000; Gillmore & Hill, 1981; Tait & Chibnall, 1997). The inconsistent effects observed for diagnostic ambiguity across various studies, along with the multiple significant two-way interactions between the attractiveness and diagnostic ambiguity and visible disability cue stereotypes in the current study, suggests the overall impact of diagnostic ambiguity may vary depending on what other information is available about the target. First, although the "What is Beautiful is Healthy" stereotype was found to exert its expected effect regardless of the target's diagnosis, the strength of this effect
was reduced when the target had the less ambiguous diagnosis (RA). Moreover, the combined presence of both medical evidence (RA) and a visible disability cue eliminated the attractiveness effect.

In summary, the attractiveness and visible disability cue stereotypes exerted their predicted effects, while the diagnostic ambiguity stereotype had no direct impact on perceptions of Pain/Disability. Of the two significant stereotype effects, the visible disability stereotype exerted the strongest effect and appeared to add a degree of perceived legitimacy to the targets’ pain condition. As noted earlier, however, an important contribution of this study was the examination of how these stereotypes interacted with one another to influence attributions about women with pain. The results of this examination indicate the availability of either a visible disability cue or medical evidence reduced the strength of the attractiveness stereotype while the availability of both a disability cue and medical evidence eliminated the attractiveness effect. This is consistent with prior research demonstrating that attractiveness becomes a less salient contributor to judgements once more information about the target is available (Bull & Ramsey, 1988; Gillmore & Hill, 1981; Green et al., 1985; Taylor & Fiske, 1978). The finding that an external cue to the pain condition (medical evidence or a visible disability cue) is necessary to reduce the extent to which the target’s attractiveness influences observers’ perceptions of Pain/Disability is worrisome for two prominent reasons. First, a majority of patients with chronic pain do not require mobility aids and do not have objective medical evidence for their pain condition. Second, the “What is Beautiful is Healthy” stereotype has been found to contribute only a small degree of validity to clinical judgements (accounting for 5% of the variance; Hadjistavropoulos et
al., 1996). Thus, reliance on the attractiveness stereotype is likely to create inaccurate and biased perceptions of patients and, thus, have a potentially negative impact on patient outcomes (Hadjistavropoulos et al.). The possible clinical implications of these findings are discussed in further detail in the upcoming section entitled “Clinical and Theoretical Implications”.

**Impact of stereotypes on perceptions of the targets’ Personality Traits.** In general social settings, attributions about another person’s personal characteristics are influenced by a number of stereotypes related to easily observable characteristics such as physical attractiveness, age, gender, and race (Dion et al., 1972; Eagly et al., 1991; Miller, 1970). The attractiveness stereotype, labeled “What is Beautiful is Good” by Dion and colleagues (1972), has been found to be particularly strong and robust in social situations: More attractive people are generally perceived as having more positive personality characteristics and to live better lives (e.g., honest, socially competent, popular, and more preferable as romantic partners; Barocas & Karoly, 1992; Berg & McQuinn, 1986; Cavior & Dokeki, 1973; Dion et al., 1972; Feingold, 1988; Miller, 1970). In the context of chronic pain, stereotypes related to easily observable characteristics such as attractiveness, age, gender, and race also influence perceptions of patients’ personal characteristics and similar to more general social settings, attractiveness exerts a strong and robust “What is Beautiful is Good” effect (Hadjistavropoulos et al., 1990; 1995; 1996; 2000; Lavoie, 2009).

In addition to the influence of general social stereotypes, the context of chronic pain also creates the opportunity for stereotypes specifically related to the pain condition to influence perceptions of the patient’s character. Specifically, researchers have
demonstrated that the presence of a visible disability cue (e.g., wheelchair or cane) and the nature of the patient’s diagnosis can influence perceptions of the patient’s character (Lavoie, 2009; Mercer et al., 1983). In contrast to the amount of data available on the impact of the attractiveness stereotype, however, there have been far fewer studies on the diagnostic ambiguity and visible disability cue stereotypes. In three studies investigating diagnostic ambiguity effects, researchers found targets complaining of ambiguous symptoms were viewed less positively by undergraduate and helping professional students (i.e., nursing and medical students; Chibnall & Tait, 1995; Gillmore & Hill, 1981; Lavoie). In terms of the impact of visible disability cues the nature of the impact is less clear. A majority of the past research indicates the presence of a visible disability cue is associated with negative perceptions of personality (i.e., unattractive, shy, dependent, and not open; Fichten & Amsel, 1986) in both social and medical settings. In contrast, when the target is described as having a chronic pain condition specifically, the presence of a visible disability cue seems to lead to more positive perceptions of the patient’s personality (Lavoie; Mercer et al.). Thus, in the context of chronic pain, the presence of a visible disability cue appears to add a level of legitimacy to the pain complaint and, thus, more positive perceptions of the patient’s character.

In the present study, examination of the relationship between the targets’ level of attractiveness and observers’ perceptions of the targets’ Personality Traits provided additional support for the “What is Beautiful is Good” stereotype. Consistent with past research related to the impact of this stereotype in both chronic and acute pain conditions (Lavoie, 2009; Mercer et al., 1983) the more attractive targets were viewed as
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possessing significantly more positive Personality Traits (i.e., being more trustworthy, likeable, honest, friendly, intelligent, agreeable, and emotionally strong).

Fundamentally, this suggests attractive patients may be viewed as "good" patients (Nordholm, 1980). Results pertaining to the visible disability cue and diagnostic ambiguity stereotypes, however, were contrary to expectations. In terms of the visible disability cue, the Personality of targets pictured with a cane was viewed more negatively compared to the Personality of targets pictured without a cane. This finding contradicts the available chronic pain literature (Lavoie; Mercer et al.) but is consistent with the more generally negative view of persons with disabilities that has been observed in broader social and medical situations (Au & Man, 2006; Fichten & Amsel, 1986; Ravaud et al., 1986; Sheehan et al., 1995; Tervo et al., 2002; 2004). With respect to diagnostic ambiguity, it was the targets paired with the more ambiguous diagnosis (FM) who were perceived more positively. This finding is inconsistent with experimental research examining HCP and undergraduate students' perceptions of patients with ambiguous versus unambiguous pain complaints (Chibnall & Tait, 1995; Gillmore & Hill, 1981; Lavoie, 2009). This findings is also contrary to the large body of research demonstrating observers' generally have reported frustrations and negative attitudes towards targets with MUS, including FM (Asbring & Navarnen, 2003; Duncan, 2003; Ehrlich, 2003; Epstein, 2006; Hellstrom et al., 1998; Reid et al., 2001).

Given the limited available research related to the impact of visible disability cues and diagnostic ambiguity on Personality perceptions for targets with chronic pain, the current findings are difficult to reconcile. Nevertheless, some possible explanations, which will require additional study to validate, can be posited. First, the activation of the
attractiveness, visible disability cue, and diagnostic ambiguity stereotypes in relation to an individual target may have altered the manner in which they individually impacted perceptions of Personality. The significant interaction between the attractiveness, visible disability cue, and diagnostic ambiguity provides some support for this supposition. Examination of this interaction revealed the “What is Beautiful is Good” stereotype only exerted its expected effect when the diagnosis was ambiguous but the disability cue was visible. In other words, the positive bias associated with higher levels of attractiveness outweighed any negative bias associated with a visible disability cue only when the target had FM. It is unclear why this was found given the strength and consistency of the attractiveness stereotype in both the general social psychological literature and the chronic pain literature. Although the “What is Beautiful is Good” stereotype has been consistently shown to exert a strong direct impact on Personality ratings, the current results suggest the addition of one or more external cues (i.e., cane or medical evidence) reduces the strength and/or changes the nature of the relationship between the attractiveness stereotype and Personality perceptions. This interpretation is partially consistent with prior research demonstrating that attractiveness becomes a less salient contributor to judgements once more information about the target is available (Bull & Ramsey, 1988; Gillmore & Hill, 1983; Green et al., 1985; Taylor & Fiske, 1978).

Another possibility for the disparate visible disability cue and diagnostic ambiguity stereotype findings is the difference between the type of participants sampled in the present study (adults from the community) versus previous studies (undergraduate or health professional students). Attributions have a significant motivational component and, thus, differing motivations for participation may have influenced the attention paid
to, and interpretation of, available cues (i.e., depth of processing; Green et al., 1985; Weiner et al., 1980; 1985; 2000). Younger undergraduate students motivated to earn credit toward their final grade (Lavoie, 2009) may have exerted less mental effort processing the available cues. In contrast, older, self-selected observers from the community had different motivations (e.g., due to their own experience with pain, desire to aid the researcher, or desire to help further knowledge) for their participation, which may have impacted their depth of processing. While differences in Pain Experience among the observers did not impact perceptions of the targets’ Personality Traits, other differences between the community sample in this study and the university student samples utilized in previous research (e.g., age, knowledge about pain) could have contributed to the inconsistent findings. Additional research is required to pinpoint the reasons underlying the differing results.

Impact of stereotypes on attributions of Responsibility for the chronic pain condition. Attributions about a targets’ Responsibility for their illness is a key component of Weiner’s (1980) Attribution-Affect-Action model of helping behaviour. To date, however, little is known about whether stereotypes, which impact attributions about other aspects of a target’s illness, also impact attributions of Responsibility. Based on existing research demonstrating more attractive people are more likeable (Eagly et al., 1991; Lavoie, 2009), lead better lives (Dion et al., 1972; Miller, 1970), and are more likely to elicit positive emotions in general (Snyder et al., 1977), it was expected that more attractive targets would be perceived as having lower levels of Responsibility for their condition. Although there was no research on which to base expectations related to the impact of the diagnostic ambiguity and visible disability cue stereotypes, it was
expected that a visible disability cue and the availability of medical evidence (i.e., unambiguous diagnosis) would lead to lower perceived levels of Responsibility. These expectations were based on past evidence that visible disability cues appear to legitimize pain complaints leading to more positive views of the target’s character (Lavoie; Mercer et al., 1983) while a lack of medical evidence leads to perceptions that the pain is more mental/behavioural in origin and hence under greater personal control (Brockopp et al., 2003; 2004; Dijiker & Koomen, 2003; Weiner et al., 1988).

Results from the current study revealed attributions of Responsibility were minimally impacted by the three stereotypes under investigation. Indeed, only the presence of a visible disability cue impacted perceptions of Responsibility and its impact was in opposition to expectations: Targets pictured with a cane were perceived to be more responsible for their pain condition. Although this finding is unexpected, the rationale underlying the original hypothesis appears sound. Specifically, as noted above, the absence of a visible disability cue was expected to lead to more negative perceptions of the target’s Personality Traits, which has in past research been linked to higher ratings of Responsibility. In the present study, however, the lack of a visible disability cue actually contributed to higher ratings of Personality. Thus, the finding that not having a visible disability cue was associated with lower ratings of Responsibility was consistent with expectations and previous research linking positive views of Personality with perceptions of lower levels of Responsibility. In other words, targets with a cane may have been perceived as lazy and, thus, as not taking Responsibility for managing their pain (i.e., having higher Responsibility for illness offset). Additional research is needed to clarify whether the visible disability cue exerts a direct effect on perceptions
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of Responsibility or whether it exerts an effect only via its influence on perceptions of Personality Traits.

In terms of the lack of significant findings in relation to the other two stereotypes, it may be that the visible disability cue stereotype overshadowed the possible effects of attractiveness or diagnostic ambiguity. Examination of the effect size, however, suggests this is unlikely. While the visible disability cue exerted a large effect on perceptions of Responsibility, its effect was similar to, or much smaller than, the effect it exerted on Pain/Disability, Personality, and Anger ratings and yet the attractiveness and/or diagnostic ambiguity effects were not overshadowed in these cases. An alternative explanation for the lack of significant attractiveness and diagnostic ambiguity effects is the low amount of Responsibility observers assigned to the targets. The low Responsibility scores and limited variability in scores implies the stereotypes included in the current study design insufficiently triggered Responsibility attributions.

It may be that more explicit information about a target’s contribution to their illness is needed to trigger attributions about Responsibility. This supposition is quite plausible when one considers that previous vignette studies eliciting higher and more variable levels of Responsibility attributions included specific statements regarding targets’ behaviours that led to the onset (i.e., risky behaviours) or maintenance (i.e., level of treatment compliance) of the condition (Dijiker & Koomen, 2003; Lundquist et al., 2002; Chibnall & Tait, 1995; Weiner et al., 1988).

**Impact of stereotypes on observers’ Anger and Sympathy/Desire to Help.** As noted above, according to Weiner’s (1980) Attribution-Affect-Action model, attributions made about a target’s Responsibility for their chronic illness influence an
observer’s feelings toward the target and their subsequent decisions about helping the target. Specifically, observers who judge targets to be more responsible for their illness report greater anger, less sympathy, and less willingness to offer help (Brockopp et al., 2003; Dijker & Koomen, 2003; Weiner et al., 1988). Based on this observed link and on the relationships that were originally anticipated between Responsibility and the three stereotypes included in this study, it was expected that greater attractiveness, presence of a visual disability cue, and having a less ambiguous diagnosis would be associated with lower levels of Anger and higher levels of Sympathy/Desire to Help.

Given the lack of significant findings with regard to Responsibility judgements, it is unsurprising that the attractiveness, visible disability cue and diagnostic ambiguity stereotypes also had a minimal impact on the affective or action components of Weiner’s model. Consistent with the results for Responsibility judgements, only the visible disability cue stereotype exerted a direct effect, though only on ratings of Anger. The observed effect on Anger was contrary to the proposed hypothesis but was consistent with the observed relationship between the disability cue and Responsibility judgements noted above. That is, the presence of a visible disability cue was associated with higher ratings of Responsibility and consistent with the link between Responsibility and Anger suggested by Weiner’s model, the presence of a visible disability cue was also associated with higher ratings of Anger.

The only relationship observed between the three stereotypes and observers’ reported Sympathy/Desire to Help was a significant visible disability cue and diagnostic ambiguity interaction. Examination of this interaction revealed higher levels of Sympathy/Desire to Help were triggered only in the presence of both external indicators
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of the nature of the pain condition (i.e., the cane and medical evidence). The directions of this interaction were consistent with expectations and make sense in the context of the only other significant visible disability cue and diagnostic ambiguity interaction (Pain/Disability ratings). Specifically, observers' highest Pain/Disability ratings occurred when both external cues were present (cane and medical evidence). It is, thus, not surprising that observers' also reported their highest levels of Sympathy/Desire to Help for this group of targets.

Impact of observer characteristics on perceptions of targets with chronic pain. The extent to which two observer characteristics influenced judgements about persons with pain was also examined. The first personal characteristic examined was AS, which reflects the extent to which an observer attributes another person's misfortunes to factors that are personally controllable by the person (Higgins & Shaw, 1999; Peterson, 1991). Observers with an Unsupportive AS tend to attribute others' negative events to personally controllable factors while observers with a Supportive AS tend to attribute negative events to factors under less personal control (Higgins 1982; Higgins & Morrison, 1998). With respect to how AS might influence observers’ reliance on stereotypes, researchers have shown that compared to observers with a Supportive AS, those with an Unsupportive AS are more likely to rely on extraneous cues when making causal attributions (Higgins & Shaw; Lundquist et al., 2002). Although the research investigating the impact of AS on perceptions of targets with pain is limited, having an Unsupportive AS has been shown to amplify the negative impact of the diagnostic ambiguity stereotype on observers’ perceptions of pain intensity for targets with shoulder pain (Lundquist et al.). The second personal characteristic examined was
the observers own level of experience with chronic pain, which was defined as having chronic pain (Personal Pain Experience), knowing someone with chronic pain (Acquaintance Pain Experience), or neither of these (No Pain Experience). This observer characteristic was included because people living with chronic illness tend to project their own goal states, affect, and attitudes onto others with chronic illness (Veazie, 2006) and because different types of experience with pain impact attitudes towards persons with pain (e.g., Prkachin et al., 2001; Tervo et al., 2004). For example, having a loved one with pain leads to increased feelings of empathy and more accurate pain perceptions (Prkachin et al., 2001) while having professional experience with pain (i.e., HCPs) is associated with reduced empathy and more negative attitudes (Gillmore & Hill, 1981; Prkachin et al., 2001; Riesma et al., 2000; Tervo et al, 2004).

It was anticipated these two personal characteristics would moderate the degree to which the observers' judgements were impacted by the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes. Specifically, the extent to which these stereotypes impacted observers' judgements was expected to be less among observers' with more Pain Experience and among those with a Supportive AS. Little support was found for these hypotheses: The only significant interactions involving the observer characteristics were a three-way interaction among AS, attractiveness, and diagnostic ambiguity for attributions about Responsibility and a two-way interaction between the visible disability cue and Pain Experience for ratings of Pain/Disability. Though AS impacted only one type of observer judgement, its impact was consistent with expectations: Attributions about Responsibility by observers' with a Supportive AS were not influenced by the attractiveness or diagnostic ambiguity stereotypes whereas
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the attributions of those with an Unsupportive AS were influenced by these two stereotypes. More specifically, the three-way interaction indicated observers with an Unsupportive AS were more susceptible to using the attractiveness stereotype when the target had a more ambiguous diagnosis. Similarly, though Pain Experience impacted only one type of judgement, its impact was consistent with expectations: When making judgements about the targets’ Pain/Disability levels, observers’ with more Pain Experience were less strongly influenced by the presence of a visible disability cue.

Thus overall, it appears the two observer characteristics examined in the present study do little to moderate the extent to which the observers’ perceptions of the targets were influenced by the three stereotypes included in this study. Though it is possible an observer characteristic not investigated in this study moderates the impact of stereotypes on perceptions of people with chronic pain, the current results, along with the findings reported in the existing literature (Hadjistavropoulos et al., 1990; 1996; Lavoie, 2009; Mercer et al., 1983) suggest the judgements of most observers (e.g., undergraduate students, health professional students, health professionals, community members) are likely to be influenced by stereotypes. Additional research focusing on alternative observer characteristics (e.g., attractiveness, age, gender, type and years of experience with pain) is needed to confirm this assumption.

Lastly, while no specific hypotheses were proposed in relation to possible direct effects of the two observer characteristics, it is worth noting that the only direct effects obtained for both AS and Pain Experience were on the observers’ reported levels of Sympathy/Desire to Help. In this case observers with an Unsupportive AS and No Pain Experience reported significantly lower levels of Sympathy/Desire to Help. In terms of
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the impact of AS, it is interesting to note that while the direct effect on Sympathy/Desire to Help is consistent with theoretical expectations that individuals with a Supportive AS would likely be more willing to offer support and help (Higgins & Shaw, 1999; Lundquist et al., 2002), the fact that AS had no direct effect on observers’ ratings of Responsibility is seemingly at odds with AS theory. By definition, AS reflects causal attributions about targets’ control over their misfortunes (i.e., responsibility for their plight). As such, a direct effect of AS on Responsibility would be expected. It is possible, as noted earlier, that the information provided in the present study was insufficient to provoke strong feelings about targets’ Responsibility for their pain condition and, thus, differences in Responsibility perceptions between those with a Supportive versus Unsupportive AS could not be detected. According to Higgins and Shaw, differences between those with a Supportive versus Unsupportive AS may not be fully captured when situational references are too general. The validity of this suggestion is supported by a study by Lundquist et al. (2002), who found that description of the target’s compliance with treatment recommendations was the only variable to directly impact attributions of Responsibility. Moreover, they found compliance also interacted with AS to influence treatment decisions. Observers with an Unsupportive AS were more likely to choose the less painful of two treatment options when they were led to believe the target was compliant while observers with a Supportive AS were not influenced by target compliance in choosing a treatment option.

With respect to the impact of Pain Experience on Sympathy/Desire to Help, the direction of the association is intriguing given it is contrary to what has been found in professional settings. That is, while our community members became more sympathetic
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and willing to offer help to targets with pain when they had a greater degree of experience with pain, HCP’s appear to become less sympathetic and willing to offer help when they have more experience (Prkachin et al., 2001). Thus, it seems the nature of the experience makes a difference and additional research is needed to clarify exactly what types of experience contribute to more or less Sympathy/Willingness to Help.

Clinical and Theoretical Implications

Proponents of the biopsychosocial model of pain indicate that, while pain is fundamentally a personal and subjective experience, it is experienced within complex social environments (Eccleston & Crombez, 1999; Gatchel et al., 2007; Turk & Okifuji, 2002). Thus, both individual and situational characteristics can exert a strong influence on the extent to which contextual cues are attended to, how the salient cues are interpreted, and how the interpretations impact treatment and support decisions and, thus, ultimately contribute to a target’s level of adjustment (Hadjistavropoulos et al., 2011; Lavoie, 2009; Lundquist et al., 2002; Tervo et al., 2002). Overall, findings from the current study demonstrate the complexity of the attributional process and suggest that when observers are provided with information they consider more pertinent to the target’s pain condition (including a visible disability cue and available medical evidence), they place less emphasis on social factors (i.e., target physical attractiveness).

Consistent with past research, support was found for the “What is Beautiful is Healthy” (Gillmore & Hill, 1981; Hadjistavropoulos et al., 1990; 1996; 2000; Lavoie, 2009) and a “Lack of Visible Disability Aid is Healthy” (Davis, 2005; Lavoie) effects. Examinations of the interactions, however, demonstrate the complexity of the attributional process. While all three stereotypes did not significantly interact with one
another, the significant interactions involving attractiveness demonstrate that the presence of either medical evidence or an external disability cue add a level of legitimacy to the target's pain condition, which reduces the strength of the normally strong and robust physical attractiveness stereotype. Moreover, the presence of both the visible disability cue and medical evidence eliminate the impact of attractiveness. The interaction involving the visible disability and diagnostic ambiguity stereotypes, however, indicate the visible disability cue alone was not sufficient to elicit more serious perceptions of the target's condition (i.e., to lead to higher ratings of Pain/Disability). Thus, it seems the presence of medical evidence is a key contributor to observers' perceptions that a target's Pain/Disability is more severe.

While further research is needed to confirm these findings in clinical settings, previous research has demonstrated that non-health professional observers' (e.g., university students) make similar judgements to HCPs (Gillmore & Hill, 1981; Mercer et al., 1983; Tait & Chibnall, 1997). Thus, the present findings may provide relevant information to understanding how the attractiveness, visibility disability cue, and diagnostic ambiguity stereotypes might impact patient outcomes. As noted above, medical evidence seems to play a key role in observers' perceptions of the seriousness of a target's Pain/Disability levels. Moreover, either medical evidence or a visible disability cue is required to decrease observers' reliance on the attractiveness stereotype. Still, the impact of the attractiveness stereotype remains moderate to strong even when observers have one of these other pieces of information about the target ($\eta_p^2 \geq .11$). This is problematic for patients with chronic pain because the majority of chronic pain conditions are not accompanied by medical evidence to support their pain complaints.
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(e.g., there are no medical tests upon which to base a diagnosis of FM; Fitzcharles, 2012) and the majority of patients do not require a visible disability aid. Both of these factors (lack of evidence or visible disability aid) contribute to pain underestimations (Chibnall et al., 1997; Lundquist et al., 2002; Tait & Chibnall, 1994, 1997). Combined with the impact of the "What is Beautiful is Healthy" stereotype, it appears patients with chronic pain are very likely to have their true Pain/Disability levels under- (less attractive, lack of disability cue, lack of medical evidence) or over- (more attractive, disability cue, medical evidence) estimated. While the extent to which medical evidence or the use of a disability aid provide any valid information about a patient's true Pain/Disability levels is unknown, there is evidence showing that the attractiveness stereotype provides little valid information about Pain/Disability levels (Hadjistavropoulos et al., 1996).

Regardless of whether the stereotypes that are triggered in relation to any particular patient cause an over- or under-estimation of Pain/Disability levels, there is the potential for the biased perception to negatively impact patient outcomes. If targets are erroneously assumed to have higher levels of Pain/Disability, they may be treated more solicitously, leading to lowered self-efficacy and higher reliance on others (Geiser & Roth, 1998; McCracken, 2005). In contrast, erroneous assumptions of lower Pain/Disability levels can lead to delays in accurate diagnosis and appropriate treatment (Hadjistavropoulos et al., 1996), which can lead patients to exert more energy/time on having their pain complaints validated and increase their frustrations and distress secondary to their pain condition (LaChapelle et al., 2008; Soderberg et al., 1999; Werner & Malterud, 2003). In either case, patients may not be receiving the support or
treatment needed to promote better management of their pain condition and to minimize their disability level.

The current findings also show that the attractiveness (i.e., “What is Beautiful is Good”; Dion et al., 1972) and visible disability cue (i.e., a visible sign of disability is associated with negative character views; Fichten & Amsel, 1986) stereotypes that operate in general social encounters are relevant to perceptions of the Personality Traits of persons with pain. Although a legitimacy effect in relation to the impact of medical evidence was expected (Chibnall & Tait, 1995; Gillmore & Hill, 1981), this result was not obtained. Rather, it was the women without medical evidence whose Personalities were judged more positively. This unexpected direct effect is difficult to explain but might be better understood in relation to the other variables: A significant three-way interaction among the stereotypes revealed the attractiveness stereotype only exerted its expected effect when the diagnosis was ambiguous and the disability cue was visible. Thus, when there was no medical evidence, the “What is Beautiful is Good” stereotype predominated, outweighing the visible disability cue stereotype in judgements of Personality Traits.

By creating biased perceptions about the targets’ Personality Traits, these stereotypes could have important clinical implications. DeRuddere and colleagues (2013), for example, have recently demonstrated that pain may be taken less seriously if the observer dislikes the target. Thus, stereotypes that lead to negative perceptions of a patient’s character (e.g., less honest, likeable or trustworthy) may contribute to a patient’s pain complaints being taken less seriously or even to the perception that the patient is exaggerating or malingering. This could have potential implications for the
type of treatment offered to the patient or even whether they are offered an intervention. For example, the consistent perception that patients with MUS are malingering can lead to the withholding of a medical diagnosis (Clauw & Crofford, 2003; MacLeod et al., 2001). This is especially concerning because the research indicates that receiving a diagnosis is essential to a patient’s ability to adjust (Gullackson & Lidbeck, 2004; LaChapelle et al., 2008; White et al., 2002). In contrast, positive character views (e.g., more honest, likeable, and trustworthy) stemming from the attractiveness stereotype have consistently been associated with the idea that an attractive patient is a “good” patient (Nordholm, 1980). The possible implications of being perceived as a “good” patient are more difficult to discern. On the one hand, “good” patients may receive overly solicitous interventions, which could in turn contribute to lower self-efficacy, poorer self-management of their condition, and greater dependency on HCPs. On the other hand, “good” patients might also be perceived as being better able to handle their condition, which could lead to insufficient levels of intervention and poor management of the pain condition. In either case, if stereotypes lead to biased perceptions of the patient’s Personality there could be negative consequences for their interactions with HCPs which create barrier to effective adjustment.

In terms of the remaining dependent variables, this is the first time the impact of all three of these stereotypes have been examined in the context of Weiner’s (1980) Attribution-Affect-Action model, specifically with respect to their impact on judgements of Responsibility, Anger, and Sympathy/Desire to Help. As a result, any conclusions drawn about the potential clinical implications of the findings must be made tentatively until additional research is completed that replicates the current findings. Based on this
study, attributions about Responsibility and observers’ affective and behavioural responses to patients appear to be less susceptible to the influence of stereotypes or at minimum, less susceptible to these specific stereotypes.

In relation to Weiner’s (1980) Attribution-Affect-Action model, however, an interesting pattern of results emerged for how the three stereotypes impacted ratings of Pain/Disability, Personality, and Responsibility. In terms of direct effects, the visible disability cue stereotype impacted ratings of both Responsibility and Anger. Targets pictured with a cane were rated as having higher levels of Responsibility for their pain condition (i.e., greater blame). It is not surprising therefore, that they also elicited higher ratings of Anger. This pattern is consistent with Weiner’s model, but did not result in any significant decline in Sympathy/Desire to Help as Weiner would predict in relation to higher perceptions of Responsibility. Unexpectedly, however, higher ratings of Anger were also given to targets with the less ambiguous diagnosis. While this finding is difficult to reconcile, and seemingly inconsistent with past research that identifies a generally negative view of patients with more ambiguous symptoms (Ehrlich, 2003; Gillmore & Hill, 1981; Lavoie, 2009; Reid et al., 2001), examination of the patterns noted above can help explain why this may have occurred. Specifically, it appears observer’s levels of reported Anger parallels their perceptions of the target’s Personality. That is, the stereotypes associated with more negative perceptions of Personality (i.e., presence of a cane and presence of medical evidence) were also associated with higher levels of Anger. This may imply that judgements of Personality Traits are more closely tied to the experience of a negative emotional response, regardless of levels of perceived Pain/Disability. It may also suggest that the relationship previous researchers have
identified between diagnostic ambiguity and negative views of patients is mediated by the impact ambiguity has on perceptions of Personality. Eccleston and colleagues (2007) suggest that, at first, blame is resisted and deflected from individual ownership but when pain is no longer useful as a symptom (i.e., chronic and unremitting) on which to base support decisions, the identity of both the patient and HCP is threatened. As such, negative emotions towards the patient may be elicited and perceptions of the patient’s Personality Traits may become more salient in decision-making.

The potential for two observer characteristics (AS and Pain Experience) to moderate the impact of the stereotypes on the observers’ judgements was also examined. While little support was found for the proposed moderated model, with only two exceptions, the observer characteristics were the primary contributors to ratings of Sympathy/Desire to Help. Thus, it appears observers’ decisions about Sympathy/Desire to Help are influenced by internal, rather than external factors. With respect to their impact, increased personal Pain Experience and having a Supportive AS were both associated with increased Sympathy/Desire to Help. This finding is contradictory to the literature demonstrating decreased empathy with increased years of professional experience for HCPs (Choiniere et al., 1990; Gillmore & Hill, 1981; Solomon, 2001) but consistent with the literature demonstrating that observers with a Supportive AS are less susceptible to contextual cues when making judgements (Higgins & Shaw, 1999; Lundquist et al., 2002). Given that attributions have a significant motivational component, it is likely that personal experience with pain creates a different perspective than professional experience with pain. For example, having personal knowledge of the impact of chronic pain may motivate more of a sympathetic/affective perspective while
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having professional training and experience motivates more of a cognitive, problem-solving perspective. The relative importance of 'cognitive' perspective taking versus the affective 'sympathetic' response is not yet well understood in the pain literature (Green et al., 2009) but may help to explain the different effects of Pain Experience between community participants and HCPs.

Contributions, Limitations, and Directions for Future Research

Results of the present study add to our understanding of how the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes influence observers’ perceptions of targets’ Personality Traits and Pain/Disability levels. Consistent with past research the “What is Beautiful is Good/Healthy” stereotypes are the most reliable contributors to observers’ perceptions of Pain/Disability and Personality. Beyond adding to this body of existing literature, however, this study made several additional significant contributions. First, inclusion of all three stereotypes within a single study enabled an examination of the interactive effects of the three stereotypes and made the attributional process more similar to actual clinical situations where a HCP is likely to encounter patients whose characteristics trigger more than one stereotype simultaneously. With respect to Pain/Disability and Personality ratings this study demonstrated that when external indicators of the pain condition were available (i.e., cane and medical evidence) the strength of the “What is Beautiful is Good/Healthy” stereotype was reduced.

Second, the literature on how these stereotypes influence perceptions of patients with pain was expanded by examining their impact on perceptions of targets’ Responsibility for their illness and observers’ feelings of Anger and Sympathy/Desire to
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Help – all of which are important components of Weiner’s (1980) Attribution-Affect-Action model. Results revealed these stereotypes exerted a minimal impact on these perceptions. Overall, the visible disability cue was most relevant in that it had a strong effect on perceptions of Responsibility and Anger (presence of a visible cue was associated with higher ratings of these variables). The only other significant finding was a small and counter-intuitive effect of diagnostic ambiguity on perceptions of Anger (those with a less ambiguous diagnosis elicited more Anger). As noted above, the impact of ambiguity on Anger may have been tied to its effect on perceptions of Personality, though this will require further investigation.

Third, inclusion of AS and Pain Experience enabled examination of whether observers’ personal characteristics moderated the impact of the activated stereotypes on their perceptions of the targets. This is the first study to include the observer characteristics of AS and Pain Experience within a more comprehensive investigation of the three stereotypes and the components of Weiner’s Attribution-Affect-Action model. The findings indicate that, overall, these personal characteristics do not moderate the impact of stereotypes related to targets’ personal or illness characteristics. There were only two exceptions: First, Pain Experience moderated the impact of the visible disability cue on perceptions of Pain/Disability such that those with more Pain Experience placed less emphasis on the disability cue. Second, AS moderated the impact of attractiveness and diagnostic ambiguity such that observers with an Unsupportive AS were more susceptible to using the attractiveness stereotype when the diagnosis was more ambiguous. Thus, overall, it appears that the impact of the three stereotypes included in this study are likely generalizable to a majority of observers. An important
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finding in relation to observer characteristics, however, was the finding that Pain Experience and AS were the only variables to directly influence observers' reported Sympathy/Desire to Help. Thus, while variables related to the targets' personal and illness characteristics significantly contribute to observers' perceptions of Pain/Disability and Personality in particular, it is the observers' characteristics that most strongly predict their reported Sympathy/Desire to Help. This is an especially important finding because the available research on stereotype effects has not identified the full impact of how stereotypes might impact actual helping behaviours.

Finally, beyond providing information about how the stereotypes and observer characteristics specifically impacted the perceptions of our sample of community members and how these results compared to existing literature, the value of this study lies in the implications it presents for individuals working with patients with chronic pain and for Weiner's (1980) Attribution-Affect-Action model about the process of making judgements about persons with chronic pain. Inclusion of all three stereotypes and the observer characteristics within a single study enabled an examination of the interactive effects of the variables and made the attributional process more similar to actual clinical situations where a HCP is likely to encounter patients whose characteristics trigger more than one stereotype simultaneously. The possible impact of the findings on patient outcomes was discussed in the previous section.

As with all research there are limitations to the current study. First, issues relating to methodology hindered full exploration and interpretation of the results. Power issues related to difficulties recruiting high numbers of community participants and the need to eliminate one-third of participants for calculating observer AS may have led to a failure
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to detect the full extent of variable interactions. Moreover, in an effort to preserve maximum power, two decisions related to the analyses may have also hindered a richer understanding of the relationships between the variables. First, in order to reduce the number of dependent variables an initial factor analysis was conducted, which revealed Sympathy, Support Offered, and Willingness to Help loaded onto a single factor. As such, the decision was made to create one Sympathy/Desire to Help variable. In doing so, an examination of how the stereotypes and moderator variables influenced observers’ affective Sympathy response versus their behavioural Desire to Help response could not be examined. Second, as recommended by Tabachnick & Fidell (2007), those dependent variables that were inter-correlated (Pain/Disability, Personality, and Sympathy/Desire to Help) were examined within a single MANOVA. Utilizing a MANOVA decreases the chance of making a Type I error (i.e., detecting spurious findings) but also requires more power. Thus, the smaller sample size and compromised power may have impeded the possibility of detecting the impact of the stereotypes and moderators on each of the variables individually using the MANOVA. Two solutions to this limitation can be considered for future research: A larger sample size can be recruited or the AS variable could be excluded. Obtaining research funding for a follow-up study that enabled payment of an honorarium to the community volunteers would likely make recruitment much easier. Exclusion of the AS variable would increase the sample size by one third and seems to be a reasonable option given AS was only associated with one of the dependent variables.

Second, failure to include a statement that more directly elicited perceptions of Responsibility likely reduced how effective the current study was in evaluating the
impact of the stereotypes and moderator variables on attributions of Responsibility. Given Weiner (1980) argues that attributions of Responsibility subsequently lead to observers’ affective and behavioural responses, this may have also reduced the likelihood of detecting a significant impact on these responses. While it is possible that the attractiveness, visible disability cue, and diagnostic ambiguity stereotypes do not play a significant role in attributions of Responsibility, Anger, or Sympathy/Desire to Help, the methodological limitations identified thus far indicate additional research is needed to confirm these findings. More direct manipulation of the targets’ Responsibility for either the onset or offset of the chronic pain in a future study will enable a more direct evaluation of Weiner’s theory.

Third, although researchers have found little difference between judgements made by undergraduates and HCPs in experimental vignette studies (Gillmore & Hill, 1981; Tait & Chibnall, 1994; 1997), it is unclear whether the results are generalizable to actual clinical settings in which the patient and HCP have an ongoing relationship. For example, although patients with ambiguous pain conditions have consistently reported dissatisfaction with obtaining appropriate health care (LaChapelle et al., 2008; Soderberg et al., 1999; Werner & Malterud, 2003) and HCP themselves have reported negative attitudes towards patients with MUS (Duncan, 2003; Ehrlich, 2006; Hellstrom et al., 1998), the existing vignette-based studies have failed to clearly identify the factors underlying these feelings and attitudes and how they in turn impact helping behaviours. Despite numerous vignette studies investigating the impact of stereotypes on perceptions of targets with pain, there remains a significant knowledge gap of how stereotypes and observer characteristics impact helping behaviours in ongoing relationships between
patients with chronic pain and their respective HCPs. In order to better address the remaining knowledge gap on how the stereotypes and observer characteristics examined in the current study translate into actual helping behaviours in real life settings and how this relates to the significant secondary distress and frustration patients report in relation to others' attitudes and perceived lack of support (LaChapelle et al., 2008), comprehensive research involving people living with chronic pain, their loved ones, and their HCPs would be helpful. Examining these variables within established relationships should offer a clearer understanding of which variables impact perceptions of patients and observers' affective and behavioural responses.

Based on the limitations, as well as the significant results of the current study, there are several important directions for future research, including replicating, improving, and expanding upon the current research. In addition to the suggestions noted above, future research should also evaluate whether any other observer characteristic (e.g., age, race, gender, and length and type of experience with pain) moderates or directly impacts observers' perceptions of patients with pain. If future research demonstrates, as this study appears to and a study by Lundquist and colleagues (2002) did, that Sympathy is most strongly related to helping behaviours (rather than stereotypes or perceptions of Responsibility or Anger), then it may be that interventions intended to maximize levels of helping should focus on increasing levels of Sympathy rather than reducing Anger or minimizing the impact of stereotypes.

Knowledge Translation

A key component of the research process is to disseminate research findings to relevant parties of interest. The findings of the current study will be disseminated in
multiple venues. First, the findings have already been presented at a national pain conference (Lavoie, S., LaChapelle, D.L., & Higgins, N.C. [2012]. Impact Of Patient and Observer Characteristics on Perceptions of Women with Fibromyalgia (FM) and Rheumatoid Arthritis (RA). Presented at the Annual Conference of the Canadian Pain Society, Whistler, BC, May 2012). Second, a manuscript will be prepared and submitted for publication in a relevant scientific journal. Lastly, a lay summary of the relevant research findings has been prepared (see Appendix G). The lay summary will be shared with participants from this study and with relevant stakeholders in the community (e.g., board members of the NB Arthritis Society).
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doi: 10.1097/01.mrr.0000210048.09668.ab


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APPENDIX A
EMAIL/FLYERS TO RECRUIT PARTICIPANTS

Note: This represents the content of the information that will be presented. The format will change depending on whether it is presented by word of mouth, flyer format, announcements in UNB student and faculty e-newsletters, community organizations, doctor’s offices, or Rogers Cable Community Bulletin Board.

A research study investigating perceptions of women living with chronic pain is looking for participants between the ages of 30 and 60 who:

i) have chronic pain (e.g., Arthritis, Fibromyalgia, Low Back Pain) or
ii) have never personally experienced chronic pain.

Participation will require completing a series of questionnaires, which will take between 30 minutes and one hour of your time. All names will be entered in a draw for a 1/25 chance to win a $25 Visa Cash Card.

If you are interested in participating in this study and/or receiving more information please use the contact information below.

Please contact:

Susan Lavoie, PhD Student
Rehabilitation Psychology Research Lab, UNB
Phone: (506) 447-3237
Email: rprl@unb.ca

This project is on file with the University Research Ethics Board (REB file #2009-119).
PERCEPTIONS OF WOMEN WITH FM AND RA

APPENDIX B
INFORMATION LETTER TO INTERESTED PARTICIPANTS

**Title:** Assessing Perceptions of Women with Rheumatoid Arthritis and/or Fibromyalgia

**Introduction:** This study is about perceptions of women with chronic pain. Past research indicates people can make valid inferences about patients based on information about their health condition. We hope that by conducting this research study we will be able to learn more about the factors that influence perceptions of women living with chronic pain and how these perceptions may influence health care decisions.

**Procedure:** Each participant will be given some information about 8 women and will be asked to complete 8 brief rating scales about their functioning, as well as some demographic information about yourself. For your participation, your name will be entered in a draw for a 1/25 chance to win a $25 Visa Cash Card.

**Risks and Benefits of Participation:** There are no known risks associated with participation in this study. Although there will be no direct benefit to you, the results will help us understand how perceptions of women with Fibromyalgia and Rheumatoid Arthritis can affect decisions made about patients.

**Research Personnel:** This study is being conducted by researchers in the Pain and Rehabilitation Psychology Research lab at the University of New Brunswick. Susan Lavoie, a graduate student in Clinical Psychology, will lead the study under the supervision of Dr. Diane LaChapelle. You may contact any of the researchers in the lab at (506) 447-3237 or rppl@unb.ca. Dr. LaChapelle can be reached directly at (506) 458-7744.

**Confidentiality:** Any information derived from your participation in the study will be held in strict confidence. The questionnaires you complete will be stored anonymously and securely.

**Voluntary Participation:** Participation in this project is completely voluntary. You may refuse or withdraw from participating at any time and your name will still be entered to receive the gift certificate.

**Ethical Approval:** The Research Ethics Board, University of New Brunswick, has approved this project. If you have any questions or concerns about your rights or treatment as a research participant, you may contact the Chair of the Psychology Research Ethics Committee, Dr. David Clark at (506) 452-6225 or the Chair of the Department of Psychology, Dr. Sandra Byers at (506) 458-7697.

**Results of this Study:** If you would like to be mailed information about the results of this study, please provide your mail/email information on the attached consent form.

*This project is on file with the University Research Ethics Board (REB file #2009-119).*
APPENDIX C: QUESTIONNAIRES/STIMULUS PACKAGE

Note: The complete stimulus package will contain, 8 photographs of women with FM or RA, 8 brief descriptions, 8 rating scales, and one demographic/concluding questionnaire.

APPENDIX C1: PERCEPTIONS OF WOMEN WITH FM OR RA

Instructions: We are interested in assessing perceptions of patients with chronic pain. Descriptions of 2 chronic pain conditions are provided below. These 2 chronic pain conditions are extremely common in the general population. Please read each description carefully and use the information provided in the descriptions when you are making your ratings of the 8 patients with chronic pain included in this package.

Rheumatoid Arthritis (RA) is one of the most common forms of arthritis. A prominent feature of RA is morning stiffness. Other symptoms include pain, stiffness, swelling, and impaired functioning of joints. RA is diagnosed based on the results of blood tests to detect certain antibodies and x-rays or MRIs to detect joint degeneration or damage.

Fibromyalgia (FM) is a more recently recognized type of arthritis, but is also quite common. The most frequently reported symptoms of FM are muscle pain and fatigue, with other common symptoms including joint pain, headaches, irritable bowel, sleep disturbances, and poor ability to concentrate. There are no medical tests that can diagnose FM, thus physicians make a diagnosis on the basis of the patients’ reports of pain and other symptoms. Due to the lack of available medical tests to diagnose FM, there is controversy about whether FM truly exists.

<table>
<thead>
<tr>
<th>4 x 6 Photograph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cane or No Cane</td>
</tr>
<tr>
<td>Attractive, Neutral, or Unattractive</td>
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</table>

Name + Diagnosis
PERCEPTIONS OF WOMEN WITH FM AND RA

Rating Scale
The following questions are designed to help us learn more about perceptions of people in pain. Under each question is a scale to mark your answer. Please read each item and circle the number that best describes your perceptions of this person.

1. Patient’s pain intensity:
   0 1 2 3 4 5 6
   Not at all intense
   Extremely intense

2. Patient’s pain severity:
   0 1 2 3 4 5 6
   Not at all severe
   Extremely severe

3. Patient’s need for financial compensation:
   0 1 2 3 4 5 6
   No need
   Extremely high need

4. Patient’s level of disability in social/leisure activities:
   0 1 2 3 4 5 6
   No social disability
   Extreme social disability

5. Patient’s level of disability in family-related activities:
   0 1 2 3 4 5 6
   No family disability
   Extreme family disability

6. Patient’s level of work-related disability:
   0 1 2 3 4 5 6
   No work-related disability
   Extreme work-related disability
### Perceptions of Women with FM and RA

7. Patient's need for treatment:
   - **0** No need
   - **1**
   - **2**
   - **3**
   - **4**
   - **5** Extreme need for treatment

8. How trustworthy is this patient?
   - **0** Not at all trustworthy
   - **1**
   - **2**
   - **3**
   - **4**
   - **5** Extremely trustworthy

9. How likeable is this patient?
   - **0** Not at all likeable
   - **1**
   - **2**
   - **3**
   - **4**
   - **5** Extremely likeable

10. How honest is this patient?
    - **0** Not at all honest
    - **1**
    - **2**
    - **3**
    - **4**
    - **5** Extremely honest

11. How friendly is this patient?
    - **0** Not at all friendly
    - **1**
    - **2**
    - **3**
    - **4**
    - **5** Extremely friendly

12. How intelligent is this patient?
    - **0** Not at all intelligent
    - **1**
    - **2**
    - **3**
    - **4**
    - **5** Extremely intelligent

13. How agreeable is this patient?
    - **0** Not at all agreeable
    - **1**
    - **2**
    - **3**
    - **4**
    - **5** Extremely agreeable

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<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. How emotionally strong is this patient?</td>
<td>0-6</td>
<td>Not at all strong&lt;br&gt;Extremely strong</td>
</tr>
<tr>
<td>15. How angry do you feel toward this patient about her illness?</td>
<td>0-6</td>
<td>Not at all angry&lt;br&gt;Extremely angry</td>
</tr>
<tr>
<td>16. How responsible do you feel this patient is for acquiring her illness?</td>
<td>0-6</td>
<td>Completely responsible&lt;br&gt;Not at all responsible</td>
</tr>
<tr>
<td>17. How responsible do you feel this patient is for her illness continuing?</td>
<td>0-6</td>
<td>Completely responsible&lt;br&gt;Not at all responsible</td>
</tr>
<tr>
<td>18. How much sympathy do you feel toward this patient?</td>
<td>0-6</td>
<td>No sympathy&lt;br&gt;Extreme sympathy</td>
</tr>
<tr>
<td>19. How willing would you be to help this patient?</td>
<td>0-6</td>
<td>Would not go out of my way at all&lt;br&gt;I would really go out of my way</td>
</tr>
<tr>
<td>20. How much support would you offer this patient?</td>
<td>0-6</td>
<td></td>
</tr>
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</table>

177
<table>
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<tr>
<th>I would not give 'extra' support</th>
<th>I would give lots of 'extra' support</th>
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PERCEPTIONS OF WOMEN WITH FM AND RA
APPENDIX C2: REASONS FOR MISFORTUNE QUESTIONNAIRE

INSTRUCTIONS:

The items on the following pages present specific misfortunes or problems that might happen to anyone. For each item, think about how such a thing could likely happen to someone (other than yourself) and then write down one plausible (likely) reason that comes to mind. That is, for each item, think over what you know about the world to answer the question, "How does a problem like this happen to someone (excluding myself)?" Then, try to express a plausible reason for the misfortune in a single sentence.

After writing down a likely cause for a misfortune, then rate that cause on each of the twelve scales provided by circling one number on each scale. When doing the ratings, be sure to focus on the cause (that is, the reason for the onset) of the problem, NOT on the problem. This may be difficult at times. In other words, make sure you are rating the cause you write down for a misfortune, and NOT the misfortune itself.

"The person" referred to in the rating questions means the person who has the problem; the term "Other people" referred to in the ratings means anyone else (that is, anyone other than the person with the problem).

Please take your time when doing the ratings - make sure you read the questions carefully. You may find that there is more than one way of interpreting some of the rating questions. Please interpret these questions in the way that is most meaningful to you. There are no right or wrong answers to these questions.

To summarize, for each of the 6 misfortunes, you should:

1) think over what you know about how such a misfortune could likely happen to someone (other than yourself).
2) write down one likely cause of that misfortune - try to express the reason in one sentence.
3) then, rate that cause by circling one number on each of the 12 scales provided - each time you do the ratings, be sure to focus on the cause you wrote down (i.e., the reason for the problem), NOT on the problem.
4) if you find there is more than one way of interpreting a question, interpret it in a way that is most meaningful to you.
5) please read the questions carefully.

Please answer all the questions. It should take 10-15 minutes to finish this questionnaire. You are, of course, free to stop participating at any time.

PLEASE ANSWER ALL OF THE QUESTIONS. Keep in mind that there are no right or wrong answers. Please refer back to the instructions if you are unsure about what to do.
One likely cause: ____________________________

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

Is the cause something:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>That reflects an aspect of the situation</td>
<td></td>
<td></td>
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That reflects an aspect of the person
Manageable by the person
Permanent
The person can regulate
Over which others have control
Inside the person
Stable over time
Under the power of other people
About the person
Over which the person has power
Unchangeable
Other people can regulate

2. Divorce.
One likely cause: ____________________________

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

Is the cause something:

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That reflects an aspect of the person
Manageable by the person
Permanent
The person can regulate
Over which others have control
Inside the person
Stable over time
Under the power of other people
About the person
Over which the person has power
Unchangeable
Other people can regulate

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PERCEPTIONS OF WOMEN WITH FM AND RA

One likely cause:  

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

**Is the cause something:**

- That reflects an aspect of the situation
  - That reflects an aspect of the person
  - Manageable by the person
  - Permanent

- Not manageable by the person
  - Manageable by the person
  - Permanent

- The person cannot regulate
  - The person can regulate

- Over which others have no control
  - Over which others have control

- Outside the person
  - Inside the person
  - Stable over time

- Variable over time
  - Stable over time

- Not under the power of other people
  - Under the power of other people

- About others
  - About the person

- Over which the person has no power
  - Over which the person has power

- Changeable
  - Unchangeable

- Other people cannot regulate
  - Other people can regulate

4. Facial disfigurement.

One likely cause:  

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

**Is the cause something:**

- That reflects an aspect of the situation
  - That reflects an aspect of the person

- Not manageable by the person
  - Manageable by the person
  - Permanent

- The person cannot regulate
  - The person can regulate

- Over which others have no control
  - Over which others have control

- Outside the person
  - Inside the person
  - Stable over time

- Variable over time
  - Stable over time

- Not under the power of other people
  - Under the power of other people

- About others
  - About the person

- Over which the person has no power
  - Over which the person has power

- Changeable
  - Unchangeable

- Other people cannot regulate
  - Other people can regulate

5. Has no friends.

One likely cause:
PERCEPTIONS OF WOMEN WITH FM AND RA

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

Is the cause something:

That reflects an aspect of the situation 1 2 3 4 5 6 7 8 9
Not manageable by the person 1 2 3 4 5 6 7 8 9
Temporary 1 2 3 4 5 6 7 8 9
The person cannot regulate 1 2 3 4 5 6 7 8 9
Over which others have no control 1 2 3 4 5 6 7 8 9
Outside the person 1 2 3 4 5 6 7 8 9
Variable over time 1 2 3 4 5 6 7 8 9
Not under the power of other people 1 2 3 4 5 6 7 8 9
About others 1 2 3 4 5 6 7 8 9
Over which the person has no power 1 2 3 4 5 6 7 8 9
Changeable 1 2 3 4 5 6 7 8 9
Other people cannot regulate 1 2 3 4 5 6 7 8 9

That reflects an aspect of the person
Manageable by the person
Permanent
The person can regulate
Over which others have control
Inside the person
Stable over time
Under the power of other people
About the person
Over which the person has power
Unchangeable
Other people can regulate

6. Loss of all possessions.

One likely cause: _______________________________________

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of the person's misfortune. Circle one number for each of the following questions.

That reflects an aspect of the situation 1 2 3 4 5 6 7 8 9
Not manageable by the person 1 2 3 4 5 6 7 8 9
Temporary 1 2 3 4 5 6 7 8 9
The person cannot regulate 1 2 3 4 5 6 7 8 9
Over which others have no control 1 2 3 4 5 6 7 8 9
Outside the person 1 2 3 4 5 6 7 8 9
Variable over time 1 2 3 4 5 6 7 8 9
Not under the power of other people 1 2 3 4 5 6 7 8 9
About others 1 2 3 4 5 6 7 8 9
Over which the person has no power 1 2 3 4 5 6 7 8 9
Changeable 1 2 3 4 5 6 7 8 9
Other people cannot regulate 1 2 3 4 5 6 7 8 9

That reflects an aspect of the person
Manageable by the person
Permanent
The person can regulate
Over which others have control
Inside the person
Stable over time
Under the power of other people
About the person
Over which the person has power
Unchangeable
Other people can regulate

Thank you for participating.
Thank you for your participation in this study. Please take the time to complete a few final questions.

Concluding questionnaire for observers without chronic pain:

1. Age

2. Sex female male

3. Education Level (check one)
   - less than high school
   - high school diploma/GED
   - college/university degree
   - graduate degree

4. Ethnicity European Origin/White African-American/Black
   - Asian Origin Hispanic Origin
   - Middle Eastern Aboriginal/Native Origin

5. Household income:
   - less than $30,000
   - $30,000-$50,000
   - more than $50,000

6. Do you have any experience in health care services? yes no
   If yes, please describe

7. Were any of the women in the photographs familiar to you? yes no
   If yes, please indicate which number(s) (1-12).

8. Have any of your loved ones (i.e., relationship partner, parent, siblings) been diagnosed with chronic pain? yes no
   If yes, indicate relationship, diagnosis, and number of years of illness

9. At any time did you assume this study had a purpose other than the one that was presented to you? yes no
   If yes, indicate alternative purpose
Concluding questionnaire for observers with chronic pain:

1. Age

2. Sex _____ female _____ male

3. Education level (check one):
   _____ Less than high school
   _____ High school diploma/GED
   _____ College/university degree
   _____ Graduate degree

4. Ethnicity _____ European Origin/White _____ African-American/Black
   _____ Asian Origin _____ Hispanic Origin
   _____ Middle Eastern _____ Aboriginal/Native Origin

5. Household income:
   _____ less than $30,000 _____ $30,000-$50,000 _____ more than $50,000

6. Primary diagnosis

7. Number of years living with this diagnosis

8. Do you have any experience in health care services? _____ yes _____ no
   If yes, please describe

9. Were any of the women in the photographs familiar to you? _____ yes _____ no
   If yes, please indicate which number(s) (1-12).

10. At any time did you assume this study had a purpose other than the one presented to you? _____ yes _____ no
    If yes, indicate alternative purpose
APPENDIX D: CONSENT FORM

I have received a copy of the information and consent form for the study. I have read and understood this information and agree to complete the required questionnaires for this study being conducted by Susan Lavoie, a graduate student in Clinical Psychology under the supervision of Dr. Diane LaChapelle, Department of Psychology, University of New Brunswick. I understand that my time commitment will be approximately 30 minutes to 1 hour and that my name will be entered into a draw for a $25 Visa Cash Card.

As a participant in this study, I realize that I will be asked to complete an anonymous questionnaire and that all of the information that I provide will be held in confidence and I will not be identified in any way in the final report. I understand that I may withdraw this consent at anytime by discontinuing the questionnaire or choosing whether to answer or not answer any particular question and that I will still have my name entered in the draw for the gift certificate. I understand that all information I provide is confidential and that all identifying information will be kept separate from my responses and any publications and/or presentations resulting from this research.

I have been informed that this project has been reviewed and received ethics approval by the Research Ethics Board, University of New Brunswick. If I have any questions or concerns about my rights or treatment as a research participant, I may contact the Chair of the Psychology Research Ethics Committee, Dr. David Clark at (506) 452-6225 or the Chair of the Department of Psychology, Dr. Sandra Byers at (506) 458-7697.

Participant’s Name: ______________________________________

Participant’s Signature: __________________________________

Date: _____________________________________________

Name of Witness: __________________________________________

Signature of Witness: ______________________________________

If you would like a copy of the results of this study, please provide an email or mailing address below:

Email: ______________________________________

Mailing Address: ________________________________________________________________
Title of Project: Assessing Perceptions of Patients with Chronic Pain

Background: When people perceive the world and others they typically do so through pre-existing schemas or representations, such as stereotypes. Stereotypes are beliefs about social groups based on their shared characteristics and they provide a means for organizing and interpreting large amounts of information (Baron, Byrne, & Branscombe, 2003). Although stereotypes can be helpful in simplifying our complex world, they can, at times, be harmful when they are based on incorrect or irrelevant information. Our initial impressions tend to linger even when contradictory information is presented. These initial impressions, or snap judgements, made about others are typically based on obvious physical characteristics such as gender, race/ethnicity, and physical appearance.

For example, according to the ‘beautiful is good’ stereotype, people tend to attribute more positive characteristics to people who are more physically attractive (Miller, 1970). An individual’s appearance is one of the main characteristics that we notice and their level of physical attractiveness influences how we perceive that person, whether we are aware of this influence or not. The mere fact that someone is judged to be more physically attractive leads to increased expectation that they lead better, more fulfilling lives and that they are better adjusted emotionally (Dion, Berscheid, & Walster, 1972).

Research has revealed different stereotypes at work in health professions, including the mental health and medical professions. Certain patient characteristics have been shown to influence the judgements of helping professionals. For example, people with mental illness are often considered to have more control over their condition and therefore more control over getting better. The purpose of this study was to examine whether stereotypes have an impact on judgements about patients with pain.

Use of Partial Disclosure in Research: Deception is often necessary in research in order to uncover true reactions to what is being measured. Deception was used in this study in two ways: 1) The women depicted in the photographs did not have the conditions they were paired with. This was simply because it was easier to hire women to have their photographs taken without placing any restrictions on their conditions. 2) Initially you were not provided with the fact that we were interested in the impact of stereotypes on perceptions of women with pain in order to ensure this information did not influence your responses.

References
APPENDIX F: SUMMARY OF VARIABLES

<table>
<thead>
<tr>
<th>Operational Definitions</th>
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<tr>
<td><strong>Independent Variables</strong></td>
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<tr>
<td>Attractiveness</td>
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<tr>
<td>Attractiveness was rated on a 0-7 point Likert-type scale from less physically attractive</td>
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<td>to more physically attractive. The 4 highest scoring models were categorized as more</td>
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<tr>
<td>physically attractive while the four lowest scoring models were categorized as less</td>
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<td>physically attractive.</td>
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<tr>
<td>Visible Disability Cue</td>
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<tr>
<td>Models were pictured with (visible disability) or without (invisible disability) a cane</td>
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<tr>
<td>Diagnostic Ambiguity</td>
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<tr>
<td>Models were paired with either FM (an ambiguous diagnosis lacking supporting medical</td>
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<tr>
<td>evidence) or RA (an unambiguous diagnosis with supporting medical evidence).</td>
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<tr>
<td><strong>Moderator Variables</strong></td>
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<tr>
<td>Attributional Style</td>
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<tr>
<td>Observers who scored in the top third of the score distribution on the RMQ were</td>
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<tr>
<td>classified as having Unsupportive AS while those in the bottom third were classified</td>
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<tr>
<td>as Supportive AS based on the RMQ.</td>
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<tr>
<td>Pain Experience</td>
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<tr>
<td><em>Personal Pain</em>: participant had a chronic pain condition</td>
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<tr>
<td><em>Acquaintance Pain</em>: participant had a loved one with a chronic pain condition</td>
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<tr>
<td><em>No Pain</em>: participant had neither personal nor acquaintance pain experience</td>
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<tr>
<td><strong>Dependent Variables</strong></td>
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<tr>
<td>Pain/Disability</td>
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<tr>
<td>Average ratings on Pain severity, intensity, need for financial compensation, disability</td>
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<tr>
<td>in social/leisure, family, and work-related activities, need for treatment</td>
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<tr>
<td>Personality</td>
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<td>Average ratings on how trustworthy, likeable, honest, friendly, intelligent, agreeable,</td>
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<td>and emotionally strong the target is</td>
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<td>Responsibility</td>
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<td>Average ratings on target Responsibility for the acquiring and continuation for pain</td>
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<td>condition</td>
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<tr>
<td>Anger</td>
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<tr>
<td>How angry do you feel toward this target?</td>
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<tr>
<td>Sympathy/Desire to Help</td>
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<tr>
<td>Average ratings on how much sympathy, willingness to help, and support offered</td>
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APPENDIX G: RESULTS SUMMARY FOR PARTICIPANTS

What Was the Study About?

- We looked at how stereotypes (ideas we hold about particular members of a group) related to physical attractiveness, ambiguous medical diagnoses (i.e., cause cannot be found by medical tests), and visible disabilities (e.g., presence of a cane) affect the way we view people with two different chronic pain conditions (Fibromyalgia (FM) and Rheumatoid Arthritis (RA)).

- We also looked at how our participants’ attributional style (AS) and level of personal pain experience (PE) impacted their views of women with FM and RA. Our participants were categorized as having either a supportive (attributing negative events to factors personally uncontrollable to the person) or unsupportive (attributing negative events to factors personally controllable to the person) AS and were also categorized as having chronic pain themselves, having a loved one with chronic pain, or having no pain experience.

- With respect to the stereotypes, past research has found:
  - Medical students and undergraduate students rate more physically attractive people as having less pain, as being less upset, and as needing less help than less physically attractive people. \(^{13,14}\)
  - Nursing students believe patients with an ambiguous diagnosis are less trustworthy and are in less pain than patients with a definite diagnosis. \(^{15}\)
  - More visible disabilities (e.g., made more visible through the use of a wheelchair), lead to more positive ratings on measures of adjustment, personality, and attractiveness. \(^{16}\)
  - Having a supportive AS was related to choosing the gentler of two treatment options for patients with shoulder pain. \(^{17}\)
  - An observer’s experience with pain has been found to result in differences in pain/disability ratings for patients with shoulder pain. \(^{18}\)


PERCEPTIONS OF WOMEN WITH FM AND RA

- In order to better understand the impact of these variables, our study looked at disability, attractiveness, ambiguous diagnosis, and observer characteristics all at once. By doing this we could see how much each one added to the overall stereotyping of women with chronic pain.

Who Took Part in the Study and How Was the Study Done?
- 97 men and women from the community volunteered to take part in the study.
- The participants viewed photos of 8 women. These 8 photos had been pre-rated on attractiveness. Half were categorized as more attractive and half were categorized as less attractive. These 8 photographs were randomly paired with a fake name and either an ambiguous pain condition (FM) or non-ambiguous pain condition (RA). Half in each group were then paired with a visible cane while the others had no cane visible.
- The participants read about FM and RA and then rated each woman in the 8 photos on levels of pain/disability, personality traits, and responsibility for their illness. The participants also reported how much anger, sympathy, and desire to help each woman they felt.

How Did These Stereotypes Work Together?
- Taken together, the results demonstrated that the process of making judgments about women with chronic pain is complex.
- Impact of the individual stereotypes:
  - Attractiveness: Compared to less attractive women, more attractive women were perceived as having less pain/disability and more positive personality traits.
  - Visibility: Compared to women pictured with a cane, women pictured without a cane were perceived as having less pain/disability and as having more positive personality traits.
  - Ambiguity: Compared to women with RA, women with FM were perceived as having more positive personality traits. This finding was unexpected.
- Impact of the participants’ personal characteristics:
  - Those with a more supportive AS and those with more personal pain experience (chronic pain in themselves or a loved one) reported more positive emotion and helping behaviours.
- When all the stereotypes were examined together, we found that although attractiveness continued to have a strong impact on judgements about a patients’
pain/disability and personality, the strength of the attractiveness effect was somewhat reduced when the cane was visible and medical evidence was available.

- Whereas the stereotypes impacted judgements about the patients’ pain and personality, it was the observers’ personal characteristics (AS and pain experience) that influenced their levels of sympathy and their desire to help the women.

**What Does This All Mean?**

- Our results suggest that perceptions of persons with chronic pain may be influenced by stereotypes about attractiveness, diagnostic ambiguity, and the visibility of a disability. This could affect the way chronic pain is diagnosed and treated, possibly negatively affecting adjustment and quality of life for those living with chronic pain.

- Our study found that judgments about patients based on attractiveness may be even more important for patients with a diagnosis that is not supported by a visible cue to disability or by medical evidence (an ambiguous diagnosis). This is especially problematic since most people with FM (an ambiguous diagnosis without medical evidence) do not need to use a cane. This could lead to poor outcomes for those with ambiguous medical diagnoses as they may have to make themselves look ‘sick’ to be taken seriously by their doctors. For these people, needing to act sick may lead to poorer adjustment to their chronic pain.

- Our study also demonstrated a possible relationship between negative personality judgements and beliefs about the patient’s responsibility for their pain and increased anger regardless of perceived pain/disability level. This finding may suggest that whether a patient is deemed likeable may influence decision-making if there is no medical evidence to support the pain complaints.

- Finally, our study demonstrated that, despite the inclusion of numerous factors, the only factors that directly influenced reported sympathy and desired to help was the participants’ own personal characteristics (AS and Pain Experience). This is an important finding because it suggests internal characteristics may be more important than stereotypes when it comes to decision-making about offering support. More research is needed in this area.

**What Can Be Done in the Future?**

- It will be important for future studies to look at whether educational programs might be able to reduce the impact of stereotypes. Sometimes, just being made aware that one is using stereotypes can be useful.

- It would also be important to get a better understanding of with whom and in what situations these stereotypes are used more or less. This includes different types of
health care professionals, loved ones of people with chronic pain, the gender of the person making the judgments, as well as the gender of the person being judged. We are currently investigating whether these stereotypes affect judgments of men with chronic pain in the same way.
APPENDIX H
CONFIDENTIALITY AGREEMENT FOR RESEARCH ASSISTANT

I understand that all interview material gathered through the study “Moderating Influences of Attributional Style and Experience with Pain on Stereotyped Perceptions of Women with FM and RA” is confidential.

As a research assistant on this project, I agree to preserve the confidentiality of the participants including their identity, the contents of their questionnaires, and the fact of their participation in the study. This includes any procedures involving storage of materials established by Susan Lavoie and Dr. LaChapelle.

Signed: ___________________ Date: __________

Signed: ___________________ Date: __________

Susan Lavoie or Dr. LaChapelle
CURRICULUM VITAE

Susan Paula Lavoie

Education:

2004 – present  University of New Brunswick  PhD Clinical Psychology
2003 – 2004  Saint Mary’s University  BA Honors Psychology
1998 – 2000  Saint Mary’s University  BA Psychology
1990 – 1993  University of New Brunswick  BBA (3yrs completed)

Publications:


Executive Summaries:


Conference Presentations:


