A Mixed Methods Study of Chronic Pain in Qatar

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"Allah (God) does not thank the person who does not thank people", (Prophet Mohammed, Sahih Al-Albani; Al-Adab Al-Mufrad 218; Book 10, Hadith 7)

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PREFACE

All works described in this dissertation are original and unpublished whereas references have been provided based on others' work. The data collection described in the projects of this study, were carried out at pain clinics in Hamad General Hospital (HGH), Doha, Qatar between June 2014 and May 2015.

I (Shadaid Alanezi) am the author of this dissertation and responsible for all phases of it, from developing the protocol to data collection, analysis, final mixed interpretation and dissertation writing.

Dr. Jocelyne Feine and Dr. Richard Hovey were the supervisory authors and were involved throughout all phases from early development of the protocol until the final review and edit of this dissertation.

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Declaration of contribution of co-authors of manuscripts contained in this thesis

-Manuscript I (quantitative phase): *"The Impact of Chronic Non-Malignant Pain on Health Related Quality of Life in Qatar"*. The role of co-author, and principal supervisor, Dr. Jocelyne Feine, was to oversee and advise on the procedures of this quantitative study, as well as to modify and review the texts of the manuscript draft. Dr. Ahmed Elgeziry and Dr. Emad Ibrahim, as anaesthesia consultants who run the pain clinics at HGH, were involved in this study through patient recruitment and data collection.

- Manuscript II (qualitative phase): *"Living with Chronic Non-Malignant Pain: A Descriptive Qualitative Study of Patients' Experiences in Qatar"*. The role of co-author and co-supervisor, Dr. Richard Hovey, was to oversee and advise on the procedures of this qualitative study, as well as to modify and review the texts of the manuscript draft, along with Dr. Jocelyne Feine. Dr. Ahmed Elgeziry and Dr. Emad Ibrahim were also involved in this study through patient recruitment and data collection.

ABSTRACT- ENGLISH

Background: Many studies have shown that chronic pain has negative impacts on a person's health-related quality of life (HRQOL) depending on the pain intensity, location and dysfunction in daily activities. Moreover, chronic pain is influenced by many factors, such as perception, belief and experience. **Aim:** The aim of this study is to identify the relationship between chronic pain intensity, location and dysfunction with HRQOL, as well as understanding an individual's life experience of living with chronic pain**.** **Methods:** We applied a sequential explanatory mixed methods design that first began with a quantitative phase (Cross-Sectional Survey) to measure chronic pain intensity, location and dysfunction and its impact on an individual's quality of life. This was then followed by a qualitative phase (Descriptive Qualitative), in which some of the quantitative findings were explored in more depth. **Setting:** Chronic pain clinic at Hamad General Hospital in Doha, Qatar with 142 chronic non-malignant pain patients referred from urban and rural areas. **Results:** Over half reported pain in the back and had pain in more than one site. Multiple linear regression analysis revealed that increasing chronic pain severity and location had a significant negative effect on daily functioning ($p < 0.0001$), with no statistical differences between locations. Increasing pain intensity and location had no significant impact on four domains of quality of life (mental health (MH), social functioning (SF), vitality (VT) and general health (GH), $p > 0.05$). In contrast, there was a significant impact on MH and SF ($P \leq 0.05$) with older age. Two major key elements emerged to account for a person's ability to live and cope with chronic pain: (1) social context and (2) religious beliefs. These two themes were usually interwoven with

subthemes that contributed to our understanding of pain. Subthemes included feeling disabled, the meaning of having and coping with chronic pain, perceptions of health, the future and pain, and alternative therapy. The subthemes were influenced positively by social context and religious beliefs; therefore, socially connected, religiously oriented and observant people with chronic pain were able to maintain or enhance some domains of their HRQOL. **Conclusion:** Chronic pain does not necessarily have a significant negative impact on all domains of quality of life. How sufferers perceive their pain and the personal resources they have to deal with its consequences, based on their background, religion and culture, can influence how they cope with their condition. Exploring the life experiences of living with chronic pain from those in other cultures might contribute to our understanding and lead to the development of social support initiatives, thus enhancing or maintaining some aspects of HRQOL.

RÉSUMÉ- FRANÇAIS

Contexte: De nombreuses études ont montré que la douleur chronique a des répercussions négatives sur la qualité de vie liée à la santé d'une personne (QVRS) en fonction de l'intensité de la douleur, de l'emplacement et du dysfonctionnement dans les activités quotidiennes. En outre, la douleur chronique est influencée par de nombreux facteurs, tels que la perception, la croyance et l'expérience. **Objectif:** Le but de cette étude est d'identifier la relation entre l'intensité de la douleur chronique, l'emplacement et le dysfonctionnement avec la QVRS, ainsi que la compréhension de l'expérience de vie d'une personne souffrant de douleur chronique. **Méthodes:** Nous avons appliqué une méthode séquentielle explicative de méthodes mixtes qui a d'abord commencé avec une phase quantitative (enquête transversale) pour mesurer l'intensité de la douleur chronique, l'emplacement et le dysfonctionnement et son impact sur la qualité de vie d'un individu. Il a ensuite été suivi d'une phase qualitative (Descriptive Qualitative), dans laquelle certains des résultats quantitatifs ont été explorés plus en profondeur. **Établissement:** Clinique de douleur chronique à l'Hôpital Général Hamad à Doha, au Qatar, avec 142 patients souffrant de douleur chronique non-maligne référés, en provenance de zones urbaines et rurales. **Résultats:** Plus de la moitié ont déclaré des douleurs dans le dos et des douleurs dans plus d'un site. L'analyse de régression linéaire multiple a révélé que l'augmentation de la gravité et de l'emplacement de la douleur chronique avait un effet négatif significatif sur le fonctionnement quotidien ($p < 0,0001$), sans différence statistique entre les localisations. L'augmentation de l'intensité et de l'emplacement de la douleur n'a pas d'impact significatif sur quatre domaines de la qualité de vie (santé mentale (MH),

fonctionnement social (SF), vitalité (VT) et santé générale (GH), p> 0,05). En revanche, il y a un impact significatif sur le MH et le SF ($P \leq 0,05$) pour les personnes plus âgées. Deux éléments majeurs sont apparus pour expliquer la capacité d'une personne à vivre et à faire face à la douleur chronique : (1) le contexte social et (2) les croyances religieuses. Ces deux thèmes étaient généralement entrelacés avec des sous-thèmes qui contribuaient à notre compréhension de la douleur. Les sous-thèmes comprenaient le sentiment de handicap, le sens d'avoir et de faire face à la douleur chronique, les perceptions de la santé, l'avenir et la douleur, et la thérapie alternative. Les sous-thèmes ont été influencés par le contexte social et les croyances religieuses : des personnes socialement liées et et pratiquantes ont été en mesure de maintenir ou d'améliorer certains domaines de leur QVRS en dépit de leur douleur chronique. **Conclusion :** La douleur chronique n'a pas nécessairement un impact négatif significatif sur tous les domaines de la qualité de vie. La manière dont les personnes souffrantes perçoivent leur douleur et les ressources personnelles qu'elles ont pour faire face à ses conséquences, en fonction de leurs antécédents, la religion et la culture, peuvent influencer leur capacité à fonctionner. L'exploration des expériences de vie de personnes souffrant de douleurs chroniques chez d'autres cultures pourrait contribuer à notre compréhension et conduire au développement d'initiatives de soutien social, améliorant ou maintenant certains aspects de la QVRS.

1. INTRODUCTION

Chronic pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage that persists for 6 months or more (Andersson, Ejlertsson, Leden, & Rosenberg, 1993).

Known to affect millions of people worldwide, chronic pain has been documented as a major health care problem in many countries (Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006; Meana, Cho, & DesMeules, 2004; B. H. Smith et al., 2001; Verhaak, Kerssens, Dekker, Sorbi, & Bensing, 1998; Yeo & Tay, 2009). Chronic pain is the most common reason for visiting health care sectors and has important deleterious effects on individual health related quality of life, daily function, the health care system and the economy (Andersson, Ejlertsson, Leden, & Scherstén, 1999; Breivik et al., 2006; Cherubino, Sarzi-Puttini, Zuccaro, & Labianca, 2012; Friessem, Willweber-Strumpf, & Zenz, 2009; Sheehan, McKay, Ryan, Walsh, & O'Keeffe, 1996; B. H. Smith et al., 2001). Previous studies have shown several conditions of chronic pain that cause morbidity in most developed and developing countries (Bener, Rahman, & Mitra, 2009). Yet although chronic pain outcomes have been measured in many countries, the impact of chronic pain conditions on quality of life has never been studied in Qatar.

Intriguingly, Qatar's rapid transition in socio-economic status since the recent discovery of oil and natural gas has led to changing life styles, behaviours and attitudes whose effects on health have gone largely unstudied. The most common current health problems

in Qatar are car accidents, obesity, diabetes and genetic disorders, all of which are associated with significant chronic pain outcomes.

Studies conducted in Qatar revealed that the prevalence of headache and migraine in adults is 72.5% and 7.9 %, respectively (Thurman, Alverson, Dunn, Guerrero, & Sniezek, 1999). Strikingly, the prevalence of headache among Qatari children was found to be 85% (Bessisso, Bener, Elsaid, Al-Khalaf, & Huzaima, 2005). These startling findings are much higher than the prevalence of the same conditions in Western and African countries, as well as in other countries in the same region (Benamer, Deleu, & Grosset, 2010). Thus, headache and migraine appear to be common in Qatar and may be influenced by social, familial and environmental factors, including the hot climate (Bener, 2006a). There are no additional quantitative or qualitative studies on pain conditions in Qatar.

Thus, it is important to measure chronic pain and its impact on health-related quality of life in Qatar so that health-care decision makers can be adequately informed when determining allocation of resources. Moreover, an exploration of the meaning of chronic pain from the sufferers' lived experience has never been undertaken in Qatar. An in-depth understanding of the multidimensional effects of chronic, non-malignant pain on quality of life will enable clinicians to make better decisions regarding the most appropriate therapeutic treatment for better pain management (Rezai M Fau - Cote, Cote P Fau - Cassidy, Cassidy Jd Fau - Carroll, & Carroll, 2009).

In this mixed methods, sequential explanatory study, we aim to measure chronic non-malignant pain and assess its impact on quality of life. Furthermore, the results of this study will provide a better understanding of how chronic pain affects several dimensions of quality of life by exploring the life experiences of patients living with persistent pain in Qatar.

2. BACKGROUND

2.1 Prevalence of chronic pain

The prevalence of chronic pain worldwide is high. In Sweden, the prevalence of chronic pain in adults aged 45-64 years has been reported to be 50% (Brattberg, Thorslund, & Wikman, 1989). In France, the prevalence of chronic pain is 31.7%, with approximately 20% of this group reporting moderate to severe pain (Bouhassira, Lantéri-Minet, Attal, Laurent, & Touboul, 2008).). In Australia, the prevalence of chronic pain was shown to be 17% for men and 20% for women, with a high negative impact on activities of daily living (Blyth et al., 2001). In Denmark, 20.2% of the adult population reported chronic pain (Eriksen, Jensen, Sjøgren, Ekholm, & Rasmussen, 2003), with 66.8% due to musculoskeletal problems; most respondents also reported poor health-related quality of life (Sjøgren, Ekholm, Peuckmann, & Grønbæk, 2009). In Canada, 27% of men and 31% of women report chronic pain, with 80% rating their pain intensity as moderate to severe (Moulin, Clark, Speechley, & Morley-Forster, 2002). The prevalence of chronic pain in the UK is reported to be 48% (Torrance, Smith, Bennett, & Lee, 2006), and one study focusing on the Grampian region of the UK revealed that 50% of those surveyed reported

chronic pain, with 16% suffering from severe pain. As in most studies, the prevalence of chronic pain was higher in women and older people (Blair H Smith et al., 2001). A study conducted in Finland revealed that 40% of patients visited primary health care facilities for pain conditions, with 20% having chronic pain. Among these Finnish patients, pain restricted numerous daily activities including work (25%), hobbies (16%), and sleep (20%); some individuals reported that their chronic pain limited all the activities in their lives (10%) (Mäntyselkä et al., 2001). In South India, it was reported that the prevalence of chronic musculoskeletal pain (CMP) was 26.8%, with 8% having to stop work due to the pain (Mathew, Chopra, Thekkemuriyil, George, Goyal, & Nair, 2011). However, the rest of that population reported that their pain had only a mild negative effect on their health-related quality of life. In contrast, a study in Ireland revealed that 67% of respondents reported a significant reduction of their health-related quality of life because of chronic musculoskeletal pain (Veale, Woolf, & Carr, 2008). The literature appears to suggest that the impact of chronic pain on health-related quality of life may differ cross-culturally: response to chronic pain may therefore contain unique cultural characteristics. Countries and cultures must be studied to discover how people experience pain and how their experience is similar to, or different from, that of others.

Recent UK data (2010) demonstrate that chronic pain has a socioeconomic impact on individuals, their work prospects and their relationships. In 2004, the World Health Organization (WHO) stated that chronic pain is a greater problem in countries that lack awareness and research about this condition. This statement is supported by data showing that the prevalence of chronic pain has been reported to be approximately 37% in

developed countries and 41% in developing countries (Tsang et al., 2008). New worldwide statistics indicate "one in five people suffer from moderate to severe chronic pain and one in three is unable or less able to maintain an independent life style due to their pain" (The International Association on the Study of Pain (IASP) and the European Federation of the IASP Chapters (EFIC)).

2.2 Costs and impact of chronic pain

Chronic pain is considered to be a public health problem, not only due to its morbidity, but also from an economic perspective (Sjogren, Ekholm, Peuckmann, & Gronbaek, 2009). A study in Canada revealed that the income of those with chronic pain was significantly lower than of those without pain (Moulin et al., 2002). In the province of British Columbia, more than $44 CAD million was spent on low back pain, with a total lost work time of approximately 658, 000 days (Latham & Davis, 1994b). In a European chronic pain population, 21% were diagnosed with depression, over 40% reported an inability to think or function normally and approximately 20% had lost their jobs as a result of the pain (paineurope.com). The cost of chronic back pain in the UK (2001) was estimated at 45 million days lost from work per year (Sheehan et al., 1996; B. H. Smith et al., 2001). Chronic pain has a high cost to both the health care system and the community. In 1982 in the USA, it was reported that 23 million people suffered from backache and 24 million from headache, at a cost of approximately $57 US billion in lost productivity, medication and professional services (Latham & Davis, 1994b). It has also been reported that more than 4 billion workdays in the USA are lost annually because of chronic pain, and it costs society approximately $ 55 US billion each year (Katz, 2002;

Salaffi, De Angelis, Stancati, Grassi, & Pain, 2005). In the Netherlands, there are 10,000 new patients each year who are unable to work because of their pain (Verhaak et al., 1998). Furthermore, the total cost of treatment for Dutch people with neck pain was more than $ 686 million in 1996 (Borghouts, Koes, Vondeling, & Bouter, 1999). Out-of-pocket expenses in the Netherlands were reported to be $1,350 per patient per year (Kemler & Furnée, 2002).

2.3 Impact of chronic pain on quality of life

Quality of Life (QOL) for a pain population has been defined as an individual's ability to perform a wide range of roles in the community and to have an acceptable level of satisfaction in those roles (Katz, 2002). Persistent pain results in several negative impacts on most aspects of quality of life, such as emotional well-being and capacity to function in daily roles. Quality of life is perceived differently from one person to another based on that person's background and expectations. This makes quality of life a multidimensional phenomenon, with chronic pain reported to be one of the most important determinants of quality of life (Anderson, Hollenberg, & Williams, 1999; Katz, 2002; Rummans et al., 1998).

The literature demonstrates that individuals who have chronic pain are twice as likely as those without chronic pain to have difficulty performing their usual activities at the same level of quality as before having the pain (Gureje, Von Korff, Simon, & Gater, 1998). This can have profound consequences, since a person's sense of self-worth is a complex

construct in which our identity is framed through interactions with external engagements, including being able to function well physically and mentally.

Several studies have been conducted in which the impact of particular chronic pain conditions on an individual's QOL was measured (Bergman, 2005; Bergman, Jacobsson, Herrström, & Petersson, 2004; Müller-Schwefe, 2011; Pérez, Margarit, & Serrano, 2013; Salaffi et al., 2005). Most reported that chronic pain has a significant negative impact on most aspects of health-related quality of life (Rezai M Fau - Cote et al., 2009). The QOL of Danish pain patients was lower than the norm of the general Danish population (Schulte et al., 2010). Another study among Dutch elders reported that health related quality of life was affected less by serious dermatologic disorders and hypertension and more by back pain, rheumatoid arthritis or other painful joint conditions (Kempen, Ormel, Brilman, & Relyveld, 1997). In Italy, it was found that musculoskeletal conditions have a significant negative effect on health related quality of life (Salaffi et al., 2005). In Spain, the most common chronic pain was joint pain (40%), followed by back pain (32%), and in Germany, the most common was chronic back pain (61%); 70% of those responding rated the intensity of their chronic pain as moderate or severe with a significant impact on most aspects of quality of life (Müller-Schwefe, 2011; Pérez et al., 2013).

2.4 Measuring and Understanding Chronic Pain

Without measuring chronic pain, we cannot expect to know the number of people who have chronic pain, its level of intensity and how that pain impacts the person's daily

activities and quality of life. Literature has shown that people with chronic pain are more likely to have poor quality of life, depending on the intensity and location of their pain, and this may also affect their behaviour and attitudes towards community and health providers (Holloway, Sofaer-Bennett, & Walker, 2007). Becker et al. and Wang et al. also reported a significant relationship between increasing severity of pain and most quality of life domains (Becker et al., 1997; Wang et al., 1999). However, Mathew et al reported that individuals with high intensity chronic non-malignant pain showed low impact on their health related quality of life (Mathew, Chopra, Thekkemuriyil, George, Goyal, & Nair, 2011).

This discrepancy in results confirmed that unknown or other less obvious factors might influence people suffering from chronic pain in different ways, such as how they feel about living with chronic pain, cultural interpretations, religious beliefs or unique strategies to manage pain. Hence, chronic pain alters sufferers' quality of life differently, with many studies revealing that coping strategies and pain beliefs were associated with the intensity and level of disability initiated by chronic pain; some studies reported that coping strategies and pain beliefs were derived mainly from social support and/or religious beliefs of people experiencing chronic pain (Dull & Skokan, 1995; Gall et al., 2005; Geisser, Robinson, & Riley, 2000). Moreover, a few studies have reported that having control over pain by using active coping strategies significantly reduces its negative impact on quality of life, as well supporting the healing process (Chase et al., 2000; Sorajjakool, Aveling, Thompson, & Earl, 2006).

Therefore, measuring the impact of chronic pain on quality of life and exploring whether or not pain affects the multidimensionality of quality of life from the point of view of sufferers will enable us to gain in-depth understanding and identify the diversity of relationships between the impact of pain and the several dimensions of quality of life. These accurate, detailed data, and enhanced understanding of the phenomenon of chronic pain and its impact on quality of life will help medical care providers and health policy makers to shed light on the most appropriate therapeutic treatments and pain management. Multi-level investigations within the same population are needed to provide robust and credible findings about the relationship between chronic pain and its impact on quality of life.

2.5 Relevance of Chronic Pain to the Health Priorities of Qatar

2.5.1 Road Traffic Accidents (RTAs)

Road traffic injuries can lead to ongoing musculoskeletal and neuropathic pain problems (Thurman et al., 1999) and are a major cause of disability. About 90% of the disability-adjusted life years lost worldwide due to road traffic injuries occur in developing countries (Bener, 2005). In the Gulf Cooperation Council (GCC) countries, RTAs are increasingly being recognized as a growing public health problem. In Qatar during the year 2000, 52,160 (RTAs) occurred, resulting in 1,130 reported injuries and 85 fatalities (Bener, 2005).

Chronic musculoskeletal pain is a major health problem and can result from RTAs. The American Association of Automobile Medicine reported that 45% of patients had

important symptoms or disability even two years after a car accident (Porter, 1989). Chronic musculoskeletal pain rarely presents as a single site problem (Carnes et al., 2007). In 2007, results from a UK population study revealed that 12% reported having single site chronic musculoskeletal pain, 52% reported pain in two to four sites and 18% had pain in five to seven sites. Estimates of musculoskeletal pain prevalence vary from 11% to 55% for moderate, and 10% to 30% for severe, chronic pain. The most common chronic musculoskeletal pain locations are lower back, neck, knees, shoulders, wrists and elbows (Parsons et al., 2007).

Neuropathic pain is complex and initiated or caused by injury to a nerve (Tsang et al., 2008). The major causes of neuropathic pain include: diabetes, spinal cord injury, stroke, lumbar and traumatic or postsurgical nerve injuries and car accidents (Bouhassira et al., 2008). A general survey conducted in six European countries revealed that 24% have mild neuropathic pain, 48% have moderate, and 54% have severe neuropathic pain (McDermott, Toelle, Rowbotham, Schaefer, & Dukes, 2006). In Saudi Arabia (2004), 41% of chronic low back pain sufferers had neuropathic pain (Hassan et al., 2004). Patients with neuropathic pain experience poor health-related quality of life, and the related costs (health care resources and other costs to society) are very high (Taylor, 2006).

2.5.2 Obesity and Diabetes

Obesity has reached an epidemic level in the Gulf Cooperation Council (GCC) countries. Researchers have estimated that overweight and obese will become a public health

problem if there are no intervention programs for prevention and treatment. Overweight and obese have a significant impact on the health and quality of life of individuals (Bener, 2006b). A systematic review for overweight and obese in the GCC revealed a high prevalence of these conditions in the State of Qatar (Ng, Zaghloul, Ali, Harrison, & Popkin, 2011), as follows:

Age group	% Overweight	% Obese
(25-65) Adult	M=34 F=33	M=34.6 F=45.3
(10-18) Adolescents	M=27.5 F=20	M=7 F=3.9

M: Male.
F: Female.

Many studies have found a strong association between obesity and high blood pressure and diabetes among adults; in fact, diabetes is a common sequel of overweight and obesity. It would help to explain the high prevalence of diabetes in Qatar (20%), which is the highest in the Middle East and North Africa (Elshafei et al., 2011).

Diabetes results in the development of macro-vascular complications, thereby causing vascular pain (Feng et al., 2005). Several studies have reported that vascular pain has a significant impact on daily activity, quality of life, physical and psychological health (Blair H Smith et al., 2001; Smith, Elliott, Hannaford, Chambers, & Smith, 2004).

2.5.3 Genetic Profile

Migraine, the most common vascular pain, is believed to be a genetic problem (Moskowitz, 1984). Many studies suggest that migraine disorders stem from a mutation in the ion transportation genes that can directly influence a person's behaviour, attention

and memory (Karner et al., 2012). Eight percent (8%) of Qataris report having migraines (Bener, 2006a).

In addition, a consanguinity study conducted in Qatar in 2010 found that 35% of ethnic Qataris have a consanguineous relationship (Sandridge, Takeddin, Al-Kaabi, & Frances, 2010). Other studies have confirmed that consanguinity is implicated in many genetic diseases, such as thalassemia and sickle cell anaemia, which lead to many kinds of chronic pain.

2.6 Conclusion

Chronic pain is a major public health problem that affects hundreds of millions of people worldwide; it alters their physical and emotional functioning, decreases their quality of life and impairs their ability to perform a wide range of daily activities (Ashburn & Staats, 1999; Goldenberg, 1987). It has been shown that chronic pain has a significant impact on individual quality of life, family and society. Moreover, the literature confirms the association between chronic pain and quality of life (Mathew, Chopra, Thekkemuriyil, George, Goyal, & Nair, 2011; Monzon & Lainez, 1998; Picavet & Hoeymans, 2004; Sabbah, Drouby, Sabbah, Retel-Rude, & Mercier, 2003; Salaffi et al., 2005; Schulte et al., 2010; Veale et al., 2008; Wang et al., 1999). Further investigations were limited to address more explanation of that impact on the domains of quality of life and explore the influential factors that could play important roles about the impact of chronic pain on those domains for people living with various conditions of chronic pain.

Many authors have proposed that exploring the various impacts on the domains of quality of life and understanding the relationships amongst those domains and chronic pain would contribute to finding strategies that could enhance the quality of life (Dysvik, Lindstrøm, Eikeland, & Natvig, 2004; Latham & Davis, 1994a). Other authors emphasize the importance of interpretation of the data from quality of life domains and the need for detailed information and critical reflection in order to provide accurate, representative results (Carr, Gibson, & Robinson, 2001; Fredheim et al., 2008).

Based on the previously described evidence, it is probable that the population in Qatar may suffer from various chronic pain conditions. Qatar is a country in transition, in which the prevalence and impact of existing types of chronic pain have never been measured. Accordingly, this study aims to assess chronic pain (intensities, locations and dysfunction) among chronic pain patients in Qatar, and to measure the impact of chronic pain on their quality of life using quantitative and qualitative research through a mixed methods approach. Through this approach, it is hoped that an in-depth understanding of chronic pain and how it is experienced by sufferers, will be achieved. These kinds of data can guide Qatari policy makers and health care providers to focus their efforts on the existence of chronic pain and its impact on patients, society, the economy and the health care system.

The findings of this study will be relevant not only for Qatar, but they will also be useful for neighbouring Gulf Cooperation Council (GCC) countries, such as Saudi Arabia, Kuwait, Bahrain, the United Emirates and Oman, all of which share a common culture,

traditions and religion and have gone through rapid transitions in their socio-economic levels and urbanization processes. By learning how certain aspects of Qatar's culture may exercise negative and/or positive influences on the dimensions of quality of life, these findings could help us to understand which factors of chronic pain might be shared cross-culturally and which appear to be unique to certain populations or cultures, and why.

3. STUDY METHODS

3.1 Introduction

The objectives of this study are to understand how chronic pain impacts the lives of people living in Doha, Qatar. We applied a sequential mixed methods design that first began with a quantitative phase (Cross-Sectional Survey) to measure chronic pain and its impact on an individual's quality of life. This was then followed by a qualitative phase (Descriptive Qualitative) in which some of the quantitative findings were explored in more depth.

3.2 Research Design

3.2.1 The Rationale for a Mixed Methods Approach

Mixed methods research combines elements of qualitative and quantitative methodologies to increase the breadth and depth of understanding of a particular topic of interest. Moreover, using qualitative and quantitative approaches together provides a comprehensive understanding of the topic, more than when using just one approach (Creswell & Clark, 2007). A study might be considered as a mixed methods study if it employs qualitative and quantitative approaches at any stage, such as in the wording of research questions, population sampling, data collection, data analysis or when drawing conclusions (Greene & Caracelli, 1997). The concept of integrating qualitative and quantitative data is intended to maximize the strengths and minimize the weaknesses of each type of method. The mixed methods approach has become widely used in health

sciences to improve the quality and scientific integrity of data (Creswell, Klassen, Plano Clark, & Smith, 2011).

Qualitative research findings can help to explain the results of quantitative research, and qualitative approaches do not attempt to be generalizable but rather are concerned with transferability. However, in a mixed methods approach, multiple forms of data and findings can be obtained to document and inform the research question. Furthermore, using a mixed methods approach can provide an opportunity to generate an enhanced understanding of problems that have been rarely or insufficiently measured.

A mixed methods approach also requires specific planning to determine when each method should be used. This is an important consideration when, for instance, the results of one method can be used to inform the planning of the other. If a topic is not well understood, then it could be helpful to carry out a qualitative narrative assessment with research participants in order to use those results to build a specific quantitative questionnaire. The results of the qualitative assessment could be used to identify important factors that should be addressed in a larger population. On the other hand, a topic can be well understood quantitatively and have been supported by a variety of measurements, but it may not be as well understood as a lived experience; thus, including a qualitative element through a mixed methods approach would maximize the understanding of the meaning of the quantitative information. The latter example reflects the situation in the present study, for which an explanatory sequential mixed methods design is appropriate.

3.2.2 Explanatory Sequential Design

The rationale for mixing two methods sequentially in one study is that one approach, whether qualitative or quantitative, is not sufficient to answer the research questions of interest or to capture the salient information of a phenomenon. In mixed methods, there are six designs that are most often used, including the explanatory sequential design. A mixed methods explanatory sequential design is the most popular design used among mixed methods researchers, and it involves collecting and analyzing quantitative and qualitative data, respectively, in two consecutive phases in one study (Ivankova, Creswell, & Stick, 2006).

In the explanatory design, the researcher begins by conducting a quantitative phase and follows up on specific results from that phase with a qualitative phase to explain the quantitative results in more depth (Creswell, 2013) (p 82). The collection and analysis of the quantitative data helps with construction of the qualitative research questions. Because the qualitative strand depends on the results of the quantitative strand, the design of the qualitative phase, including the development of an interview guide, is developed after the quantitative findings are produced. Finally, the researcher interprets how the qualitative findings help to explain the quantitative data (Creswell, 2013) (p 71).

Our mixed methods explanatory design combines a general, quantitative understanding of a problem or phenomenon with a qualitative exploration of the quantitative results by delving into participants' perceptions of their chronic pain (Ivankova et al., 2006; Morse,

2003). Moreover, in this explanatory design, the quantitative data will be explained by qualitative research findings whether the quantitative data is significant, positive, outlier, surprising or not (Creswell, 2013) (p 82). The explanatory sequential design is the most straightforward among mixed methods designs and more useful when unexpected results arise from the quantitative strand (Ivankova et al., 2006). Mixed methods can produce evidence to assist decision makers in making informed evidence based decisions about complex health issues (Creswell & Clark, 2007).

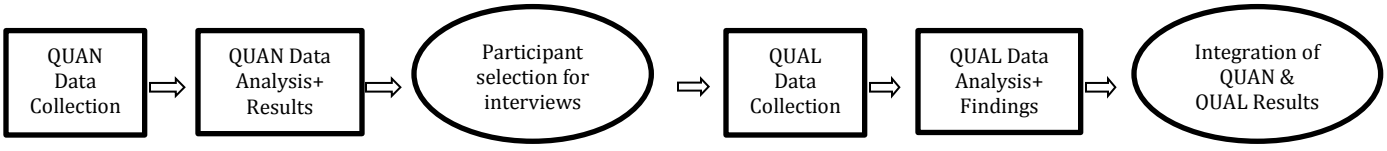
Consequently, the mixed methods approach to research has become increasingly recognized as essential within a clinical setting in which the health problems are interwoven and related to culture, beliefs, religion, or attitudes (Curry, Nembhard, & Bradley, 2009). Furthermore, chronic pain has a complex mechanism of action that includes both physical and psychological components that are influenced by factors such as culture, beliefs, attitudes, religion and previous experience with pain. Therefore, the use of mixed methods in this study is appropriate to narratively explore, as well as quantify, the physical and emotional chronic pain experience of patients living in Qatar (Wardell, Decker, & Engebretson, 2012).

Quantitative and qualitative approaches have been used in separate studies to investigate various chronic pain conditions in diverse populations. For example, a South African study revealed that most patients with severe chronic pain rarely understood why they had chronic pain, how they could manage it or methods that they could use to cope with their condition (Dekker, Amon, le Roux, & Gaunt, 2012). Yet it has been reported that

understanding pain would enable sufferers to deal with it more effectively (Dekker et al., 2012; Meeus, Nijs, Van Oosterwijck, Van Alsenoy, & Truijen, 2010).

In order to answer our research questions, we gathered data sequentially, starting with the quantitative phase that enabled us to measure chronic pain intensity, location/dysfunction and its impact on quality of life. We then followed up with a qualitative phase in order to obtain a contextual explanation and an in-depth understanding of the statistical results. The integration of the two methods took place first in the intermediate stage, as we used the quantitative findings to inform participant selection and the development of interview questions for the qualitative inquiry. The second integration took place at the end of the study, in which both quantitative and qualitative results were used to provide interpretations of the outcomes of the entire study. Figure 1 shows the process of the explanatory sequential design that we used in this study.

Figure I: Steps of research process for sequential explanatory design



Source: Conducting Mixed Method Research, Creswell & Plano-Clark 2010.

3.3 Study Setting and Population

3.3.1 Study Setting

- Location: State of Qatar / Doha (capital).

Figure II: Qatar Map.
Source: www.mapsfordesign.com (permitted for free use).

Qatar is located in southwest Asia, on the northeastern cost of the Arabian Peninsula. It shares a land border with Saudi Arabia to the south but is surrounded on all other sides by the Arabian Gulf. Qatar occupies 11,493 square kilometers. The total population of Qatar in 2015 was 2.2 million, in which the Qatari citizens numbered 378,000, with 1.8 million expatriates. The majority of the population (about 90%) lives in Doha, the capital (Ministry of Development Planning and Statistics, 2015).

The health care system in Qatar is regulated and supervised by the Ministry of Health for both the public and private sectors. Health services are provided through primary health care centers, specialized clinics in some hospitals and a specialized hospital that provides intensive health care to those referred from specialized clinics and primary health care. Moreover, health and medical care services are provided at no charge within the public health care sector for everyone, whether a citizen or foreigner (Annual Health Report, Qatar 2003, Health System Profile, Qatar, WHO 2006).

- Facility: Hamad General Hospital (HGH).

The primary health care provider in the country is the Hamad Medical Corporation (HMC), established by the Qatar government as a non-profit health organization in 1979. The HMC is comprised of seven specialized hospitals; the HGH is one of these.

Usually, most of the referred cases from primary health care are sent to Hamad General Hospital, located in the capital (Doha), as it is a public tertiary hospital capable of providing diverse specialized health care services. HGH also has a pain management department (http://hgh.hamad.qa/en/about/about.aspx).

Both the quantitative and qualitative phases of the current study were conducted in the pain clinic at the HGH between July 2014 and May 2015.

3.3.2 Study Population

Our target population in this study was composed of chronic pain patients aged 18 years or older who had been referred and diagnosed with persistent non-malignant pain (6 months or more), who were willing to participate in the study and were able to read and

write in either Arabic or English. The Department of Pain Management of Hamad General Hospital runs three clinics weekly for new referrals and/or follow-up visits. The sample of this study was based on the number of patients seen at the clinic between July 2014 and May 2015.

3.4 Ethical Consideration

Prior to conducting the current study, ethics approvals were obtained from the Research Ethics Committee at Hamad General Hospital, Doha, Qatar, and from the Institutional Review Board (IRB) at McGill University, Montreal, Canada (Appendix I & II). An informed consent was signed by each participant (Appendix II). The content of the consent was explained verbally to the participants, including their right to withdraw from the study or refuse to participate at any time without penalty. The consent form briefly explained the purpose of the research and confidentiality of the data.

Only the researcher (SA) had access to data, audio records and transcripts. Each participant was assigned a code by the investigator, and data were stored using that code. All data, including participant medical information, consent forms and transcripts were stored in a safe, locked cabinet in locked office. Also, all soft copies of the data were protected by password to ensure security.

3.5 First: Quantitative Phase

3.5.1 Objectives

1) To measure the location(s), intensity and dysfunction from chronic pain experienced by adult patients.

2) To measure the impact of chronic pain on the quality of life of chronic pain patients.

Hypothesis:

There is an association amongst pain intensity (BPI), dysfunction (BPI) and quality of life (SF-36) in patients who seek care for their chronic pain conditions at the HGH.

3.5.2 Setting

Chronic pain clinic at Hamad General Hospital in Doha, Qatar with patients referred from urban and rural areas.

3.5.3 Design

Cross-sectional study.

3.5.4 Population and Sample

Our study population was composed of chronic pain patients who were referred and diagnosed with persistent chronic non-malignant pain. The sample size for this study was not driven by a statistical power analysis because the available sample was made up of consecutive patients evaluated and diagnosed with chronic non-malignant pain that persisted for most or all days of the previous six months or more. Data were collected from 142 patients who met the inclusion criteria of this study and who signed the informed consent between July 2014 and February 2015.

3.5.5 Inclusion Criteria

- Adult patients over 18 years.
- Diagnosed with non-malignant pain.
- Persistent pain for more than 6 months.
- Willing to participate in the study.
- Read and write in either Arabic or English.

3.5.6 Exclusion Criteria

- Patients with post-surgical pain.
- Patients with major mental illness.

3.5.7 Quantitative Variables and Research Instruments

All patients who met the inclusion criteria for this study and agreed to participate completed three questionnaires that enabled us to measure their chronic pain and its impact on quality of life.

3.5.7.1 Socio-demographic Characteristics

Demographic variables included age, gender, employment status, education level, marital status, nationality, religion, income, body mass index (BMI), medical diagnoses and smoking/drinking behaviours (Appendix III).

3.5.7.2 Brief Pain Inventory (BPI)

We chose to use the Brief Pain Inventory (BPI), because it has the ability to measure the intensity, as well as the impact, of chronic pain on an individual's function (Cleeland & Ryan, 1994). The Brief Pain Inventory measures location, frequency and level of pain (Appendix IV). The BPI has two major domains: *pain intensity*, which consists of 4 scales to measure pain intensity at worst, least, average and current level. The second domain is *pain interference* measuring general activity, mood, ability to walk, relations with others, sleep and enjoyment of life (Hølen, Lydersen, Klepstad, Loge, & Kaasa, 2008). All items of the two domains were rated on a numerical rating scale ranging from 0 to 10 (NRS-11), in which 0 indicates "no pain" and 10 indicates "pain as bad as you can imagine"; for items measuring interference with daily functioning, 0 indicates "does not interfere" and 10 indicates "completely interferes". BPI has been widely used in cancer pain assessment and, after minor modifications, was validated for use in chronic non-malignant pain populations (Cleeland & Ryan, 1994; Hølen et al., 2008; Tan, Jensen, Thornby, & Shanti, 2004). The scale was reported to have a high internal reliability and is an excellent construct to assess individuals suffering from various chronic pain conditions (Mendoza, Mayne, Rublee, & Cleeland, 2006).

The BPI has been used in a variety of chronic non-cancer pain conditions, such as osteoporosis and rheumatoid arthritis, migraine and low back pain (S. D. Keller, Ware, Hatoum, & Kong, 1999; Kosinski, Keller, Hatoum, Kong, & Ware Jr, 1999). It has been

shown to be highly sensitive and to be strongly associated with the SF-36 bodily pain score (S. Keller et al., 2004). Pain's interference with physical function was compared between cancer pain and non-cancer chronic pain patients using the BPI; it was found that non-cancer patients report higher pain impact on daily activities than cancer patients (Hølen et al., 2008). These findings support the need to measure the distinct impact of chronic non-cancer pain on individuals' lives. Another study measured the effects of pain severity on health-related quality of life using the BPI and the SF-36 (to assess health related quality of life). The study revealed that the worst health-related quality of life scores were associated with increasing severity of pain (Wang et al., 1999). It was reported that the BPI, compared with other instruments, offers many advantages, such as it being short (taking 5 minutes to complete), simple, easy to understand and self-administered. Thus, it is widely used and has been validated in several languages and cultures (Radbruch et al., 1999). It was reported that the BPI is a comprehensive tool for clinical practice and research to assess chronic cancer or non-cancer pain (Ballout, Noureddine, Huijer, & Kanazi, 2011).

3.5.7.3 Health Related Quality of Life SF-36 (Health Survey)

The Short-Form Health Survey (SF-36), a generic health survey used mainly in clinical settings, was developed in the USA in the late 1980s (Ware Jr & Gandek, 1998). It measures Health Related Quality of Life (HRQOL) and consists of two summary scales, physical and mental health, and 8 health status subscales: Physical Functioning (PF, 10 items); Role-limitations due to physical problem (RP, 4 items); Bodily Pain (BP, 2

items); General Health (GH, 5 items); Vitality (VT, 4 items); Social Functioning (SF, 2 items); Role-limitations due to emotional problems (RE, 3 items); Mental Health (MH, 5 items); and Reported Health Transition (HT, 1 item). The SF-36 scales vary from 1 to 5, with lower scores indicating a poorer health status (Bergman et al., 2004; Sabbah et al., 2003; Torrance et al., 2009) (Appendix V). The SF-36 is a useful tool to measure HRQOL in chronic pain patients (Walsh et al., 2006) and has been used clinically to measure and describe the impact of various types of chronic pain on HRQOL, such as chronic rheumatoid arthritis, musculoskeletal pain and fibromyalgia (Bergman, 2005; Bergman et al., 2004; Donaldson, Speight, & Loomis, 2001; Torrance et al., 2009). The SF-36 is a valid and reliable tool to assess the physical and mental health related quality of life in a clinical setting and/or in a general population with a high Interclass Correlation Coefficient (ICC) of 0.85 (Rezai M Fau - Cote et al., 2009; Ware Jr & Gandek, 1998). Several studies have shown that the SF-36 health survey was more appropriate to measure chronic pain than other health surveys. Statistical tests have furthermore demonstrated that the choice of statistical approach has no influence on the results (Laufer, Elheiga-Na'amne, & Rozen, 2012; Torrance et al., 2009).

The SF-36 has been used for many decades and has been translated and validated in more than 50 languages (Hoopman, Terwee, Devillé, Knol, & Aaronson, 2009; Ware Jr & Gandek, 1998). Our review of the literature indicates that the SF-36 has been translated and validated in Arabic for Lebanon, Morocco, Tunisia and Saudi Arabia (Coons, Alabdulmohsin, Draugalis, & Hays, 1998; Guermazi et al., 2012; Hoopman et al., 2009; Sabbah et al., 2003). The Arabic version of the SF-36 has high reliability and validity, as

well as good sensitivity to health status with an excellent ICC of 0.98 and a Cronbach Alpha Coefficient of 0.94. Moreover, it is easy to administer and analyze (Guermazi et al., 2012). We therefore used the SF-36 among chronic pain patients referred to the chronic pain clinic at the HGH, Doha, Qatar State.

3.5.8 Quantitative Data Collection

Data were collected during clinic hours from 8 am to 5 pm, July 2014 to February 2015. The patients' physicians introduced the researcher (SA) to participants, and we then informed these patients about the purpose of the study, as well as risks, confidentiality of their information and anonymity of their names. In addition, we informed participants that their participation was voluntary and that they had the right to leave the study at any time. We collected data from those who met the inclusion criteria and signed the informed consent (Appendix VII). Only 130 patients completed a questionnaire on their socio-demographic characteristics, the Brief Pain Inventory (BPI), and the Short Form 36 (SF-36). We collected data face-to-face during each patient's clinic appointment in the presence of his or her physician or after the appointment. The pain intensity, location and interference with daily functioning were ascertained using the Brief Pain Inventory questionnaire (BPI).

The health-related quality of life questionnaire, the SF-36, allowed us to measure the impact of chronic pain on quality of life based on intensity and location. After participants completed the questionnaires, we asked their permission to take their personal contact information, in case we needed to reach them for the qualitative phase.

Twelve patients asked to complete the SF-36 questionnaire at home. However, all of these questionnaires were returned with major missing elements. Thus, we excluded those patients from the study.

3.5.9 Quantitative Data Analysis and Statistical Tests

We used descriptive statistics to summarize all study variables of interest. For categorical variables, we report counts and percentages, whereas for continuous variables, we report means and standard deviations when the values follow an approximately normal distribution; otherwise, we report medians and inter-quartile ranges (IQR).

Multiple linear regression modeling was used to investigate associations between chronic pain intensity and location with daily functioning, as measured by BPI, as well as QOL domains from SF-36 and chronic pain intensity and location. A separate model was used for each of the 8 scales of the SF-36, as dependent variables. The independent variables were the same in all models. The main independent variables, chronic pain intensity and location, were investigated to determine their effects on QOL. The covariates of interest included in the models were: age, gender, body mass index (BMI), education level, marital status, employment status, and number of pain locations reported (some subjects reported more than one location). Possible interaction effects between the independent variables were assessed. These covariates were included because each was hypothesized to have a potential effect on the dimensions of QOL.

The variables, chronic pain intensity, age, BMI, and number of pain locations were modeled as continuous variables. Following a preliminary investigation of the reported

locations of pain, we categorized them as follows: Limbs, Head and Neck, Abdomen and Back. Similarly, education level was categorized as: Elementary/Intermediate, High School, Undergraduate and Graduate. Marital status and Employment were modeled as binary variables: Married and Separated/Divorced/Widowed, and Yes or No, respectively.

Assumptions of the regression model (randomness of errors, homogeneity of variance, normality, presence of outliers) were investigated with graphical analysis of residuals. We assessed the presence of multicollinearity of the independent variables by calculating the variance inflation factor (VIF) for every independent variable in the regression model. The significance of the independent variables in the model was assessed with the student's *t*-test, and we report the *t*-statistic and *p* value. When warranted by the conclusion of significant effects of location of pain on the QOL scale of interest, pairwise comparisons of least squares means for the QOL scale of interest between location categories were performed and p-values were adjusted using the Tukey-Kramer method (Westfall, Tobias, & Wolfinger, 2011).

All analyses were carried out using SAS, version 9.3 (SAS Institute Inc., Cary, NC, USA). Scoring of the SF-36 used the SAS program from Hays et al. and statistical tests were two-sided and performed at the significance level of 0.05 (Hays, Sherbourne, Spritzer, & Dixon, 1996).

We followed the recommendation by Ware et al. for scoring the eight SF-36 scales only if the participants had responded to at least half of the relevant items (Ware, Kosinski, &

Keller, 1994).

In addition to the eight scales, the SF-36 authors developed two summary scales that provide a more concise measure of overall physical and mental health (Ware et al., 1994): The Physical Component Summary (PCS) and Mental Component Summary (MCS). The construction of the PCS and MCS uses a standardization and aggregation of the 8 scales incorporating values based on US population standards (Ware et al., 1994).

In this study, we chose not to use the PCS and the MCS, but rather to analyze the 8 scales separately, since we could not know whether the two summary scales based on the US population might apply to the Qatar population.

3.6 Second: Intermediate Integration Phase

At this stage, the statistical results from the quantitative research were used to shape the interview questions and determine the choice of participants for the qualitative research that was intended to provide us further clarification and explanation about the health outcomes of these chronic pain patients.

3.7 Third: Qualitative Phase

3.7.1 Objective

To identify the relationship between chronic pain intensity/dysfunction and a person's quality of life by exploring the experience of people living with chronic pain, including their attitudes about their pain, as well as their coping strategies.

3.7.2 Design

We chose a qualitative research methodology that was appropriate to achieve our study objective, which was to explain and gain a deeper understanding of some of the results obtained from the quantitative phase for people living with chronic non-malignant pain. Consequently, we selected Qualitative Descriptive (QD) as the qualitative research methodology that would allow us to understand and explore the common and/or unique results that were obtained previously (Sandelowski, 2000).

3.7.3 Participant Selection

Our selection of participants was straightforward, focussing on individuals who demonstrated negative chronic pain characteristics based on their BPI ratings from the quantitative phase. We selected participants who rated their pain intensity and dysfunction as high, with low or no significant impacts on their quality of life. We did this to understand our perplexing results showing that some dimensions of quality of life are not negatively affected by high pain intensity nor did they interfere with daily activity.

Inviting participants to take part in the qualitative research phase based on their results from the quantitative research phase increased the validity and credibility of this mixed methods approach (Ivankova et al., 2006).

Qualitative sample size is typically small because the findings are not intended to be *generalizable* as with quantitative results, but rather to deepen understanding and be transferable to similar situations.

3.7.4 Interviews (Data Collection)

To gain an enhanced understanding of our quantitative results, we explored the experience of patients living with chronic pain through their personal narratives. Thus, we carried out face-to-face, semi-structured interviews with twelve participants in order to provide focus, while enabling participants the latitude to explain their experiences. These interviews questions were based on the topics that we generated from the outcomes from the quantitative phase (Appendix VI). The participants were given the choice to speak either in Arabic, English or both, and eight of these were fluent in English. We attained data saturation with the tenth participant. However, we interviewed two more participants to ensure no new information would be revealed.

The interviews were audio-recorded with the permission and written consent of the participants. Each participant was interviewed separately in a private environment at the time and location requested by the participant. Each interview lasted approximately forty-five minutes to one hour, keeping the interview time open-ended to allow enough time to elicit the participant's attitudes, experiences and coping mechanisms. Recorded interviews were transcribed verbatim for the subsequent in-depth analysis. This approach also enabled us to explore differences and commonalities amongst the research participants.

3.7.5 Data Handling and Analysis

It is recommended that qualitative data be analyzed directly following collection (Parahoo, 2006). Thus, immediately following each interview, I reviewed and began my

initial analysis of the participant narratives to get a sense of the data and to learn 'what is going on' (Elo & Kyngäs, 2008). To do this, we used a *content analysis* strategy, commonly applied in qualitative methods (Neergaard, Olesen, Andersen, & Sondergaard, 2009). Content analysis has become widely used in qualitative health studies, enabling researchers to interpret meaning from the content of an interview in order to describe a particular phenomenon or better answer a research question (Hsieh & Shannon, 2005). In line with our qualitative research objective, content analysis allows us to re-examine existing data (from the quantitative research) in a new context for in-depth insight (Elo & Kyngäs, 2008).

There are several steps to qualitative content analysis, from preparing the data to analyzing it and reporting the findings:

Preparing the data

Upon completion of the interviews, the researcher (SA) transcribed the interviews verbatim. Then, each transcript was reviewed separately with the audio-recordings to ensure their accuracy. Each transcript was reviewed many times to ensure that understanding of the content was maximized. Following this process, a summary of the comments for each transcribed interview was made.

Unit of analysis

Each transcript was summarized separately before another transcript was summarized. Following this, each transcript was analyzed as a whole to identify the key findings and to permit further analysis.

Developing Categories and a Coding Scheme

Creating categories can facilitate the analysis of participants' description (Elo & Kyngäs, 2008). Hence, we classified the text into categories; some categories had several findings. Then, we grouped and coded the findings based on similarities and differences in the content regarding each participant's pain intensity, location and dysfunction and how those could impact quality of life, while taking into account attitudes, beliefs or experiences.

Coding the Text

Once the text from one interview was coded and reviewed, we moved to another text and followed the same coding procedures for all texts.

Reporting the Findings

The findings will be disseminated through scholarly publications, conference presentations, and key information made available to policy makers and healthcare professionals who treat chronic pain patient in Qatar and perhaps worldwide, as well as to any audience interested in chronic pain, e.g. patient groups, the public, etc.

Rigor

In general terms, to ensure rigor in this descriptive qualitative study, we need to consider the importance of credibility to confirm that our findings are representative of the content unique to an individual participant. To ensure the credibility of these qualitative findings, I (SA) contacted all participants after having obtained their qualitative data and spoke with each of them separately to discuss and confirm interpretation of their individual results.

Transferability means that the researcher should provide enough detailed information regarding the phenomenon of chronic pain to enable the readers to find meaning in the research findings (Carnevale, 2002). This detailed information will be provided in the next chapter (study results), in which we will provide the quantitative results and qualitative findings separately through a quantitative manuscript entitled **Manuscript I: "The Impact of Chronic Non-malignant Pain on Health Related Quality of Life in Qatar"** and a qualitative manuscript entitled **Manuscript II: "Living with Chronic Non-Malignant Pain: A Descriptive Qualitative Study of Patients' Experiences in Qatar".** Following these, there will be a discussion chapter containing the mixed methods interpretations, in which we will explain some of our quantitative results through our findings from the qualitative phase.

3.8 Fourth: Interpretation of the Quantitative and Qualitative Results

The final interpretations were drawn based on the combined study findings using both quantitative and qualitative methods. At this stage, we were able to explain some of the quantitative results by using participants' narratives. By gaining more in-depth understanding and explanation of quantitative data, we were consequently able to report more valid and meaningful quantitative results. Moreover, this increased the credibility of the qualitative findings. The interpretation phase requires taking a reflexive approach and critical examination of the outcomes of both the quantitative and qualitative phases. Integrating both sets of results produced a much more meaningful and robust understanding of chronic pain and its relationship to quality of life (Bryman, 2006; Hesse-Biber, 2010).

4. STUDY RESULTS

4.1 Introduction

The objectives of the current study were 1) to measure the locations, intensities and functional impairments of chronic pain experienced by adults, 2) to measure the impact of chronic pain on the quality of life of chronic pain patients, and 3) to identify the relationship between chronic pain intensity/dysfunction and a person's quality of life by exploring the experience of patients living with chronic pain, including their attitudes about their pain, as well as their coping strategies.

This chapter provides the results for each of our research objectives, presented as manuscripts. The results of the first two objectives are presented in a quantitative manuscript *(Manuscript I: "The Impact of Chronic Non-malignant Pain on Health Related Quality of Life in Qatar")* that provides the descriptive results of increasing pain intensity, location and dysfunction with daily activity. It also presents the association between pain intensity and location with the eight domains of quality of life.

Findings from the content analysis of qualitative interviews are presented in a qualitative manuscript *(Manuscript II: "Living with Chronic Non-Malignant Pain: A Descriptive Qualitative Study of Patients' Experiences in Qatar")* that provides rich information from the narratives of participants in order to explain some of the results from the quantitative phase. Moreover, interesting emergent themes were identified during the interviews and are analyzed and presented in this manuscript.

4.2 Manuscript I: "The Impact of Chronic Non-malignant Pain on Health Related Quality of Life in Qatar"

The Impact of Chronic Non-Malignant Pain on Health Related Quality of Life in Qatar

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Abstract:

Background: Chronic pain is a major health problem that has important deleterious effects on health-related quality of life (HRQOL). The aim of this study was to examine the relationship between intensity/location of chronic pain and daily function, as well as its impact on HRQOL. **Methods**: This cross-sectional study was composed of 130 consecutive patients who were referred to pain clinics at Hamad General Hospital, Doha, Qatar. All patients who met the inclusion criteria and were willing to participate signed the consent form. They were then asked to complete a socio-demographic survey, the Brief Pain Inventory (PBI) and the Medical Outcome Survey-Short Form (SF-36). Data analysis was performed using SAS software. **Results:** Half of the participants reported having chronic pain in more than one location. Multiple linear regression analysis revealed that chronic pain intensity had a significant negative effect on daily life ($p<0.0001$). The higher the reported pain intensity and the more pain sites in one individual, the greater the negative effect on daily life ($p<0.05$), particularly in the HRQOL domains of role limitation due to physical (RP) and emotional problems (RE), physical function (PF) and bodily pain (BP; $P \leq 0.05$). **Conclusion:** These results indicate that, when chronic pain is in more than one body location, its intensity increases, and increased pain intensity reduces HRQOL. To better understand how greater pain and location impact these domains, qualitative methodologies are recommended.

Understanding how these quality of life domains are diminished by chronic pain can assist decision-makers in developing appropriate therapeutic alternatives.

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Introduction:

Quality of Life (QOL) in a pain population is defined as an individual's ability to perform a wide range of roles in the community and to have an acceptable level of satisfaction in those roles (Katz, 2002). Persistent pain has a negative effect on most aspects of life, such as physical function and mental health. Quality of life has been considered to be a multidimensional phenomenon, and chronic pain was reported to be one of the most important determinants of HRQOL (Anderson, Hollenberg, & Williams, 1999; Katz, 2002; Rummans et al., 1998). HRQOL has emerged as an important outcome affected by chronic pain and should be measured in the evaluation of interventions in any community (Skevington, 1998). Moreover, individuals who have chronic pain are twice as likely as those without chronic pain to experience difficulty performing daily activities (Gureje, Von Korff, Simon, & Gater, 1998). Many efforts to measure and treat chronic pain patients have been undertaken to understand how pain is perceived by the individual or by the culture. Accurate data on a population's pain can improve clinical and administrative decision-making for better and more effective treatment (Turk & Rudy, 1987). Obviously, chronic pain will have negative effects on most aspects of health

related quality of life (Rezai, M., Côté, P., Cassidy, J. D., & Carroll, L, 2009). Thus, measuring chronic pain is important in order to determine the most effective health service strategies both to provide care and to manage the negative impacts of pain.

There have been several published studies that sought to measure and describe the impact of particular chronic pain conditions on individual's QOL in a variety of communities (Bergman, 2005b; Bergman, Jacobsson, Herrström, & Petersson, 2004; Müller-Schwefe, 2011; Pérez, Margarit, & Serrano, 2013; Salaffi, De Angelis, Stancati, Grassi, & Pain, 2005). However, to our knowledge, only a few have measured the impact of various chronic pain conditions on HRQOL, with adjustment of interesting covariates that might have an impact on Health Related Quality of Life (HRQOL), such as intensities, locations, and number of sites (Kempen, Ormel, Brilman, & Relyveld, 1997; Pollitt, Harrison, Hunter, & Marnoch, 1990; Schulte et al., 2010). Moreover, there is little evidence on how intensity and location of chronic pain affect the dimensions of HRQOL. A study on patients with non-malignant pain using the SF-36 (Becker et al., 1997) revealed that there is a significant association between pain severity and quality of life. Wang et al. also found a significant relationship between increasing pain severity and dysfunction with a great reduction in quality of life using BPI and SF-36 (Wang et al., 1999). However, Becker et al. measured chronic pain intensity in relation to psychological and social well-being variables, while Wang et al. studied quality of life in relation to pain intensity with cancer patients. Neither of these studies adjusted for increasing pain intensity and location. In addition, measuring the impact of increasing

pain intensity, location and type of pain on each dimension of quality of life can enable clinicians and decision makers to take action to improve health or health care services.

Qatar is a country in transition, in which the prevalence and impact of chronic pain has never been measured. Accordingly, the first aim of this study was to assess chronic pain (prevalence, intensities/dysfunction and locations) using the Brief Pain Inventory (BPI) with chronic pain patients referred to the pain clinics at Hamad General Hospital in Doha, Qatar. The BPI has been applied widely and was validated for use in chronic non-malignant pain populations (Tan, Jensen, Thornby, & Shanti, 2004). Reported to have a high internal reliability, the BPI is considered an excellent construct for assessing patients suffering from various chronic pain conditions (Mendoza, Mayne, Rublee, & Cleeland, 2006).

Our second aim was to measure the impact of chronic pain on quality of life using the Health Outcomes Survey-Short Form (SF-36) in relation to increasing intensity, location and type of pain location from the BPI. The SF-36 is a valid and reliable tool to assess and measure HRQOL in a clinical setting and/or general population with a high Interclass Correlation Coefficient (ICC) of 0.85 (Rezai M Fau - Cote et al., 2009; Ware Jr & Gandek, 1998); it has been used clinically to measure and describe the impact of various types of chronic pain on HRQOL, such as chronic rheumatoid arthritis, musculoskeletal pain and fibromyalgia (Bergman, 2005a; Bergman et al., 2004; Donaldson, Speight, & Loomis, 2001; Torrance et al., 2009).

Hypothesis:

That there is an association between pain intensity, dysfunction (BPI) and health related quality of life (SF-36) in patients who seek care for their chronic pain conditions at the HGH.

Methods:

Patients and setting

Data were collected from a convenience sample of 130 patients during pain clinics hours from July 2014 to February 2015. All patients suffering from chronic non-malignant pain conditions and referred to the pain clinic at Hamad General Hospital, Doha, Qatar were included in this study and gave informed consent if they agreed to participate and met the inclusion criteria, which included persistent, non-malignant pain for more than 6 months in adults above 18 years with no major mental illness.

The Ethics Committee of the Medical Research Center at Hamad Medical Corporation (HMC), Doha, Qatar and the Faculty of Medicine's Institutional Review Board (IRB) McGill University approved this study.

Instruments

Brief Pain Inventory (BPI)

We chose to use the Brief Pain Inventory (BPI), because it allowed us to measure pain intensity, location(s), as well as the impact of chronic pain on a patient's functioning (Cleeland & Ryan, 1994). BPI has two major domains: pain intensity, consisting of 4 scales to measure pain intensity at its worst, least, average and at the time of

questionnaire completion. The second domain measures pain interference with general activity, mood, walking ability, normal working, relations with others, sleep and enjoyment of life as well as location(s) (Hølen, Lydersen, Klepstad, Loge, & Kaasa, 2008). All items in the two domains are rated numerically on a scale of 0 to 10 (NRS-11) in which a pain intensity of 0 indicates “no pain” and 10 indicates “pain as bad as you can imagine”; interference items are scored as 0 which indicates “does not interfere” and 10 “interferes completely” (Cleeland & Ryan, 1994; Hølen et al., 2008). The BPI has been used to measure a variety of chronic non-cancerous pain conditions, such as osteoporosis and rheumatoid arthritis, neck, migraine and low back pain (Keller, Ware, Hatoum, & Kong, 1999; Kosinski, Keller, Hatoum, Kong, & Ware Jr, 1999; Rezai M Fau - Cote et al., 2009), and has been validated in several languages and cultures (Ballout, Noureddine, Huijer, & Kanazi, 2011; Radbruch et al., 1999).

Health Outcome Survey-Short Form (SF-36)

The Short-Form Health Survey (SF-36) was developed in the USA in the late 1980s and has been widely used to measure health status and QOL (Ware Jr & Gandek, 1998). The SF-36 is a generic health survey used mainly in clinical settings to measure Health Related Quality of Life (HRQOL); it consists of eight health status scales: Physical Functioning (PF, 10 items); Role-limitations due to physical problem (RP, 4 items); Bodily Pain (BP, 2 items); General Health (GH, 5 items); Vitality (VT, 4 items); Social Functioning (SF, 2 items); Role-limitations due to emotional problems (RE, 3 items); Mental Health (MH, 5 items). As recommended by Ware, et.al., we scored all eight scales from 0 to 100, where a higher score indicates better health (Ware, Kosinski, & Keller,

1994). The SF-36 has been translated and validated into Arabic in Lebanon, Morocco, Tunisia and Saudi Arabia (Coons, Alabdulmohsin, Draugalis, & Hays, 1998; Guermazi et al., 2012; Hoopman et al., 2009; Sabbah, Drouby, Sabbah, Retel-Rude, & Mercier, 2003). The Arabic version of the SF-36 has a high reliability and validity and is adequately sensitive to detect health status with an excellent ICC of 0.98 and a Cronbach Alpha Coefficient of 0.94; it is easy administer and analyze (Guermazi et al., 2012; Laufer, Elheiga-Na'amne, & Rozen, 2012; Torrance et al., 2009).

Statistical Analysis:

Descriptive statistics were performed to characterize the study population. Multiple linear regression modeling was used to investigate associations between pain intensity and location as independent variables with pain interferences as dependent variables from the BPI. The same procedure was used separately to investigate associations between increasing pain intensity and location as measured by BPI with SF-36 subscales. The independent variables were the same in all models.

The covariates of interest included in the models were pain intensity, pain location, age, gender, body mass index (BMI), education level, marital status, employment status, and number of pain locations reported (some subjects reported more than one location).

The significance of the independent variables in the model was assessed by a *t*-test and we report the *t*-statistic and *p* value. When warranted by the conclusion of significant effects of location of pain on the SF-36 subscales, pairwise comparisons of least squares means for the SF-36 subscales between location categories were performed and p-values

were adjusted using the Tukey-Kramer method (Peter, Westfall, Rom, Wolfinger, & Hochberg, 2000).

All analyses were done using SAS, version 9.3 (SAS Institute Inc., Cary, NC, USA). All statistical tests were two-sided and performed at the significance level of 0.05.

Results:

The participant demographic characteristics are shown in Table 1. The mean age was 47.0 years (SD ±10.7). There were 71 (53%) females and 59 (47%) males. The group's median BMI was 29.3 (IQR 26.2-32.0), indicating that all participants were considered overweight. One hundred five (80.8%) of the participants were married, 13 (10%) were single, 6 (4.6%) were separated/divorced and 6 (4.6%) were widowed. Data on education levels showed that 3 (2.3%) completed elementary school, 50 (38.5%) finished intermediate school, 14 (10.8%) graduated from high school, 20 (15.4%) had an undergraduate degree, 42 (32.3%) had a graduate degree and 1 (0.7%) had another type of education. Ninety-three participants (72.1%) were employed either part or full time and 36 (27.9%) were unemployed.

Table 1. Demographic characteristics (N=130)

Variables	
Age, mean (SD)	46.8 (10.6)
Gender, n (%)	
F/M	71 (53%) / 59 (47%)
BMI, median (IQR)*	29.4 (26.2-32.0)
Marital status, n (%)	
Single	13 (10.0)
Married	105 (80.8)
Separated/Divorced	6 (4.6)
Widowed	6 (4.6)
Education, n (%)	

Elementary	3 (2.3)
Intermediate	50 (38.5)
High School	14 (10.8)
Undergraduate	20 (15.4)
Graduate	42 (32.3)
Other	1 (0.8)
Employment, n (%)	
Yes	93 (72.1)
No	36 (27.9)

*Inter-quartile Range (IQR) = 25th percentile − 75% percentile.

Pain Characteristics:

Pain characteristics including intensity, site of pain and number of pain locations are shown in Table 2. The mean and standard deviation for pain intensity ratings were 5.4 (SD ±1.8), and rating for pain interferences on daily functions were 4.9 (SD ±2.0). The primary pain location varied; 71 subjects (54.6%) reported suffering from back pain, 29 (22.3%) from head and neck pain, 19 (14.6%) from pain in the limbs, and 11 (8.5%) from pain in the abdomen. Sixty-Five (50.0%) reported pain in one site, 43 (33.1%) reported pain in two sites and 22 (16.9%) reported 3 or more sites with pain. The maximum number of pain sites was 5; two people suffered pain in 5 sites. The means and standard deviations of pain intensity for Limbs, Back, Head and Neck, and Abdomen were 5.4 (SD ±1.8), 5.0 (SD ±2.1), 4.7 (SD ±1.9), and 4.6 (SD ±2.2), respectively (Table 3).

Table 2. Characteristics related to pain (N=130).

Variables	Mean (± 1 SD)
Pain Intensity (SD)	5.4 (1.8)
Pain Interferences	4.9 (2.0)
Number of pain locations in the same subject	**n (%)**
1	65 (50.0)
2	43 (33.1)
3	15 (11.5)
4	5 (3.9)
5	2 (1.5)
Pain location	**n (%)**
Limbs	19 (14.6)
Head-Neck	29 (22.3)
Abdomen	11 (8.5)
Back	71 (54.6)

Table 3. Location and pain intensity (N=130)

Location	n	Mean Intensity, (SD)
Limbs	19	5.4 (1.8)
Back	71	5.0 (2.1)
Head and Neck	29	4.7 (1.9)
Abdomen	11	4.6 (2.2)

Association between pain intensity and location with pain interferences

The results of the multiple linear regression analysis with mean ratings of pain interferences *(BPI Item 9)* as the dependent variable are now described. After adjusting for the covariates of interest (intensity and location), results reveal that increasing pain intensity has a significant negative effect on daily function (p <0.0001); furthermore,

increasing the number of pain locations had a significant negative effect on daily function (p =0.04) (Table 4). Although there were no statistically significant differences in adjusted mean scores of pain interferences on daily functioning between pain locations, the mean ratings of pain interferences on daily functioning were higher for Limbs followed by the Abdomen and Back, with the lowest for Head and Neck (Table 4.1).

Table 4. Maximum likelihood estimates from the multiple linear regression analysis for pain interferences (N=130).

Variable	Coefficient	Standard error	*t* value	*p* value
Intercept	0.3	1.2	0.2	0.8
Pain intensity	0.7	0.1	9.1	<0.0001
Location				
Limbs	0.5	0.4	1.2	0.2
Head and Neck	-0.3	0.3	-1.0	0.3
Abdomen	0.001	0.5	0	1.0
Number of locations	0.3	0.2	2.1	0.04
Gender	0.4	0.3	1.3	0.2
Age	-0.01	0.01	-0.7	0.5
BMI	0.02	0.02	0.8	0.4
Marital status (Married)	0.1	0.4	0.2	0.9
Education (College)	-0.3	0.3	-1.2	0.2
Employment (Yes)	0.2	0.3	0.7	0.5

Table 4.1. Adjusted means for pain interferences from multiple linear regression analysis.

Location	Mean	Standard Error
Limbs	5.4	0.4
Abdomen	5.0	0.5
Back	5.0	0.32
Head and Neck	4.6	0.3

The SF-36 data:

Median and IQR for each of the SF-36 subscales are shown in Table 5. The aspects of HRQOL most affected by pain were those corresponding with the SF-36 subscales Role Limitation due to Physical (RP median 25; IQR 0-50) and Emotional problems (RE median 25; IQR 0-58.3).

Table 5. SF-36 subscales (N=130)

SF-36 subscales (HRQOL)*	**Median (IQR)**
Physical functioning (PF)	45 (20-55)
Role physical (RP)	25 (0-50)
Role emotional (RE)	25 (0-58.3)
Vitality (Energy/Fatigue) (VT)	43.8 (37.5 - 50)
Emotional well-being (MH)	50 (45 - 65)
Social functioning (SF)	50 (37.5 - 62.5)
Bodily Pain (BP)	41 (31 - 52)
General health (GH)	48.5 (40 - 60)

*Data are reported as median (IQR); IQR= 25% percentile-75% percentile;

Health-Related Quality of Life Characteristics (*SF-36)* in relation to Pain intensity and location.

Physical Functioning (PF)

In this section, I describe the results from the multiple linear regression analysis for the SF-36 PF subscale as the dependent variable. After adjusting for the covariates of interest, chronic pain intensity had a significant negative effect on PF (p = 0.02). The parameter estimate shows a decrease of 3.4 points on the PF scale for every 1-point increase in the NRS score (Table 4). Results also showed significant differences in adjusted mean scores on the PF scale amongst the pain locations. The location of pain that affected PF the least was Head & Neck, followed by Back, Limbs and Abdomen (adjusted means 54.1, 40.1, 32.9 and 27.7, respectively; Table 6.1). There were significant differences in the adjusted mean PF scores between Head & Neck and each of the other three locations. The difference in adjusted means between Head & Neck and Limbs was 21.1 (95%CI; 4.5, 37.7), meaning that pain in the Limbs affects physical functioning more negatively than pain in the Head & Neck. Similarly, the differences between Head & Neck and Abdomen and Head & Neck and Back were 26.4 (95%CI; 6.6, 46.1) and 13.9 (95%CI; 2.3, 25.6), respectively.

Role physical (RP)

In this section, we describe the results from the multiple linear regression analysis with the RP scores on the SF-36 as the dependent variable. After adjusting for the covariates of interest, chronic pain intensity had a negative effect on RP (p = 0.05). The parameter estimate shows a decrease of 3.2 points for every 1-point increase in the NRS score

(Table 6). Although there were no statistically significant differences in HRQOL adjusted mean scores on the RP scale between pain locations, the location that affected the RP least was Abdomen, followed by Limbs, Back, and Head & Neck, respectively (adjusted means 41.7, 31.8, 30.5 and 25.1; Table 6.1).

Role emotional (RE)

We describe here the results of the multiple linear regression analysis with the RE scores on the SF-36 as the dependent variable. After adjusting for the covariates of interest, chronic pain intensity had a significant negative effect on RE (p = 0.02). The parameter estimate shows a decrease of 5.1 points for every 1-point increase in the NRS score (Table 6). Although there were no statistically significant differences in HRQOL adjusted mean scores on the RE scale between pain locations, the location that affected the RE least was Abdomen, followed by Limbs, Back, and Head & Neck (adjusted means 43.3, 31.7, 30.5 and 24.2, respectively; Table 6.1).

Vitality (Energy/Fatigue) VT

Our results from the multiple linear regression analysis with the VT scores from the SF-36 as the dependent variable indicate that, after adjusting for the covariates of interest, chronic pain intensity had no significant effect on VT (p = 0.3; Table 7). Although there were no statistically significant differences in HRQOL adjusted mean scores on VT scale between pain locations, the location of pain that affected the VT least were the Limbs, followed by the Abdomen, Back and Head & Neck respectively (adjusted means 45.8, 45.1, 44.6 and 41.4, respectively; Table 7.1).

Mental Health (Emotional Well-being) MH

From the multiple linear regression analysis with the MH scores on the SF-36 as the dependent variable, we found that chronic pain intensity had no significant effect on MH (p = 0.2; Table 7) after adjusting for the covariates of interest. Although there were no statistically significant differences in adjusted mean scores on the MH scale between pain locations, the location of pain that affected the MH least were the Limbs, followed by Back, Abdomen and Head & Neck (adjusted means 57.7, 55.1, 54.9 and 51.8, respectively; Table 7.1).

Social functioning (SF)

After adjusting for the covariates of interest, chronic pain intensity had no significant effect on SF (p = 0.7; Table 7). Although there were no statistically significant differences in adjusted mean scores on the SF scale between pain locations, the location of pain that affected the SF least was the Abdomen, followed by Back, Head & Neck, and Limbs (adjusted means 54.5, 50.2, 48.9 and 48.8, respectively; Table 7.1).

Bodily Pain (BP)

With the BP scores on the SF-36 as the dependent variable and after adjusting for the covariates of interest, chronic pain intensity had a negative effect on BP (p = 0.05). The parameter estimate shows a decrease of 2.2 points for every 1-point increase in the NRS score (Table 8). Although there were no statistically significant differences in adjusted mean scores on the BP scale between pain locations, the location of pain that affected the

BP least was the Abdomen, followed by Limbs, Head & Neck, and Back (adjusted means 46.2, 40.8, 40.7 and 39.3, respectively; Table 8.1).

General Health (GH)

With the GH scores as the dependent variable and after adjusting for the covariates of interest, chronic pain intensity was found to have no significant effect on GH (p = 0.1; Table 8). Although there were no statistically significant differences in adjusted mean scores on the GH scale between pain locations, the location of pain that affected the GH least were the Limbs, followed by the Abdomen, Back and Head & Neck (adjusted means 52.1, 52.0, 49.8 and 48.9, respectively; Table 8.1).

Chronic Pain Intensity, Location and Health Related Quality of Life:

Using a multiple linear regression analysis for all 8 domains of HRQOL as the dependent variables and after adjusting for the covariates of interest, results revealed a significant association between pain intensity and PF, RP, RE and BP ($P \leq 0.05$), such that the higher the pain intensity, the greater the negative effect on those HRQOL domains. Moreover, the parameter estimates show that an increase of pain intensity by 1-point leads to decreases in PF, RP, RE and BP by -3.4, -4.2, -5.1 and -2.2, respectively (Tables 6, 7 and 9). Furthermore, the three domains most affected by the intensity of pain were RE, RP in the Head & Neck and PF in the Abdomen, with adjusted means at 24.2, 25.1 and 27.7, respectively (Tables 6.1 and 7.1).

PF was significantly associated with an increase in the number of pain locations (*P=0.01*). Although not significant, parameter estimates for the RE and RP domains

showed that an increase in the number of pain locations led to decreases in the parameter estimates of -6.2, and -4.8, respectively (Table 6).

Finally, MH and SF domains are affected more than other domains in older patients ($p< 0.05$). Employed patients are affected more than those who are unemployed in the PF, RP, RE and BP domains ($p< 0.05;$ Tables 6, 7 and 8).

Discussion:

There is little evidence indicating which dimensions of quality of life are affected by increasing pain intensity, pain location and number of pain sites. Chronic pain is a long-term condition that requires individuals to find ways to deal with their suffering while pursuing their lives. Thus, suffering, as well as efforts to cope, can impact HRQOL. Previous studies have identified associations between chronic pain and socio-economic status or depression (Becker et al., 1997; Börsbo, Peolsson, & Gerdle, 2008; Elliott, Renier, & Palcher, 2003b; Jameie, Shams-Hosseini, Janzadeh, Sharifi, & Kerdari, 2012; Walsh et al., 2006; Yacoub, Amine, Laatiris, & Hajjaj-Hassouni, 2012). However, those studies did not adjust for confounding variables that might have had an impact on the dimensions of HRQOL, such as the intensity and location of pain and multisite pain in the same subject. Few studies have investigated the impact of chronic pain on daily function and HRQOL in relation to pain intensity, location and multisite pain.

In this study, we have investigated the impact of chronic non-malignant pain on daily function and HRQOL, in relation to pain intensity and location, in order to identify what specific aspects of HRQOL are most affected in patients who have been referred to pain

clinics located in Hamad General Hospital, Doha, Qatar. Because these are the only clinics that all patients with chronic pain are referred to, our study participants represent patients who consult and seek medical services at these clinics, but not necessarily be representative of the general population of non-malignant chronic pain patients.

In the present study, we found that increasing pain intensity and location were significant factors in the impairment of daily function as measured by the BPI. Furthermore, we found significant associations between increasing pain intensity and number of pain locations with QOL in some, but not all, domains of SF-36.

All patients in the present study would be considered overweight and above; this is consistent with reported results from Qatar that 68.9% of female adults and 78.3% of male adults in the population are overweight or obese (Ng, Zaghloul, Ali, Harrison, & Popkin, 2011). More than half of our patients (52.6%) had back pain, which is far higher than the results reported from pain clinics in other countries (Becker et al., 1997; Jameie et al., 2012). It has been documented that overweight and obesity have a significant impact on the health and quality of life of individuals, and an association with back pain has been demonstrated (Bener, 2006; Bener, Alwash, Gaber, & Lovasz, 2003). Back pain in our study was associated with moderate pain severity and interference with daily functioning, and it had the lowest mean average in BP on the SF-36.

In the present study, almost half of our participants had pain in two or more sites, which is much greater than that reported by Jameie et al. (19.8%) in an Iranian population. We also found that more women than men suffered from chronic pain, which is consistent

with findings from other studies in the Middle East (Jameie et al., 2012; Yacoub et al., 2012).

We hypothesized that those individuals with chronic non-malignant pain would have functional limitations due to their pain intensity and number of locations, as well as a significant negative impact on quality of life. The results from the BPI showed significant impact on daily functioning by increasing pain intensity and number of pain sites ($P \leq 0.01$), with no differences between pain locations. This is consistent with previous studies that revealed a relationship between increasing pain intensity and pain interferences (Hølen et al., 2008; Tan et al., 2004). However, the previous studies did not adjust for multisite pain or type of pain that might make a difference on the impact of pain on daily functioning. Moreover, the average means of pain intensity and pain interferences in our study were less than what have been reported by Holen et al. and Tan et al.; however, this may be because our study was conducted in a different culture with a smaller sample size.

In the present study, we aimed to characterize the HRQOL of chronic non-malignant pain for patients suffering from various conditions of chronic pain, in order to understand which dimensions of HRQOL are affected more by chronic pain in relation to the intensity and location of that pain. Results from the Medical Outcome Study-Short Form (SF-36) showed a decrease in all domains of HRQOL. Consistent with previous studies, we found that patients with chronic non-malignant pain reported worse scores on all domains of HRQOL (SF-36), with significant impairment in physical, social and

psychological well -being (Becker et al., 1997; Fredheim et al., 2008). In the present study, Role Limitations due to Physical and Emotional problems were the most negatively affected dimensions of HRQOL: patients reduce the amount of time spent on work or other activities, accomplish less than what they would like, are limited or have difficulty engaging in certain types of work or other activities, and adjust by doing work or other activities less carefully than usual. Furthermore, our participants rated their mental health and social functioning better than that reported in studies conducted by Becker et al. and Fredheim et al. (table 5). Many studies have shown that chronic pain is highly associated with poor mental health, social functioning, physical functioning and emotional role (Becker et al., 1997; Elliott, Renier, & Palcher, 2003a; Lyons, Lo, & Littlepage, 1994). This is partly consistent with our findings, although we found only weak associations between chronic pain and mental health and social functioning in our population.

To our knowledge, there are few studies in which the impact of various conditions of chronic non-malignant pain on each domain of HRQOL have been investigated by adjusting for confounding variables. In fact, after adjusting for confounding covariates, we found that the dimensions most affected from increasing pain intensity were PF, RP, RE and BP due to pain located in the head & neck, and PF due to pain in the abdomen. Thus, patients suffering from pain in those locations are more impaired, and their productivity, economic status and well-being are more strongly affected (Monzon & Lainez, 1998). As mentioned earlier, most of the previous studies investigated the

association of chronic pain with depression and socioeconomic status or with a particular disease.

Neck pain affects around 75% of people during their life course (Daffner et al., 2003). Although, Daffner et al. reported that combined neck pain has an important impact on mental health with no effect on physical health (Daffner et al., 2003), their results contradict our finding; we found that neck pain has more impact on physical and emotional roles yet no effect on mental health. We believe that the differences in our results may be because Daffner et al. adjust for increasing symptom duration instead of the level of pain intensity. Intriguingly, with a larger sample size than in our study, Rezai et al. reported the same results as we did by adjusting for severity of pain (Rezai, Côté, Cassidy, & Carroll, 2009). In the present study, head & neck pain is more strongly associated with the decrement of physical and emotional roles than pain from other locations. Moreover, we found that abdominal pain is associated more with decrement of physical functioning than other locations. Furthermore, in previous studies, abdominal pain was significantly associated with all domains of HRQOL, except physical functioning (in which a particular disease is adjusted for through a control group) (Gralnek, Hays, Kilbourne, Naliboff, & Mayer, 2000; Revicki, Wood, Maton, & Sorensen, 1998). In contrast, our study aimed to identify which domains of HRQOL are most affected by increasing pain intensity and location.

It has been reported that multiple site pain in the same subject has the greatest impact on PF, RP and BP and that HRQOL ratings are very poor (Picavet & Hoeymans, 2004). In

our study, physical functioning (PF) was the only dimension of QOL that was affected by an increasing number of pain locations.

Most previous studies have shown that elderly patients with chronic pain had poor health related quality of life with the greatest negative impact of any group on physical functioning (Garfin, Buckley, & Ledlie, 2006; Lee & Shinkai, 2003; Vahdaninia, Goshtasbi, Montazeri, & Maftoun, 2005). However, in our study we found that older patients had better physical functioning, in which the greatest decrement was in mental health (MH) and social functioning (SF). This might be due to the social-structure environment and beliefs of the community in Qatar, where the most affected domains of HRQOL due to employment were physical functioning (PF), role physical (RP), role emotional (RE), and bodily pain (BP).

Conclusion:

Our study results led us to conclude that increasing pain intensity and number of pain sites does not necessarily reduce all domains of HRQOL. To better understand how greater pain and location, as well as culture and community may impact HRQOL domains, qualitative methodologies are recommended. Thus, we conducted a qualitative descriptive (QD) study to explore life experiences of patients living with chronic pain (next manuscript). This enabled us to gain a deeper understanding of our unique quantitative results. Understanding in what manner certain quality of life domains are diminished by chronic pain can assist practitioners and decision-makers in devising appropriate therapeutic alternatives.

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Conflict of interest:

The authors declare that there is no conflict of interest.

Table 6. Maximum likelihood estimates from the multiple linear regression analysis. Physical functioning, Role physical and Role emotional subscales (N=130).

	Physical functioning				*Role physical*				*Role Emotional*			
Variable	Coefficient	Standard error	*t* value	*P*- value	Coefficient	Standard error	*t* value	*P*-value	Coefficient	Standard error	*t* value	*P*- value
Intercept	66.8	16.8	4.0	0.0001	58.1	26.1	2.2	0.03	64.3	26.1	2.5	0.02
Pain Intensity	-3.4	1.4	-2.4	0.02	-4.2	2.2	-1.9	0.05	-5.1	2.1	-2.4	0.02
Location (vs. Back)												
< L >	-7.1	5.7	-1.3	0.2	1.4	8.9	0.2	0.9	1.2	8.9	0.1	0.9
< H/N >	13.9	4.5	3.1	0.002	-5.3	7.0	-0.8	0.4	-6.3	6.9	-0.9	0.4
< A >	-12.4	6.9	-1.8	0.08	11.3	10.8	1.0	0.3	12.8	10.8	1.2	0.3
< Number of locations >	-5.7	2.2	-2.6	0.01	-4.8	3.4	-1.4	0.2	-6.2	3.4	-1.8	0.07
Gender	-1.8	3.8	-0.5	0.6	3.1	6.0	0.5	0.6	3.3	6.0	0.6	0.6
Age	-0.1	0.2	-0.3	0.7	0.2	0.3	0.6	0.5	0.2	0.3	0.7	0.5
BMI	-0.3	0.3	-0.9	0.3	-0.6	0.5	-1.1	0.3	-0.5	0.5	-0.9	0.4
Marital status (Married)	8.9	4.8	1.9	0.1	-2.6	7.4	-0.4	0.7	-1.9	7.4	-0.3	0.8
Education (College)	0.2	3.7	0.1	0.9	4.9	5.8	0.9	0.4	3.1	5.8	0.5	0.6
Employment (Yes)	9.6	4.4	2.2	0.03	18.8	6.8	2.8	0.01	17.1	6.8	2.5	0.01

Table 7. Maximum likelihood estimates from the multiple linear regression analysis. Vitality, Emotional Well- being and Social function subscales (N=130).

	Vitality (Energy/Fatigue)				*Emotional Well-being (Mental Health)*				*Social functioning*			
Variable	Coefficient	Standard error	*t* value	*P*- value	Coefficient	Standard error	*t* value	*P*- value	Coefficient	Standard error	*t* value	*P*- value
Intercept	46.9	10.9	4.3	<0.0001	61.8	12.5	5.0	<0.0001	39.0	14.9	2.6	0.01
Pain Intensity	-1.0	0.9	-1.1	0.3	-1.2	1.0	-1.2	0.2	-0.5	1.2	-0.4	0.7
Location (vs. Back)												
<L>	1.2	3.8	0.3	0.8	2.6	4.3	0.6	0.6	-1.4	5.1	-0.3	0.8
<H/N >	-3.2	2.9	-1.1	0.3	-3.3	3.3	-1.0	0.3	-1.3	4.0	-0.3	0.7
<A>	0.5	4.5	0.1	0.9	-0.2	5.2	-0.04	1.0	4.3	6.2	0.7	0.5
<Number of locations>	-0.3	1.4	-0.2	0.9	-0.5	1.6	-0.3	0.7	-1.3	1.9	-0.7	0.5
Gender	-1.8	2.5	-0.7	0.5	1.8	2.8	0.6	0.5	2.1	3.4	0.6	0.5
Age	-3.2	2.5	-0.8	0.4	0.3	0.1	2.0	0.04	0.5	0.2	3.0	0.003
BMI	0.02	0.2	0.1	0.9	-0.02	0.2	-0.1	0.9	0.1	0.3	0.2	0.8
Marital status (Married)	0.8	3.1	0.1	0.8	1.8	3.5	0.5	0.6	-1.3	4.2	-0.3	0.7
Education (College)	0.8	2.4	0.3	0.7	-0.9	2.8	-0.3	0.8	-1.5	3.3	-0.5	0.6
Employment (Yes)	3.8	2.9	1.3	0.2	2.2	3.3	0.7	0.5	7.6	3.9	2.0	0.1

Table 8. Maximum likelihood estimates from the multiple linear regression analysis. Bodily pain and General health (N=130).

	Bodily pain				*General Health*			
Variable	Coefficient	Standard error	*t* value	*P*-value	Coefficient	Standard error	*t* value	*P*-value
Intercept		13.8	2.0	0.05	59.3	13.2	4.5	<0.0001
Pain Intensity	-2.2	1.1	-2.0	0.05	-1.8	1.0	-1.8	0.1
Location (vs. Back)								
<L>	1.5	4.7	0.3	0.8	2.3	4.4	0.5	0.6
<H/N >	1.5	3.7	0.4	0.7	-0.9	3.3	-0.3	0.8
<A>	6.9	5.7	1.2	0.2	2.2	5.1	0.4	0.7
<Number of locations>	0.6	1.8	0.3	0.7	-0.5	1.6	-0.3	0.8
Gender	3.4	3.2	1.1	0.3	1.8	2.9	0.6	0.5
Age	0.2	0.2	1.5	0.1	1.9	1.9	1.3	0.09
BMI	0.2	0.3	0.8	0.4	-0.2	0.3	-0.8	0.4
Marital status (Married)	0.2	3.9	0.1	0.9	-3.0	3.7	-0.8	0.4
Education (College)	2.3	3.1	0.8	0.4	-3.1	2.8	-1.1	0.3
Employment (Yes)	7.4	3.6	2.1	0.04	2.7	3.3	0.8	0.4

Table 6.1. Adjusted means from multiple linear regression analysis for Physical functioning, Role physical and Role Emotional subscales.

	Physical functioning		*Role physical*		*Role Emotional*	
Location	Mean	Standard error	Mean	Standard error	Mean	Standard error
Abdomen	27.7	6.4	41.7	9.9	43.3	9.9
Back	40.1	2.4	30.5	3.7	30.5	3.7
Head and Neck	54.1	3.8	25.1	5.9	24.2	5.9
Limbs	32.9	5.0	31.8	7.8	31.7	7.8

Table 7.1. Adjusted means from multiple linear regression analysis for Vitality, Emotional Well-being and Social function subscales.

	Vitality (Energy/Fatigue)		*Emotional Well-being (Mental Health)*		*Social functioning*	
Location	Mean	Standard error	Mean	Standard error	Mean	Standard error
Abdomen	45.1	4.1	54.9	4.7	54.5	5.6
Back	44.6	1.6	55.1	1.8	50.2	2.1
Head and Neck	41.4	2.5	51.8	2.8	48.9	3.4
Limbs	45.8	3.3	57.7	3.8	48.8	4.4

Table 8.1. Adjusted means from multiple linear regression analysis for Bodily Pain and General Health subscales.

	Bodily pain		*General health*	
Location	Mean	Standard error	Mean	Standard error
Abdomen	46.2	5.2	52.0	4.7
Back	39.3	2.0	49.8	1.8
Head and Neck	40.7	3.1	48.9	2.8
Limbs	40.8	4.1	52.1	3.9

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4.3 Intermediate Integration Phase

At this stage, we found that increasing pain intensity and location have a significant effect on daily functioning for patients suffering from chronic pain. However, increasing pain intensity and location, as independent variables, did not affect all of the quality of life domains. The impact on quality of life was significant for certain domains, but not others. Thus, we decided to explore the pain experience from the narratives of chronic pain patients in order to gain deep understanding and explanation for those quantitative results. We were straightforward in selecting participants who demonstrated high pain intensity yet low or no impact on quality of life. At this stage, based on our results from the quantitative study, we were able to formulate a list of open-ended questions to elicit a better understanding of how persistent intense pain could affect daily functioning without impeding on a patient's quality of life.

4.4 Manuscript II: "Living with Chronic Non-Malignant Pain: A Descriptive Qualitative Study of Patients' Experiences in Qatar"

Living with Chronic Non-Malignant Pain: A Descriptive Qualitative Study of Patients' Experiences in Qatar

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Abstract:

Living with persistent chronic pain can have profound, negative effects on sufferers, their families and their communities. Chronic pain influences many aspects of the individual's life, as well as placing a burden on the health care system. Pain sufferers will experience pain in different ways depending on their perceptions, beliefs, culture or religion, which could have a profound influence on how they live their lives. This qualitative descriptive study involved patients who were treated in the pain clinics at Hamad General Hospital, Doha, Qatar. In this study, we explored the individual's experience of living with chronic non-malignant pain. A content analysis was used to analyze data from in-depth semi-structured interviews with twelve patients. Little previous research has been conducted to identify or examine people living with chronic pain in this region; thus, there is limited information in Qatar about chronic pain experience measured through a qualitative research approach. The findings from this study provide insights into the experience of individuals living with chronic non-malignant pain and identify how social, cultural and religious beliefs can significantly influence the type and perceived level of suffering from chronic pain. These findings demonstrate how understanding the experience of people living with chronic pain can identify important aspects of pain and how we can better

meet patients' needs through provision of holistic treatment approaches. Further research in this area would allow clinicians and decision-makers to offer appropriate therapeutic strategies for people living with chronic pain.

Keywords: chronic non-malignant pain; patient experience; living with chronic pain; exploring; descriptive qualitative

Introduction:

Chronic pain has devastating effects on patients' lives, their families and their communities, as well as placing a substantial burden on health care systems worldwide (Cleeland & Ryan, 1994). Efforts to study and develop effective treatments for chronic pain patients have included investigations into how an individual or culture perceives pain. Accurate data on a population's experience of pain management can improve clinical and administrative decision-making for enhanced treatments (Turk & Rudy, 1987). Furthermore, we know that chronic pain negatively affects most aspects of health related quality of life measures (Rezai M Fau - Cote, Cote P Fau - Cassidy, Cassidy Jd Fau - Carroll, & Carroll, 2009). Thus, it is important to understand the chronic pain experience of patients to design effective and strategic health care service strategies to provide optimum care and to learn how to better manage the negative effects of pain. Medical services with home and community management can make a significant difference, because many studies have revealed that coping strategies and pain beliefs are associated with the intensity and level of disability created by the pain (Geisser, Robinson, & Riley, 2000).

Exploring the chronic pain experience adds another dimension to our understanding of how pain affects people's lives and increases our knowledge of its impact, thus enhancing our understanding of this debilitating and common health problem (Mathias, Kuppermann, Liberman, Lipschutz, & Steege, 1996).

Chronic pain is experienced by 37% of people living in middle to high-income countries and by 41% in countries with low to middle incomes (Tsang et al., 2008). The experience of individuals and their families living with chronic pain are under-recognized in current research publications on chronic pain. Thus, a qualitative study can explore the chronic pain experiences for an individual (Bowman, 1991). It can also explain how chronic pain might affect an individual's life in a variety of ways, based on attitudes, beliefs or perceptions.

Qualitative approaches are used to develop concepts or answer questions that help researchers to understand and explain the influence of social phenomena. There are many ramifications related to health problems that are not obvious. Clinicians need to understand these needs so that health care providers can develop better therapeutic strategies (Pope & Mays, 1995; Silverman, 1987).

Qualitative research is a methodological strategy accepted by academics, medical practitioners, patients, health care organizations and policy makers (Pollitt, Harrison, Hunter, & Marnoch, 1990). Qualitative research enriches our knowledge of health-related issues by allowing for specific insight and deeper understandings of the complexities associated with living with chronic pain by investigating attitudes, experiences,

behaviours and beliefs that cannot be assessed through questionnaires and quantitative methods (Pope & Mays, 1995; Silverman, 1987). Qualitative approaches offer a means to achieve a comprehensive understanding of people's experiences in their social, economic and political contexts (Hills, 2000). Accurate individual accounts of the chronic pain experience, represented through both commonalities and differences, will offer insight and knowledge to contribute to deeper and broader understanding.

Although many people are aware of the chronic pain phenomenon, they may not appreciate its far-reaching effect on patient's lives, either because this phenomenon has not been well explained and described or because its impact on the person has not been well articulated (Miller, 2001). The complexity of living with chronic pain needs to be carefully researched through the narratives of people who live, day in and day out, with this condition (Hancock, 1998).

A person's experience of chronic pain can be determined by the specific context and meaning perceived by that individual (Seers & Friedli, 1996). People experience pain in different ways depending on their perceptions, beliefs, culture or religion that could have a significant impact on their lives (Carson & Mitchell, 1998; Holloway, Sofaer-Bennett, & Walker, 2007). Moreover, chronic pain leads to fear avoidance that can disrupt or change the way in which an individual approaches many of his/her daily activities including work, self-care, leisure and social roles (Robinson, Kennedy, & Harmon, 2011). A study conducted by Osborn and Smith revealed that chronic benign lower back

pain caused changes in the person's social life and relationships, restricting him/her from many activities and even altering a personality (Osborn & Smith, 1998).

In a study of chronic fibromyalgia pain by Hallberg and Carlsson revealed that the pain is almost continuously present and that it affects many aspects of life; the life of a person with chronic fibromyalgia seems to be shaped and guided by pain (Hallberg & Carlsson, 2000). Seers and Friedli have shown that people who experience chronic non-malignant pain feel overwhelmed because of their pain (Seers & Friedli, 1996). Hitchcock et al. found that half of 204 patients reported such severe chronic non-malignant pain that they had considered suicide (Hitchcock, Ferrell, & McCaffery, 1994).

Chronic pain often leads to social isolation and inhibits communication with family and friends (Carson & Mitchell, 1998; Seers & Friedli, 1996). Breivik et al. revealed that approximately 40% of participants reported that their pain restricted them from concentrating and normal functions, and 16% reported that some days they felt so bad that they wished to die (Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006).

Moreover, the World Health Organization (WHO) has stated that chronic pain is a greater public health problem in countries that lack awareness and medical treatment programs with supporting research about this condition, where "one in five people suffer from moderate to severe chronic pain and one in three is unable or less able to maintain an independent life style due to their pain" (The International Association on the Study of Pain (IASP) and the European Federation of the IASP Chapters). This increased our

interest in the patient experience of living with chronic pain in Qatar, where research on chronic pain has never been qualitatively explored.

Understanding the meaning of chronic pain from the sufferer's perspective can provide many explanations about the effect of chronic pain on a patient's life and how individuals with chronic pain deal with conditions based on beliefs, perception, culture or religion. This study can provide information for health care providers and decision makers so that services can be enhanced and directed in an effective manner (Carson & Mitchell, 1998).

Purpose of the Study:

The question underpinning this qualitative research study was as follows: "How do individuals with chronic non-malignant pain describe their life and daily activity?" Accordingly, the purpose of this study was to explore patients' experiences of living with chronic non-malignant pain in order to gain an in-depth understanding into aspects of this chronic health condition and how the sufferers' lives are affected. The intention is that this research might provide some information for health care providers and decision-makers to enhance or provide more appropriate therapeutic approaches.

Design:

We chose a qualitative research methodology that was appropriate to achieve our study objective, which was to understand the complexities of living with chronic non-malignant pain from the sufferer's firsthand experiences. Consequently, we selected Qualitative Descriptive (QD) as a qualitative research methodology that allows us to understand and

explore the common and/or unique experiences that were obtained from our chronic pain participant population (Sandelowski, 2000). Based on the literature, we know that chronic pain can have a negative impact on a person's life (Dysvik, Lindstrøm, Eikeland, & Natvig, 2004; Jameie, Shams-Hosseini, Janzadeh, Sharifi, & Kerdari, 2012; Yacoub, Amine, Laatiris, & Hajjaj-Hassouni, 2012). However, this phenomenon may be influenced by other less obvious factors, such as perception of living with chronic pain, cultural or religious interpretations, or unique ways of learning to manage the pain. Consequently, it seems that a patient's perception of his/her own chronic pain could differ significantly from culture to culture; this was our motivation to explore how people living in the state of Qatar with chronic pain experience their pain, where little qualitative or quantitative research on chronic pain has been conducted.

Participants:

Our selection of participants for this study was focused on individuals who were diagnosed with severe chronic pain. They rated their average pain as equal to or greater than 7 on the Numerical Rating Scale (NRS) from 0 to 10, in which '0' equals "no pain" and '10' means "pain as bad as you can imagine" (Hølen, Lydersen, Klepstad, Loge, & Kaasa, 2008; Salaffi, Stancati, Silvestri, Ciapetti, & Grassi, 2004). Additional inclusion criteria for this study were: male or female adults 18 years and older, having chronic non-malignant pain for more than 6 months, living without any major mental illness and willing to participate in this study. All participants who volunteered to be part of this study were informed that they could withdraw at any time without consequences. Twelve

patients agreed and signed the consent for their participation. Ethical approval was obtained from both the research center at Hamad Medical Corporation (HMC), Doha, Qatar and the Institutional Review Board, Faculty of Medicine, McGill University, Montreal, Canada.

Methodology:

Individual Interviews

The researcher conducted face-to-face, semi-structured interviews in Arabic and English, depending on the preference of the participants, that enabled participants the latitude to describe their experiences. These interviews revealed relevant topics that enabled us to explore and gain an in-depth understanding of the experience of living with chronic pain (Appendix VI). Interviews were audio-recorded with the permission and written consent of each of the participants. Each participant was interviewed separately in a private location to respect confidentiality and was conducted at the most convenient time for the participant. Interviews lasted approximately 45 to 90 minutes and were transcribed verbatim for in-depth analysis.

Interview Analysis

It is recommended that the data should be analyzed as an ongoing process throughout the data collection (Parahoo, 2006). Thus, immediately following the data gathering for each interview, we conducted an initial analysis of the content to begin to get a sense of 'what is going on' (Elo & Kyngäs, 2008). To accomplish this, we used a *content analysis*

strategy; one commonly used in qualitative research methods (Neergaard, Olesen, Andersen, & Sondergaard, 2009), since we chose to ask questions on specific topics related to living with chronic pain. Content analytic approaches are used in qualitative research studies, enabling researchers to interpret experiences from the content of an interview to describe a particular phenomenon or better answer a research question (Hsieh & Shannon, 2005). Based on our qualitative research objective, content analysis allowed us to explore participants' descriptions about living with various conditions of chronic pain in the context of their beliefs, perceptions and culture.

Findings:

Our research participants were comprised of five women and seven men ranging in age from 28 to 56 years living with pain for durations ranging from 6 to 18 months. The sites of pain in these participants were back, neck, abdomen and limb; 4 of the 12 participants reported more than one site of pain.

The interviews revealed common and interconnected themes including a) feeling disabled, b) meaning of and coping with chronic pain, c) perceptions about the future, d) stigmatization, and e) alternative therapies.

Chronic pain as a disability

In this study, all participants described chronic pain as debilitating; it left them feeling deficient compared to how they had lived their lives previously. Participants described feeling a personal deficit due to being unable to participate in many activities that they

previously enjoyed; this made them feel disconnected from their previous way of life. Along with their descriptions of living with pain, the participants felt that there was a significant impact on their physical functioning that led them to make substantive changes in their daily activities and employment, which reduced their enjoyment of life. Responsibilities toward family, work and social commitments were big challenges. In addition, older participants had emotional concerns about how their pain and increasing dependence affected the lives of their family members.

One of these participants described some of the profound changes:

My pain has affected my life so much and many of my responsibilities had to be done by my wife…. She is still standing and never complained, but I am afraid that she will get fed up at any moment, and then my problem will be bigger than what I have now.

Living with chronic pain can create suffering from many perspectives, particularly due to the loss of the capacity to engage in activities due to their pain and resulting fatigue. Chronic pain needs to be understood as a multidimensional phenomenon that extends into unexpected aspects of life, as explained by another participant:

My pain restricts me from doing my usual daily activities. I am a widowed woman, so my responsibilities are double, because I should do what my husband was doing. My two sons, 16 and 14 years old, are helping me so much. They never let me do anything and I'm happy how they treat me. But when my older son told me that he does not want to get

married in future because he wants to be with me all the time, then, I felt discouraged to realize that my pain is not just shaping my life; it is also shaping others' lives who are related to me.

Several participants emphasized that family members, relatives, friends, colleagues and society were extremely supportive and were glad to provide help even without asking. All participants mentioned that people around them had formed closer relationships with them than before their pain began.

One of the participants detailed the extent of personal and professional support by saying: *All my brothers, sisters and parents totally understand my problem and help me all the time. Also, my colleagues at work exempt me from hard duties and offer me assistance when needed. Relatives and friends ask about me and visit me so much more than before and are so considerate of my feelings.*

Disability due to chronic pain required further assistance, as one of the participants noted: *After I resigned from my work because of my pain, I started a small business to survive…. You know how difficult it is in the beginning to establish a new business. A couple of my friends made themselves available to help and finish all issues related to my business that I could not do.*

When I asked one participant why friends were extending themselves to assist him, inquiring as to whether he had promised some money or goods to pay for the help, the

participant assured us he had not, and went on to explain that the help he received was culturally rooted:

No, I did not offer anything to them. They are my friends, from the same tribe and in our culture, if in need and asked for help from somebody it is shame on him to not help and others will not consider him a good person because of his behaviour. I will never, ever forget what my friends did for me. No good deed goes unnoticed and I will reward my friends for what they did for me in some other ways. Whoever did the good deed, if not rewarded from the people will get rewarded from God. Thus, we always say, do a good deed and never wait for a reward from people because the rewards from God would be better.

Based on what participants described, it seems that these research participants were well supported by family members, relatives, friends, or society; they greatly appreciated this support. Interestingly, on the other hand, too much support might sometimes contribute unintentionally to suffering and become unwelcome, as one participant stated:

Everybody knows about my pain and not because I told them. No, because they see me suffering during my walking and sitting and sometimes I should tell them about my pain as an excuse to not attend some social occasions. They treat me very well and try to help me so much and that gives me the feeling that I am a disabled and poor guy. I appreciate what they do but I do not want it unless I ask.

From this finding, we learned how strong and supportive socio-cultural relationships can offset some of the physical impairments that are created by chronic pain. Moreover, emotional problems that can accompany chronic pain have less impact on persons with pain who are surrounded and supported by caring people. Therefore, it appears that people living with chronic pain are more likely to manage their pain better if they are provided with a supportive community of family and friends.

Meaning of and Coping with Chronic Pain

From the participant narratives, we found that beliefs, coping styles and behaviours were interrelated, such that coping strategies and behaviours were influenced by their perception of pain. Ten participants had strong religious beliefs, and found regularly engaging in prayers and observance to be comforting even when they developed chronic pain. Several participants mentioned that they had to accept their pain before healing could commence. All ten participants had a similar conviction about their beliefs, as exemplified through the following narrative:

I have totally accepted this and I know this is a test from God and I have to be patient and try to find a solution. My pain is the most horrible thing that has happened to me in all my life. I believe that God sent me this to clear me from many sins that I might have committed. As much as God loves, that's how much he tests you. This increases my ability and my willingness to carry on without hesitation.

Most participants described their pain as a gift and test from God and believed they had been chosen to have the pain; they therefore believed that they did not have a choice. The only choice they had was to adapt to a life with pain and to learn how to live with the pain as best they could. They thus were able to pursue therapeutic solutions, as one of the participants described:

My pain is unbelievable and annoys me most of the time…. It is done now, I have it already and it's a gift from God and I should respect that. The only thing I have to do is be patient and accepting of what I have, because I found that the more I accept my pain the better I am able tolerate it, this gives me power and helps me feel full of life.

Participants believed that pain becomes part of their life as a predetermined fate and that they need to accept this fate. They must remain resilient to avoid increasing the intensity of the pain. A participant shared this common way of thinking, which was similar to others interviewed in this study:

I absolutely did not choose to be in pain…. It is part of my destiny that I must accept and face, and God wants to examine my faith in him…. If I got angry or impatient, then it would be worse. I keep praying that God will give me the power to live with it and inspire me to work hard in order find how to overcome it.

The two participants who were religiously less observant expressed a higher degree of suffering than the other participants. An example of this difference is found in the following two passages, the first of which is from a less observant participant:

I cannot believe what happened to me…. My pain came from nowhere; I did not do anything to have this. My whole life got turned upside down and I have no thoughts about how I can get out of this.

Another participant offered an explanation aligned with his religious conviction:

Yes, I believe that my pain is from God, but I do not believe that I deserve it or I should suffer from it…. Why me? I should live a normal life like everybody.

A majority of the participants had in one way or another accepted their life with pain. Acceptance, from the point of view of the participants, was derived from their degree of religious beliefs and from their ability to contextualize pain. Most participants explained that they interpret pain just as any other problem; they first must accept it and then seek appropriate solutions. Participants who held strong religious beliefs were more likely to adapt their lives to live with their chronic pain conditions. Moreover, their acceptance of pain was linked to their belief that they had to learn how to tolerate and live with chronic pain until they could find solutions. The two less observant participants exhibited a different perspective towards their pain and tended to catastrophize and lash out at those around them, as one of them stated:

My pain has made me angry and mad most the time…. I was shouting and swearing at my wife and kids. I realized later that my family has kept distance from me; then I found myself alone.

The other less observant participant reflected on the dire consequences of pain on his behaviour and others' reactions to it:

My wife took the kids and moved to live with her family because of my behaviour at home…. Also, my brothers and sisters stopped calling and visiting me because of my behaviour. Suddenly, I found myself more and more isolated.

Behaviour is a critical issue for people living with chronic pain. It has the potential to cause erratic or hostile behaviour, deeply affecting those close to them. The behaviour, and reactions to it, can lead to strained relations and even social isolation.

We found that the ten participants who described a commitment to religious beliefs demonstrated a more positive attitude toward their pain, resulting in more stable behaviours that enabled them to keep their relationships with others strong; they continued to receive support from family and friends and engage within society. Moreover, they described a social life that contributed to decreasing the impact of their chronic pain, whether physically or emotionally. The behaviour displayed by people with chronic pain plays a critical role in their lives, as one of the participants described:

My pain is my problem ….Why should I let others also suffer because of my pain? If you suffer from something, do not let others suffer with you.

Another participant emphasized efforts she made to remain considerate to others:

I never was rude with people around me because of my pain. My pain is not their fault and they were not the reason behind my pain! I still remember the first time that I

shouted at my daughter because of my pain and then felt guilty and promised myself that I would never do that again.

Furthermore, we found that most of the religious participants were more likely to pay more attention to their responsibilities toward family, relatives, friends and community, which also prevented people living with chronic pain from becoming isolated. As one participant explained when we asked if living with chronic pain created more isolation:

No, never does my pain make me isolated, because I have many commitments to my family, relatives and friends and there is no way to run away from it. Family gatherings are mandatory once every week on weekends to those who live nearby. Also, I should attend many family and religious events that help me to not be isolated from social and religion occasions.

Another participant recognized how religion and a caring family diminished the risk of isolation due to pain:

Actually, yes my pain was threatening to isolate me from the world around me and from doing many things that I love…. But my social life and cultural beliefs force me to not become isolated. Because I am the older son, after my father passed away my sisters, brothers and relatives start gathering at my home…. I love this and it helps me forget my pain. Also they ask me all the time to go camping and promise me that they will help me to walk and move from one place to another. Regardless of my pain, I feel happy more often than before getting my pain.

It appears that well supported people living with pain enjoyed higher quality of life. A participant noted strategies of those around him to maintain his religious and social integration:

My family, relatives and friends encourage me all the time to be involved in many social and religious events. The funny thing is that my relatives and friends know how to deal with me, always mentioning that they want to do things that I love so much like fishing or hunting trips that I cannot resist, but I keep telling them that I would like to go but am not able because of my pain… then, they say "do not worry, we will do everything even if we have to carry you on our shoulders". So, I think to be busy with lovely people and events like what's happening with me lowers my chance of being isolated or depressed and this helps me not focus on my pain and forget it.

Our research demonstrates how socio-cultural context and religious beliefs help people with chronic pain not become socially isolated. They also play a critical role in fostering coping strategies. Social life, cultural and religious beliefs offer a positive influence to help keep people with chronic pain distracted from their suffering as a positive coping strategy.

Coping strategies were more successful when pain sufferers participated in a variety of activities, such as reading, sports, playing games, watching movies and TV. However, most of the participants offered two key strategies. The first strategy was derived from having an active social life that created a positive distraction from their preoccupation

with pain. The second strategy was derived from cultural beliefs, where they avoided comparing their health status with healthy people. One of the participants shared details of the strategy:

I keep myself busy with many responsibilities and events that surround me everywhere. Also, many of my friends and relatives encourage me to go out with them to have fun and to forget my pain… they are all the time empowering me and reminding me that I should thank God for what I have and keep looking to those worse off than me… All this lets me feel full of energy and that life is still good.

Another participant said:

My doctors told me that I will be in pain for a long time… it's true that my pain is horrible, but at least I can still walk; there are people who cannot. I keep praying that God will give me the power to tolerate my pain and get over it. Also, most of the time I am surrounded by people who care about me and understand my problem and my needs. This allows me to feel that life is still good, which decreases my suffering and increases my happiness.

We found that religious beliefs combined with a conscious effort to avoid jealous comparisons played an important role in participants' coping strategies, as one participant illustrated:

God did not create human beings to let them suffer. There is a meaning for everything that happens and it will show up whether now or in the future. I never look at who are in

better health than I; I keep looking to who are in worse condition than I to keep going in life.

Another participant described a similar strategy for dealing with his chronic pain:

I am following what God said, "you might hate something that happened. However, many good things may come from it". Also, some interpretations of what God said such as "do not complain, be patient, do not compare yourself with others, do good deeds and provide help, in order to solve your problem, and do not remain inactive; you should seek out solutions". Also, I believe that there are people worse off than I.

Socio-cultural participation and religious beliefs appear to be important elements contributing to successful coping for people living with chronic pain. These two factors also illustrate how people with chronic pain perceive their future.

Perception of the future

People living with chronic pain conditions seem to have different or altered perceptions of their future than do pain-free people. Those with chronic pain think about and plan for their future based on the intensity of their pain. Also, they have many unanswered questions and "what ifs" regarding their future. Despite this, most participants in the current study were positive and hopeful concerning their future. Most participants were determined to achieve their goals, as one of the participants described her positive outlook and plans:

I am so optimistic for my future and have big hopes that my health will improve… I have faith in God that all that has happened to me will be good for me after all. I am planning to continue my education in my field and get a masters degree… I will keep going and I will keep fighting with everything I've got so as to not give up. I am being tested and I intend to prove to those around me that my pain will not hold me back; it will push me to be a more successful woman.

Another participant similarly held an optimistic outlook:

I will not let my pain shape my future… I will keep going with my plans for my career as long I have control of my pain by avoiding some movements or learning to move in another way that helps me be more comfortable. Also, I stopped some activities that increase my pain like running and riding horses. My colleagues at work understand my problem and they cooperate with me when I ask them help or when they see me suffering. There are some responsibilities that are difficult to do by myself, so I ask one of my brothers, relatives or friends to do it.

Uncertainty about the future is considered to be a common human condition not unique to those living with pain. Our participants emphasized that they continue to plan for the future, including the following participant:

Nobody knows what will happen in the future… even healthy people planning for their future know that the future is something only God knows about … anything could happen. Me too, I should keep planning for my future the way I want it to be regardless of my

pain. I might sleep and never wake up or all of a sudden have a deadly accident; does that mean I should not plan for my future? I am optimistic that in the coming years I will achieve many goals and that one of them will be to find out a solution for my pain and become free of it.

Being surrounded by supportive others allowed people with chronic pain to remain connected with their goals and faith when they were losing hope:

Having continuous pain makes you lose control sometimes of your thoughts and hope for the future. However, people around me keep renewing my faith in God, and this pain is a test and I should be patient, seeking solutions and to keeping focused on my future. My entire family knows that I have many things that I want to accomplish and they keep encouraging me all the time. If I do not answer my older brother's calls or I do not show up for a long time, he knows that I am in crisis. Then he comes to my house and takes me out and talks with me and reminds me how God loves successful and strong people and how my family would like to see me in an excellent position and excellent health. Every time I feel that I am going down they pull me up. I will fight my pain and keep going for them and I will never let them down.

It is evident from the participants' narratives that the perception of people with chronic pain towards the future was more positive when they have the support of others and the determination to pursue their lives while looking to the future with hope and ambition.

This seems to be mainly because of the strength of their religious beliefs and strong socio-cultural relationships. On the other hand, we found that the two participants who were religiously less observant became socially isolated and expressed more fear and anxiety towards their future. As one of the less observant participants said:

I had to put many things that I planned to do on hold… I feel that my pain will be worse and worse. Also, my biggest fear is what if my pain drags on for a long time! I am afraid that my colleagues at work will become less cooperative and my wife will get fed up of doing the things that I used to do.

Negative perceptions toward pain and pessimism about its resolution influenced plans for the future. The other less observant participant described his apprehensions:

I do not think that I will have a better life in the future if my pain continues… my ambitions for the future are less than before. I want to get married, but I have a fear that my marriage will fail because of my pain; like what happened with me in my previous marriage when my wife took the kids and moved in to live with her family.

From the previous two participants' descriptions, it appears that isolation from social activities and having no deep religious beliefs can make a person's life with chronic pain more difficult.

Stigmatization.

As we mentioned earlier in this paper, most participants who have strong religious beliefs feel that their pain is a gift from God and that they should respect and accept what God gave them. We also found that their beliefs are similar and derived from their religious beliefs. Notably, most participants never felt stigmatized for having chronic pain. A life filled with pain would be perceived as worse if the pain was a consequence of inappropriate action or behaviour. People with chronic pain appear to feel relieved that the pain is out of their control:

It is something I have no control over and I did not do anything to have; everybody knows that and knows it's from God that we should respect and accept…so nobody can blame you or look at you in a different way because you have pain or are disabled. Other people never treat the person who has an illness badly because they know it is a test from God that we did not choose. On the contrary, they help and support you if you have any kind of problem that you have no control over. I would feel stigmatized if I had a problem that came from something that I did wrong.

One participant clearly articulated the religiously based belief regarding stigmatization. The community must avoid stigmatizing people with chronic pain or any health problems, as the participant illustrated:

I know some people with illness conditions never feel stigmatized… because, in our religion it is prohibited to stigmatize people regarding their conditions or problems. It is especially, well known in the community that illness is a test from God and no one wants

to have it. Also, based on religious beliefs, if you stigmatize people for what they have or on their status, then you might get the same thing… Also, God said: "you who have believed, do not support people ridiculing other people; perhaps they may be better than them, and do not insult one another and do not call each other by offensive nicknames.

From the previous descriptions, we found that moral values of the community derived from religious beliefs are as important as individual beliefs that contribute to and facilitate living for people within this community who have chronic pain.

In order to explore the potential depths of despair that people with chronic pain could reach, we discussed the possibility of suicide attempts or other negative thoughts of suicide that might be considered by people who live life with chronic pain. All of the participants in this study had difficulty with the idea of ending one's life because of chronic pain or any other reason; they all responded in a similar way to this issue; this man's reaction reflects that of the other pain sufferers studied:

There is no way to even think about this… it's prohibited to kill myself. To end my life is not my decision it is God's decision and we do not own our souls; our souls belong to God and we do not have the right to do whatever we want. Also, God mentioned that whoever kills himself for any reason, even if he is suffering, will go to the hell fire. There are no excuses on this issue, if I have a problem I should pray to God and then seek help for my problem.

Participants' religious observance thus precludes consideration of suicide as an option. The two less observant participants also refused the idea of suicide.

People with chronic pain usually have their own alternative methods to address pain based on their culture, beliefs or religion. Our participants had experienced a particular remedy that was derived from their religious beliefs. This unique therapy has been used for many generations.

Alternative Therapy

Seven participants used wet cupping therapy (hijama) as an alternative medicine, and three participants said that they intended to try it. The other two participants did not seek any alternatives. All participants who used wet cupping therapy mentioned that this technique, if it is not helpful, would not be harmful, and it was used by their prophet a long time ago as a remedy to treat many health problems. Furthermore, all participants who used this therapy received relief at least temporarily, as one of the participants said:

People around here use it for minor health problems and it works… I consulted my doctor about doing it and he totally agreed. After I did it, I felt better than before. My pain was not gone forever, but the pain level decreased by approximately one half. The relief extends up to 4 or 6 weeks.

Hearing that others had good experiences with a certain therapy encouraged people with chronic pain to try it for their pain conditions, as a participant noted,

It is good to do it even if you have no health problem… it gives you a refreshed feeling, I have been using it for more than 20 years from time to time, but after I got my back pain I started doing this therapy once every two or three months and it give me relief for three or four weeks. The relief was not complete but there was an obvious difference. I think it would be good for me to keep doing this therapy in addition to my appointments in the hospital.

One of participants who intended to try this therapy reflected on the benefits while considering presumed limitations:

I am planning to do hijama, where it was so helpful for many people that I know very well… it worked with headache, stomach and bowel problems, fatigue, sleep disorders and many other health problems…. And we believe what our prophet said about this therapy, when he said, "Indeed the best of remedies you have is hijama, and if there was something excellent to be used as a remedy then it is hijama". I think it might work for minor health problems but not for major problems like a broken bone or displaced vertebrae that need other kinds of remedies.

Wet cupping therapy is not applicable to treat some kinds of sickness or injuries that need medical intervention or prevention, as one participant who did not seek any alternative therapies recognized:

I did this therapy a long time ago for my bowl irritation and it was good, but now for my neck pain no… I did not and I will not do it, because it's so clear that I have a serious

problem in my neck. My doctor and other different doctors that I consulted told me that I need a surgical operation and that was so clear in the x-rays that my neck vertebra is displaced. But they told me that I should do physiotherapy first, if there are no good results then they will go with the surgery option.

From the participants' narratives, we learned that eleven of the participants had what could be interpreted as a religiously linked belief about wet cupping therapy (hijama). It appeared that some participants had previous satisfactory experiences toward wet cupping therapy that made this therapy the first choice in alternative therapies toward their pain. As they mentioned, it is safe and there is little potential harm to using this therapy, even if it is not effective in curing their pain. All participants demonstrated good background knowledge about this therapy but were aware that modern medical interventions are necessary in some cases.

The following figure illustrates the process of how research participants perceived their pain through the meaning that was religious based and/ or socially based. Accepting chronic pain was enhanced when participants interpreted their life with pain through their religious beliefs as well when social support was present. Both of these perspectives increased their ability to cope and maintain and/ or enhance HRQOL as well as remain positive about their future.

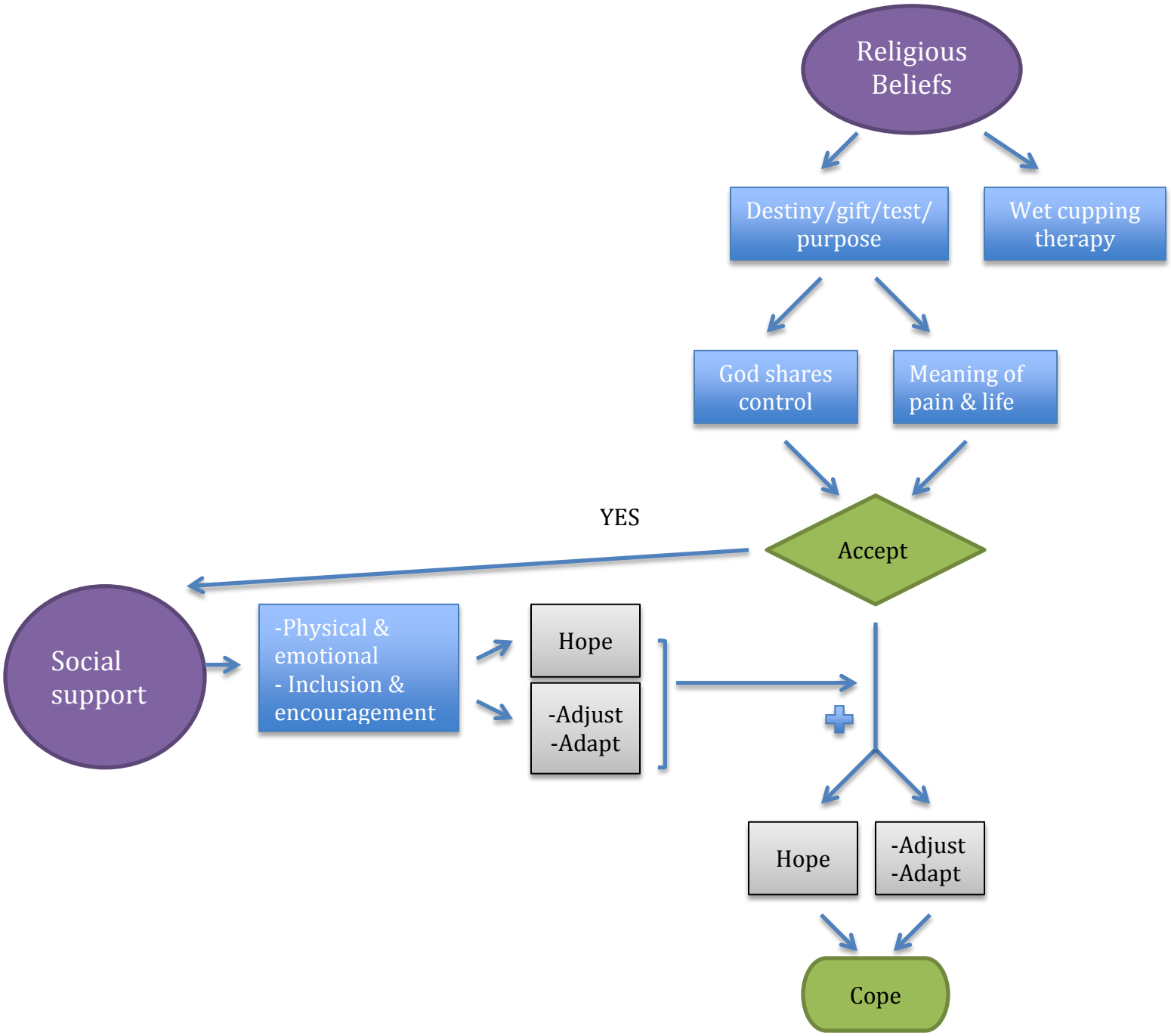

Figure 1: The process of how pained participants perceived chronic pain through religious beliefs and social support.

Discussion

The complexity of living with chronic pain and its interrelated impacts on quality of life has been not explored from this culture's perspective. It is illuminating to discover how beliefs, perceptions and attitudes toward living with pain might be different from one culture to another**.** The purpose of the current study was to explore individuals' experiences of living with chronic non-malignant pain in Qatar in order to gain an in-depth understanding into their pattern of living with severe chronic pain and how sufferers perceive and learn how to live with chronic pain. The findings from this study cannot be generalized to all people living with chronic non-malignant pain, such as in quantitative research. In qualitative research, findings from one research project are transferable to other situations; thus a foundation of understanding is built from several research projects. Furthermore, these findings could contribute to enhanced understanding about living with chronic pain and provide some direction for further research and practice.

Qatari populations conduct their lives based on religious beliefs derived from an Islamic doctrine. Socio-cultural structure in Qatar is religiously oriented, where an individual's beliefs are interwoven with many activities within social life, providing both social supports and coping mechanisms for people experiencing chronic pain (Dull & Skokan, 1995; Gall et al., 2005). As part of their religious duties, people are expected to provide assistance for those who are in need, especially within the family. Moreover, they pray five times daily in groups at neighbourhood mosques, this enabling them to remain

socialized with others and keep tightly connected with their religion. In addition, religious commands dictate looking after and keeping connected with parents, family members, relatives, and then others, as one important purpose of the Muslim faith is to serve and respect (Gall et al., 2005).

Prior to their participation, all participants in this study had suffered from severe chronic pain for more than six months. We found that the greatest impact of their pain was on physical functioning, in which mobility and daily activity were far more limited than before their pain had manifested. Living with chronic pain requires self-management in order to reduce pain severity and its negative impact on physical functions and emotional stress (Chase et al., 2000). Individuals living with chronic pain who have learned to apply consistent self-management strategies acknowledge the importance of identifying the meaning of their pain in order to manage it and support their healing process (Chase et al., 2000; Sorajjakool, Aveling, Thompson, & Earl, 2006).

The majority of our participants were functionally and emotionally well-supported by family, relatives, friends and colleagues. Therefore, they maintained most of their previous daily activities and responsibilities. Furthermore, being surrounded by functionally supportive people helped avoid solitary suffering that increases pain intensity and makes activities more difficult (Sorajjakool et al., 2006). This finding is consistent with a study conducted by Callaghan and Morrissey, who reported that social support and how people with health problems perceive support play an important role in reducing the physical and emotional impact of illness events (Callaghan & Morrissey,

1993). Social support has been clearly documented in the previous studies to be a vital factor for people with chronic illness to remain in control of their pain, and it has been recommended that further studies with other cultures and religions be carried out (Cunningham & Jillings, 2006; Oliver, Cronan, Walen, & Tomita, 2001; Thorne, 1993). Thus, our findings further our understanding of how a particular culture and religious influence and contribute to pain management. Our socially and religiously implicated participants were more likely to manage and control their pain, which helped to reduce the negative impact of impairment and pain on their lives.

Most of our participants had religious beliefs that were instrumental in helping them to find meaning for their chronic pain. The majority of the participants had strong religious beliefs, such as that pain is part of their destiny and that it is test from God to measure their faith and patience in crises, and that they should therefore accept the pain. These beliefs towards pain have enabled our participants to develop meaningful self-understanding and even satisfaction despite their new situation. Most participants were able to achieve positive attitudes through their beliefs that enabled them to adjust their perceptions and behaviours toward experiencing chronic pain, so that they accepted and adapted the pain to become part of their life. This is consistent with a study conducted by Sorajjakool et al. in which they found that chronic pain sufferers who attribute a clear meaning to their pain are more likely to adapt to a different life with pain and to adjust their attitudes by removing negative elements from their lives, enabling them to cope better with the pain (Sorajjakool et al., 2006). Several previous studies have shown that religion significantly contributes to finding meaning and coping strategies for stressful

and painful illness (Gall, 2003a, 2003b; Gall et al., 2005; Gordon, Feldman, Crose, & Schoen, 2002).

Jensen et al. have defined coping as "purposeful efforts to manage or vitiate the negative impact of stressful events" (Jensen, Turner, Romano, & Karoly, 1991). In this study, we found that most of the participants interpreted pain as a gift, as a test from God, and were determined to accept it while adapting to living with it. This adjustment to chronic pain and coping were incorporated by most of the narratives from the participants who were religious and observant, maintaining their social activities and spiritual connections. Participants also appeared to have a unique strategy for coping with chronic pain, which involved comparing themselves with others who have a worse health condition. We therefore found that acceptance of pain is an important factor in learning how to adjust and cope, taking into consideration the beliefs and perceptual dimensions of the sufferers toward their chronic pain. This finding was not consistent with a study conducted by McCracken and Eccleston, who found that acceptance was not highly associated with coping, but related only to ignoring the pain (McCracken & Eccleston, 2003), On the contrary, we found that ignoring pain by distracting oneself with many social and religious activities became a valuable coping strategy that follows acceptance. Social lifestyle, religious beliefs and comparative evaluation were the key factors used by people with chronic pain that enabled them to learn how to cope. In contrast, we found that the two participants who did not accept their pain struggled to live with it and expressed how they suffered more than others. The difference between McCracken and Eccleston's study and ours might be due to the fact that they used a different

methodology and did not include religious beliefs or spirituality as a specific question of interest. On the other hand, Cunningham and Jillings demonstrated that acceptance means developing a positive attitude and better management of pain conditions (Cunningham & Jillings, 2006).

Although all participants reported severe chronic pain, the majority had religious beliefs and practices (prayer) that kept them connected with others through social and religious events; these had the effect of distracting them from focusing on their pain and reduced potential social isolation. In turn, our participants living within religiously oriented communities believed that ill or distressed people should never be left alone without physical or emotional support. A person's beliefs that s/he has control over pain enables one to cope better with chronic pain by reducing the overall physical and emotional impact of that pain. In support of this, Jensen et al. found that sufferers of chronic pain who believe that their pain is under control are more likely to have an internal locus of control that leads them to use active coping strategies; thus, they are less likely to become depressed (Jensen et al., 1991).

Adapting the perception that pain is part of their destiny and that they were chosen to examine their faith and relationship to God diminished the sense our participants could have had of being stigmatized; this was further aided through receiving support within their community. Because perceptions about pain were related to core religious beliefs, we found there were no considerations or attempts to commit suicide in this group; indeed, suicide is religiously prohibited while tolerance is rewarded by God.

Consequently, most of the participants were optimistic, with a positive perspective toward their pain and the future; they actively planned for their future to continue to work on their goals.

Several previous studies have reported that chronic pain has become a greater risk factor for suicide ideation, attempted, and completed suicide (Fishbain, 1996; Hall, Platt, & Hall, 1999; Penttinen, 1995). Furthermore, studies have shown a significant incidence of people with chronic pain having suicidal ideation; in one study conducted by Hitchcock et al. half of respondents with chronic non-malignant pain had considered suicide (Fishbain, 1996; Hitchcock et al., 1994). Our finding regarding suicide appears to differ from these previous studies, perhaps because our study was conducted in a culture in which the population was strongly religiously oriented with a religion in which roles and beliefs encourage followers to be patient and to tolerate difficult situations, as well as to support those in their communities suffering from illness.

Several studies have shown that there is an increasing use of alternative therapies, whether alone or in conjunction with conventional medicine, among patients with various health problems (Haetzman, Elliott, Smith, Hannaford, & Chambers, 2003; Thomas, Carr, Westlake, & Williams, 1991; Zollman & Vickers, 1999). In chronic pain, particularly, Haetzman et al. found that the majority of their participants with chronic pain used complementary medicine and alternative therapies, such as osteopathy, chiropractics, acupuncture and herbalism, in conjunction with conventional medicine (Haetzman et al., 2003). This is consistent with our findings, as we found that the

majority of our participants had used and integrated wet cupping therapy (hijama) as an alternative, in conjunction with conventional medicine. Wet cupping therapy is familiar and well known in this culture; for more than 1400 years, it had a place within the religious context that validated its application for many health problems. The literature suggests that cupping therapy was used as early as 3000 BC, while the first documented uses were found in the medical record of Ebers Papyrus in Egypt 1550 BC (Hanan & Eman, 2013), and more recently in the Islamic Medical Teaching by Prophet Mohammed (El-Wakil, 2011; Rippin & Knappert, 1986). The perceived effectiveness of this therapy varied amongst our participants, some of whom reported that relief was temporary, yet significant, lasting for approximately 3-6 weeks for most pain conditions in the abdomen, back and limbs. There exists evidence in the literature of the efficacy of this therapy for chronic pain; investigators found a significant decrease in the level of pain intensity and an improvement in daily mobility and quality of life amongst patients with chronic headache, migraine, arthritis and lower back pain (Hanan & Eman, 2013; Mohammad, Fasihuzzaman, & MA, 2014; Tabatabaee, Zarei, Javadi, Mohammadpour, & AkbarBidaki, 2014; Ullah, Younis, & Wali, 2007).

Uncertainty in the future regarding lack of clarity about pain diagnosis and the treatment process was another dimension of living with chronic pain that arose from our participants' narratives and increased their frustration; participants therefore had a tendency to not rely on their health care providers. This led our participants to increase efforts to adapt and to manage their pain through praying and hoping. It was reported by Cunningham and Jillings that the difficulty of diagnosing or treating pain was a big

challenge for people living with chronic pain that led to misunderstandings or gaps in the relationships between health care providers and their patients (Cunningham & Jillings, 2006).

Although our participants reported severe chronic pain that made them feel disabled, the physical and emotional support that they received from family members and society, along with their religious beliefs, enabled them to maintain some aspects of quality of life that helped them to feel less disabled and to exercise a certain amount of control over their pain. Social lifestyle and religious beliefs help people with chronic pain to avoid becoming isolated or catastrophizing and increase their self-esteem. This is consistent with findings from Jensen et al. who found that patients who believe they have the ability to control their pain and manage to avoid catastrophizing were more likely to cope and function better than those who cannot (Jensen et al., 1991). Findings from this study indicate that our participants have the necessary factors to enable them to strive vigorously to live their lives on their own terms through two main support structures, social support and religious beliefs; these play important roles in acceptance, adjustment, perception and coping with chronic pain.

Conclusion

This study explored the experience of people living with chronic non-malignant pain. From these narratives, we first learned that social support and religious beliefs played critical roles and that social support was helpful in eliminating negative elements; it enhanced the ability of people with chronic pain to participate in many social and

religious activities and to maintain their commitments and responsibilities, reducing the possibility that they would become isolated. Furthermore, these religious beliefs, activities and behaviours empowered people with chronic pain to live with their pain and to maintain a sense of purpose. Secondly, we found that religious participants and communities perceive chronic pain as part of the sufferer's destiny, enabling the individual to embrace and accept pain; this reduces the possibility that sufferers will be stigmatized, or that they will catastrophize or disengage from society. Third, social support and religious beliefs motivate people in pain to better understand themselves. This enables them to employ active coping strategies. Fourth, uncertainty and lack of clarity of diagnosis and treatment procedures were big challenges for people living with chronic pain, affecting their confidence in the capability of their health care providers. Finally, availability and accessibility of effective complementary or alternative remedies appear to improve or maintain some aspects of quality of life.

The strength of our study is in having explored the experience of people living with chronic pain in a culture that has not previously been studied. Our findings contribute to knowledge and understanding about the importance of social support and religious/spiritual beliefs that play critical roles for people living with chronic pain. However, additional research is needed to document patient satisfaction, the efficacy of the health care system and the efficiency of the health care provider-patient relationships. In the future, qualitative participatory methods could contribute to an ever-deepening understanding of the patient experience of diverse aspects of chronic illness.

Reflexivity is an important factor throughout the qualitative research process, especially when the investigation is related to life experiences. Thus, we employed reflexivity in the current study through the researcher's (SA) familiarity with the culture and religious beliefs of this study population. The researcher's self-reflection helped to lead the interview discussions and ensured that appropriate questions were asked in order to gain a deep understanding and further explanation on how people with chronic pain live their lives and why there was no impact on some aspects of quality of life. In addition, identifying the content of the participants' narratives throughout the process of the content analysis to explicit themes and interpretations.

We employed two linguistic experts to ensure language translation accuracy for four participants' texts in Arabic; these experts translated the texts forward and backward, from Arabic to English and then from English to Arabic, in order to ensure that there were no changes in the meaning. In addition, two qualitative research experts were consulted to validate the interpretations of the participants' narratives.

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4.5 Final Mixed Findings Interpretations

All patients in the quantitative portion reported significant negative effects on their daily functioning due to increasing pain intensity and location. There was a significant impact on only four domains of quality of life due to increasing pain intensity and location, physical functioning (PF), role-physical (RP), role-emotional (RE), and bodily pain (BP). Unlike the findings from other investigations, we found no significant impact on the other domains for most patients, specifically for mental health (MH), social functioning (SF), vitality (VT), and general health (GH). Increasing age did, however, have a significant impact on the MH and SF domains. Participants in the qualitative portion of this study included 8 men and 4 women; of these, 2 men and 1 woman were older, that is, in the age range from 47 to 55 years.

From the narratives of participants in the qualitative interviews, we were able to determine the reasons why some dimensions of quality of life were not affected by increasing chronic pain intensity and number of pain sites. Participants described several factors that helped them to maintain their lifestyle with no major change in their quality of life. During the interview, we (SA) alluded to the participant's quantitative results in order to elicit an explanation and increase the credibility of these results. The qualitative findings thus helped to deepen and refine our interpretation of the quantitative results.

From the content analysis, we found interrelated factors that contributed to the complexity of living with chronic pain. Socio-cultural structure and religious beliefs had the strongest influence on how participants perceived and dealt with their chronic pain, in which those factors have not measured quantitatively. In addition, our participant

perceived chronic pain and social support based on how religiously observant they were; the following table illustrates the differences between observant and less-observant participants based on several facets of pain experience:

Figure III: The differences between observant and less-observant participants.

Quantitative MH/ SF/ VT/ GH	Qualitative Religious	
	Observant	Less- observant
Test	Yes	Yes
Destiny	Yes	Yes
Acceptance	Yes	No
Adapt	Yes	No
Adjust behavior	Yes	No
Coping	Yes	No
Suicide attempts or ideation	No	No
Stigmatization	No	Yes
Catastrophizing	No	Yes
Isolation	No	Yes
Relationships	Positive	Negative
Perceiving pain and the future	Positive	Negative
Perceiving social support	Positive	Negative
Hope	Yes	No
Optimism	Yes	No

The following sections describe and explore each of those dimensions of quality of life that are of particular interest because they were not affected by increasing chronic pain intensity or the number of locations where pain was felt.

Mental Health (Emotional Well-being) MH

Questions in this domain of the SF-36 were worded as follows: Have you been very nervous? Have you felt so down in the dumps that nothing could cheer you up? Have you felt calm and peaceful? Have you felt downhearted and depressed? Have you been happy?

Results from the multiple linear regression analysis for this domain revealed that chronic pain intensity and location had no significant effect on MH with no differences between locations or the number of pain sites.

From the participants' narratives, we were able to corroborate our quantitative results. The majority of our participants had similar social lives and religious beliefs. Most participants emphasized how physically and emotionally supportive their family members, relatives and colleagues all were toward them.

For instance, one of the participants described how her husband and son took over most of her responsibilities because of her disability:

My pain has affected my life so much and many of my responsibilities had to be done by my husband and older son. They are still standing and never complained (Participant # 3).

Another participant emphasized how others' empathy is a form of support that can make a crucial difference:

All my brothers, sisters and parents totally understand my problem and help me all the time. Also, my colleagues at work exempt me from hard duties and offer me assistance when needed. Relatives and friends ask about me and visit me so much more than before and are so considerate of my feelings (Participant # 7).

Also, we found that religious beliefs have a positive influence on participants' perceptions of their pain, helping them to find meaning in their lives. Therefore, they were less likely to have emotional issues.

The participants were convinced that pain is intended by God that they should respect, accept and enable a connection with God, who will guide them in overcoming it:

I absolutely did not choose to be in pain…. It is part of my destiny that I must accept and face, and God wants to examine my faith in him…. If I got angry or impatient, then it would be worse. I keep praying that God will give me the power to live with it and inspire me to work hard in order find how to overcome it (Participant #10).

Another participant explained that accepting pain and the comparison with those worse off, as well as being surrounded by supportive people, increased his chances of surviving and thriving:

My doctors told me that I will be in pain for a long time… it's true that my pain is horrible, but at least I can still walk; there are people who cannot. I keep praying that God will give me the power to tolerate my pain and get over it. Also, most of the time I am surrounded by people who care about me and understand my problem and my needs; this allows me to feel that life is still good, which decreases my suffering and increases my happiness (Participant # 9).

Another participant considered how bad things that happened might have positive consequences in the future; this reflection was based on religious teachings:

I am now searching for solutions to my pain… Meanwhile, I should adapt and live with it, which I have done already. Being angry and depressed will not solve the problem. On the contrary, it will get bigger and bigger. I am following what God said (you might hate that something happened. However, many good things may come from it) (Participant # 8).

A supportive social network and religious beliefs enhance both physical and mental health for people with chronic pain, rendering them more likely to feel in control and able to manage their pain by creating and reinforcing the active coping strategies described in the qualitative manuscript.

From our quantitative results, we found that increasing pain intensity in older people has a significant impact on the mental health domain of the SF-36. Older participants described their mental health to be as good as anyone else's. However, we found from their narratives that they have emotional concerns about their families, because they are now more dependent on family members.

All three older participants expressed a fear that pain will cause further complications within the family and worry that they will place increasing burdens on family members:

My wife started doing everything since I have been in pain, but I am afraid that she will get fed up at any moment, and then my problem will be bigger than what it is now (Participant # 3).

My sons do everything for me and help me so much, but when my older son told me that he does not want to get married in the future because he wants to be with me all the time, then I felt discouraged to realize that my pain is not just shaping my life; it is also shaping others' lives who are related to me (Participant # 4).

Many things in my life have changed because of my pain, but I do not like how my pain has changed my family life…. Now, they are looking after me more than before and they have started not going out. Only one at a time should stay with me… Also, my married daughters keep coming frequently, more than before, to look after me, and I am afraid

this will affect their own families…. I like what they are doing for me, but I do not like how my pain is shaping others' lives (Participant # 2).

The quantitative results indicated that there is a significant effect on mental health as a domain of quality of life. The narratives of older participants furthered our understanding by specifying how this domain is affected. Older participants were clearly concerned about how caring for them might negatively impact the lives of their family members. Thus, it seems that the consequences of being cared for by family members affects the emotional well-being of the older person with chronic pain. Quantitatively, mental health problems were linked to increasing age while qualitatively, fears about becoming an additional burden on family members appeared to account for this result among the older participants.

Vitality (energy/fatigue) VT

Questions in this domain of quality of life in the SF-36, regarding how much of the time in the past 4 weeks, included the following: Did you feel full of life? Did you have a lot of energy? Did you feel worn out? Did you feel tired?

Results from the multiple linear regression analysis for this domain revealed that chronic pain intensity and number of locations had no significant effect on VT with no differences between locations and number of locations.

I asked participants to describe their feelings about living with persistent pain and how this could affect their vitality when performing daily activities. Most of the participants described their vitality based on their perceptions of their chronic pain. All participants

considered their pain as a gift from God; this provided them with a strong sense of coherence, which enabled them to accept their pain. This perception is derived from their religious background that let most of the participants keep connected spiritually and through religious practices with God. Thus, they have some sort of hope for their future that increases their energy and desire to fully live their lives. This is in contrast to those who are less religious.

Furthermore, we found that social life has an active influence on vitality, with most participants describing busy social lives and being surrounded by supportive people that kept them from becoming isolated or feeling fatigued. Moreover, the participants expressed how their sense of responsibility towards participating in family and social life provided them with the energy that they needed to do so.

Participants found meaning to living with pain and people around sufferers shared this understanding of pain. Thus, personal religious beliefs experienced within this religiously oriented Islamic society helped account for the support that enabled people with chronic pain to adapt themselves and have control over their pain so as to live satisfactory lives. A participant helped clarify how he makes sense of his pain:

My pain is the most horrible thing that has happened to me in all my life and, as I told you, I believe that God sent me this to clear me from many sins that I might have

committed. As much as God loves, that's how much he tests you. This increases my ability and my willingness to carry on without hesitation (Participant #12).

Another participant provided multiple explanations for his ability to deal with pain. Engagement in many social events with encouragement from society to be included combined with a renewed religious commitment and, ironically, favourable comparison with others who are worse off, helped distract him from his pain. This way of thinking and engaging with others provided him with both energy to and optimism:

I keep myself busy with many responsibilities and events that surround me everywhere. Also, many of my friends and relatives encourage me to go out with them to have fun and to forget my pain… They empower and remind me that I should thank God for what I have and look to those worse off than me. All this lets me to feel full of energy and that life is still good (Participant # 10).

Many participants also recognized that pain sufferers were usually surrounded by supportive people. The supporters are fellow believers who are complying with religious imperatives to support and serve people in crisis. Occasional loneliness despite support was resolved by one participant through worship, which enabled him to keep connected spiritually:

I feel tired and down when I am alone, but this is rare because most the time I am surrounded by either my family or relatives and friends. Sometimes when I was alone I

spent more time than usual at mosque praying and chatting with people there; that let me feel better…. You know when you meet new people and share experiences with them and when they tell you stories about people having conditions worse than mine, then I feel so much better and say thanks to God for what I have (Participant # 11).

In summary, both religious beliefs and socio-cultural relationships have an influence on an individual's roles. Most of the participants were able to fulfill their roles and manage their lives through their religious beliefs and a supportive social context that appeared to increase their vitality and desire to embrace their lives.

Social Functioning (SF)

Questions in this domain of quality of life SF-36 were as follows: During the past 4 weeks, to what extent have your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups? During the past 4 weeks, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

Results from the multiple linear regression analysis for this domain revealed that chronic pain intensity and location had no significant effect on SF with no differences between locations and number of locations.

In order to describe and explore how this quantitative domain was not affected by increasing pain severity and location number, I asked participants to describe their social activities while experiencing pain and if their pain had shaped their social life. As with

the VT domain, several participants explained how social relationships and religious imperatives kept them from being affected by their chronic pain in this regard. Furthermore, living with supportive family members and having a sense of responsibility towards the family members decreased the chance of being isolated or inactive in many social and religious activities.

Thus, participants emphasized that social and religious commitments, as well as being surrounded by loving people who encourage them to remain active, enabled them to maintain a satisfactory level of social functioning:

My family, relatives and friends encourage me most of the time to be involved in many social and religious events… I feel much better when I get involved, so that I regularly attend those events (Participant # 5).

As I am the older one in the family, I should be at many social events to represent my family name in order to keep connections with others. I found this distracts me from focusing on my pain. Also, when I see how people look happy because I attend their occasions, I feel that I did something good and this lets me feel much better (Participant # 7).

The combination of religious and social responsibilities towards family, relatives and society increase sufferers' determination to remain engaged:

God would not approve if I did not share in the social events of my family, relatives and friends or if I didn't visit them every now and then. Also, If I don't share their social occasions with them, then they will not recognize me and share my social occasions with me (Participant # 1).

Even if I could avoid social events, I would not be able to avoid religious events that we are committed to do every day…. And you know, since our childhood we have been taught, at schools and from our families, how we should be closely involved in social and religious events (Participant # 10).

Thus, we found that most of the participants are committed to socio-cultural activities and have religious beliefs that inspire social participation. Furthermore, social and religious participation provide positive experiences that help to distract chronic pain sufferers from their pain.

Along with religious imperatives, cultural rules governing social life guide individuals with chronic pain towards positive behaviours that enhance their social functioning.
Unlike younger participants, the older participants reported a significant impact of their pain on social functioning. Older participants explained that their social activities were much more limited than before and this was because they did not want to be a burden on family members.

One older participant noted that she stopped participating in social activities in order to avoid causing her loved ones to suffer due to her condition:

Lately, I had to stop my visits to others, because I have seen how my sons struggled to help me physically travel from one place to another or to visit somebody (Participant # 4).

Another older participant described how society respects older people, extending privileges such as excusing them from participating in many social activities:
After I had my pain and because I am old, people started visiting me at my place, so that I do not need to go out for regular events. But, there are some major social and religious occasions that I should attend and that are not too demanding (Participant # 3)

The third older participant also emphasized limiting social participation to prevent family members from further burdens that might have a negative influence on their own families:

Yes, I did cut my social activity approximately in half, because I do not want my married sons and daughters to have additional commitments more than what they have, and they already visit me frequently (Participant # 2).

Older participants thus intentionally limit their social interactions. Being increasingly dependent physically on family members to participate in social activities was their reason for refraining from some social engagements. The emotional concerns of our older participants toward their family members have a significant impact on both mental and social domains of their quality of life.

General Health (GH)

Questions in this domain elicited answers based on a Likert (five points true/false) scale: A) I seem to get sick a little easier than other people. B) I am as healthy as anybody I know. C) I expect my health to get worse. D) My health is excellent.

Results from the multiple linear regression analysis for this domain revealed that chronic pain intensity and location had no significant effect on GH, with no differences between locations and number of locations.

I asked participants to describe their general perceptions of their health and the future, and if there were any factors that could negatively influence or, on the contrary, enhance their perceptions. Most participants explained that they viewed their general health on the basis of their perception about pain. As with the other domains, social relationships and religious beliefs positively influenced their perceptions toward their health and future.

Most participants emphasized that faith in God and God's shared control of their pain, along with social supports, enabled them to attribute meaning to their pain that increased hope, satisfaction and a desire to live fulfilling lives:

I am so optimistic for my future and have big hopes that my health will improve… I have faith in God that all that has happened to me will be good for me after all. I am planning to continue my education in my field and get a masters degree… I will keep going and I will keep fighting with everything I've got so as to not give up. I am being tested and I intend to prove to those around me that my pain will not hold me back; it will push me to be a more successful woman (Participant # 9).

Having continuous pain makes you lose control sometimes of your thoughts and hope for the future. However, people around me keep renewing my faith in God, and this pain is a test and I should be patient, seeking solutions and keeping focused on my future. My entire family knows that I have many things that I want to accomplish and they keep encouraging me all the time. If I do not answer my older brother's calls or I do not show up for a long time, he knows that I am in crisis. Then he comes to my house and takes me out and talks with me and reminds me how God loves successful and strong people and how my family would like to see me in an excellent position and excellent health. Every time I feel that I am going down they pull me up. I will fight my pain and keep going for them and I will never let them down (Participant # 6).

Nobody knows what will happen in the future… even healthy people planning for their future know that future is something only God knows about … anything could happen. Me too, I should keep planning for my future the way I want it to be regardless of my pain. I might sleep and never wake up or all of a sudden have a deadly accident; does

that mean I should not plan for my future? I am optimistic that in the coming years I will achieve many goals and that one of them will be to find a solution to my pain and become free of it (Participant # 10).

The previous interview passages indicate that most participants have positive perceptions of their health and future. Those perceptions were influenced by the participants' religion in that they believe that pain is a gift and test from God; this brings them closer spiritually to God. Their hope and optimism increased compared with those who were religiously less observant.

Having religious beliefs about health and living within a supportive social network also helped sufferers envision a bright future. Most participants seemed to have the required determination to continue their lives with no hesitation or fear. This determination appeared to have been derived from both social relationships and religious beliefs. Thus, religious-observant people living with chronic pain in Qatar have the ability to remain positive about their general health and their future plans, as well as demonstrating the vitality to continue their efforts to achieve them.

The following figure illustrates how religious beliefs and social support constitute an essential contribution for people living with chronic pain, thereby positively influencing some domains of quality of life to remain stable or even enhanced:

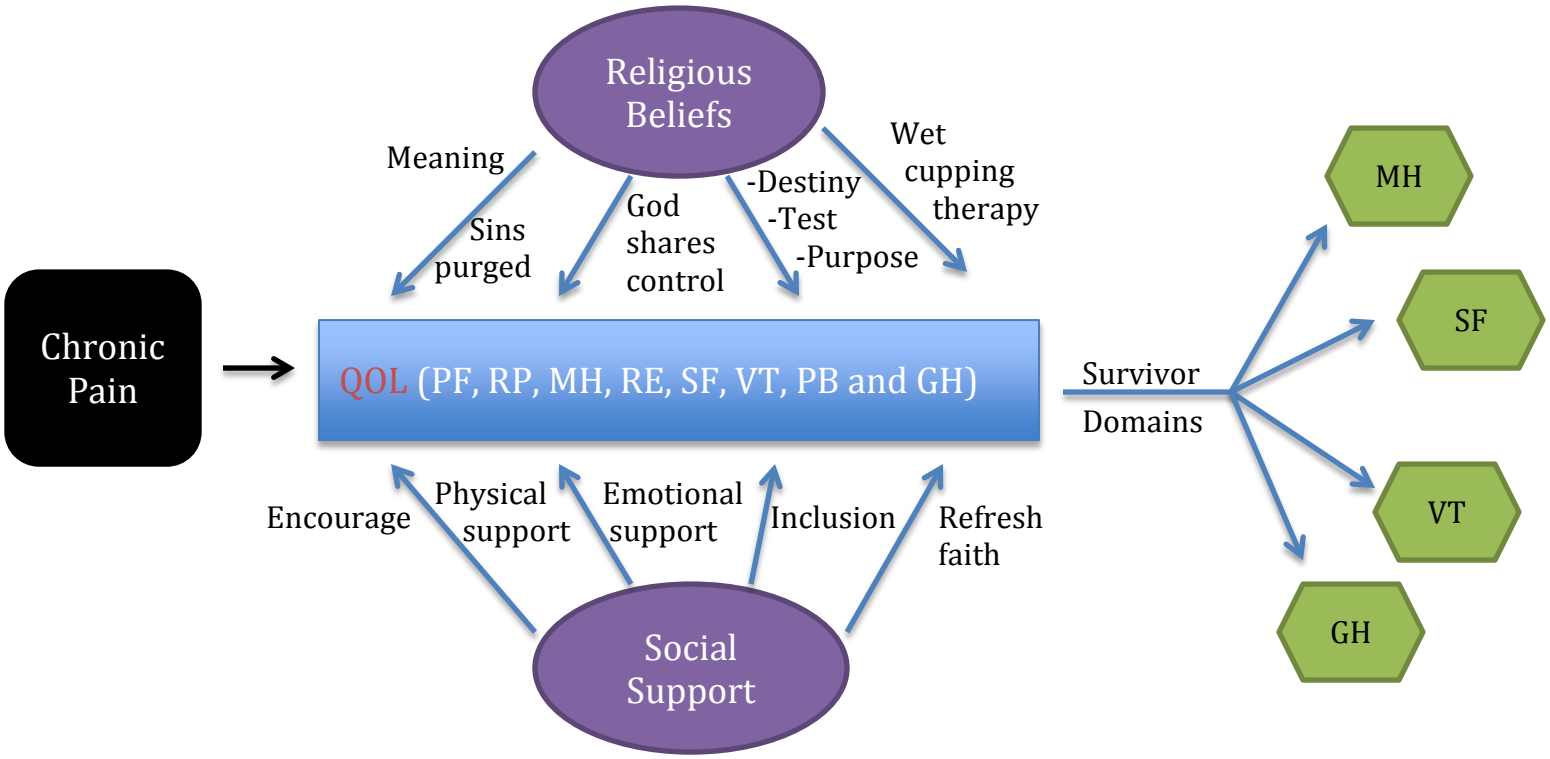

Figure IV: The contributions process of the religious beliefs and social supports in enhancing some domains of HRQOL.

5. Discussion

The complexity of living with persistent pain and its multidimensional impact on quality of life has been not measured and explored in the state of Qatar, where living with chronic pain is influenced by many factors, such as cultural beliefs, perceptions and religion. The aims of this mixed methods study were as follows: 1) to measure the

intensity, location(s) and dysfunction from chronic non-malignant pain experienced by adult pain clinic patients, 2) to measure the impact of the intensity and location of chronic pain on quality of life, and 3) to identify the relationship between chronic pain intensity/dysfunction and a person's quality of life by exploring the experiences of people living with chronic pain, including their attitudes about pain as well as coping strategies. Results from the current study cannot be generalized to all people suffering from chronic non-malignant pain. However, using a mixed methods approach increases the transferability and credibility of our findings by combining the unexplained survey results with an in-depth understanding of living with chronic pain. These mixed methods results could lead to enhanced therapeutic treatments or better social or health services. Furthermore, these findings can provide direction for future research and practice.

Regarding pain intensity and location, our results demonstrated that increasing pain intensity and number of locations significantly interfere with daily functioning. Fortunately, however, the impact of increasing pain intensity and multiplicity of pain locations on quality of life affected only a few quality of life domains, with no significant impact on mental health, social functioning, vitality and general health (GH).

We explored the experiences of people with chronic pain to better understand why those domains of quality of life were not affected by increasing chronic pain intensity and location. From the narratives of our study participants, we found that religious beliefs and socio-cultural relationships appeared to be the two greatest factors preventing a negative impact on MH, SF, VT, and GH domains. However, older participants reported a

significant negative impact on MH and SF due to anxiety about the impact that their dependence would have on their family members' lives.

To our knowledge, there is insufficient evidence to explain how increasing chronic pain intensity and location could affect some domains of quality of life rather than others. Our mixed methods (sequential explanatory) study is the first to investigate the impact of chronic non-malignant pain on daily activities using the BPI, in addition to determining the effect of increasing pain intensity and location on the different domains captured in the SF-36. We also implemented an innovative approach by exploring the experience of people living with chronic pain, specifically addressing each domain, in order to better understand and interpret our quantitative findings.

The mechanisms by which chronic pain influences daily activities and quality of life and how it varies from one community to another is largely unknown (Wang et al., 1999). Our study results are consistent with most previous studies that demonstrated a significant impact on daily activities due to increasing pain severity and location (Hølen et al., 2008; S. Keller et al., 2004; Wang et al., 1999). Also, many studies have shown a decline in some domains of quality of life as pain intensity and location increase, with the greatest negative impact on mental health and physical and social functioning (Becker et al., 1997; Elliott, Renier, & Palcher, 2003; Lyons, Lo, & Littlepage, 1994; Salaffi et al., 2005). In partial corroboration of previous studies, we found that physical functioning, role physical, role emotional and bodily pain declined as expected due to increasing pain intensity and location. However, we found that increases in pain intensity and location

have no significant impact on mental health, social functioning, vitality, and general health domains.

Other research has similarly found adaptation to chronic pain reflected in sufferers' measured quality of life. Notably, Mathew et al. measured the impact of chronic musculoskeletal pain on health related quality of life in South India where people with chronic pain had the ability to adapt with ease (Mathew, Chopra, Thekkemuriyil, George, Goyal, Nair, et al., 2011). This supports our findings, in which the majority of our patients were able to adapt and manage their pain. In contrast to most studies, that are restricted to quantitative measures of pain, we investigated further to understand why some dimensions of quality of life were not affected by severe chronic pain. Our study population perceived their pain through the filter of religious doctrine: they accepted pain as a test of faith. In addition to this personal and group conviction, the culture in Qatar appears to be conducive to assisting sufferers; the substantial family and community support that our participants received enabled them to remain socially active.

Previous studies using the SF-36 to measure the impact of chronic pain on quality of life also detected some domains that were more affected by chronic pain than others (Dysvik E Fau - Lindstrom, Lindstrom Tc Fau - Eikeland, Eikeland Oj Fau - Natvig, & Natvig; Fredheim et al., 2008; Jameie, Shams-Hosseini, Janzadeh, Sharifi, & Kerdari, 2012; Wang et al., 1999). Picavet and Hoeymans, found that, in their population, the impact of chronic pain affected only three dimensions of quality of life on the SF-36, but they provided no explanation for why this occurred (Picavet & Hoeymans, 2004). Dysvik et

al. reported that chronic pain had no significant impact on physical functioning, vitality and mental health, which was correlated with social support (Dysvik E Fau - Lindstrom et al.). Furthermore, Gerard et al. showed that spiritual healing made a significant contribution to improving vitality scores (Gerard, Smith, & Simpson, 2003). This appears to support our findings that mental health and vitality were not affected by chronic pain because of social support and religious beliefs.

Moreover, some previous studies revealed that older individuals with chronic pain had poorer quality of life in some domains, with the most negative impact on physical functioning (Garfin, Buckley, & Ledlie, 2006; Lee & Shinkai, 2003; Vahdaninia, Goshtasbi, Montazeri, & Maftoun, 2005). Mathew et al. found that increasing age has a significant negative association with all domains of quality of life (Mathew, Chopra, Thekkemuriyil, George, Goyal, & Nair, 2011). In contrast, Jameie et al. reported that older patients fare better at physical function than mental health, and they hypothesized that this was due to the socio-cultural environment (Jameie et al., 2012). Our findings support Jameie et al's results regarding physical functioning; we found that older patients receive continuous physical support from family members and social support from relatives, friends and society. Our findings also revealed that increasing age affects mental health because older people are plagued by concerns that being dependent on family members would make their family members' lives more difficult. In our study, social functioning was also affected by increasing age, as participants reduced or stopped participating in social activities. However, we learned from their narratives that elders enjoy extra social privileges, such as receiving visits and being excused from attending

most social events. Older patients will tend to limit their social activities to avoid additional burdens on their family members.

The literature also indicates that the impact of chronic pain on an individual's quality of life varies from one culture to another because pain is influenced by factors such as social life, norms, religion and beliefs. These factors play critical roles in how individuals living with chronic pain perceive their pain and how they deal with it. This would explain the discordance of results among a wide range of studies from diverse cultures. Moreover, further explanations about how chronic pain affects certain domains of quality of life rather than others were not sufficiently well addressed.

Some studies hypothesized about the impact on some domains. For instance, Jameie et al. found that older people living with chronic pain seem to enjoy better physical functioning than mental health. The explanation was based on their knowledge about socio-cultural relationships, as mentioned earlier in this discussion. This is similar to our findings in those two domains; our investigation thus consolidates this finding through detailed explanation and deep understanding. Both studies were conducted in populations sharing the same religion and socio-cultural structures (Iran and Qatar). In our study, older people were better supported than others by family members and relatives, who provide physical support and take care of their needs. Qatar's community is religiously oriented, where most of the socio-cultural norms are derived from religion, including the practice of maintaining good relationships, especially with family members and relatives.

Overall the literature has quantitatively demonstrated that religious beliefs and social inclusion exercise a positive influence on several health problems. However, there has been almost no in-depth exploration into that positive influence. Many previous studies explored or measured the impact of beliefs, coping and social supports on several health problems quantitatively. In a review of social support and health, Callaghan and Morrissey, recommended that self-reported instruments should be augmented by individual interviews to fully assess quality of life. We did so in our research, following up on the survey by conducting individual qualitative interviews. Thus, while the quantitative measures of mental health were significantly affected by increasing chronic pain intensity for older participants, the qualitative interviews revealed that older participants had emotional concerns and were anxious about being dependent and placing increasing burdens on family members.

In the current study, religious beliefs and social life were interwoven with many activities and cultural norms. In addition, religious beliefs and social support intensified with increasing illness, chronic pain intensity and greater physical impairment (Brownell & Shumaker, 1984; Callaghan & Morrissey, 1993; Gall et al., 2005; Kaplan, Cassel, & Gore, 1977; Keefe, Crisson, Urban, & Williams, 1990; McCracken & Eccleston, 2003; Poloma & Pendleton, 1991). In addition, Gall et al. reported that family and religion were the two most important support systems used by patients to help them cope with the pain (Gall et al., 2005).

Regarding social inclusion for people living with chronic pain, the literature emphasized the importance of social supports for many health issues across cultures. This reflects our finding that social supports and relationships contributed positively to reducing the impact of chronic pain on several domains of quality of life. Callaghan and Morrissey reported in their review of social support and health that social support has, for many decades, been considered a key factor in maintaining health and reducing the impact of many serious health issues. They also reported that increasing social support significantly contributes to maintaining good physical and mental health (Callaghan & Morrissey, 1993). This agrees with Gall et al., who reported that most patients (79%) rely on family support (Gall et al., 2005). Other investigations revealed that family members adaptation to pain sufferers' needs helps in reducing pain consequences (Latham & Davis, 1994b; Snelling, 1990). This is consistent with our findings about social support; all of our participants indicated that family members, friends and colleagues were understanding, collaborative and attentive to their feelings, which contributed to reducing the impact of chronic pain on MH and SF. These social and family supports are rooted in religious imperatives to serve and support those in need.

Callaghan and Morrissey emphasized that, from the point of view of sufferers, a perception of social support is more important than receiving it (Callaghan & Morrissey, 1993). In our study, we found that most of our participants' perceived family and social supports are linked with religion, as it is mandatory that people provide help and that the receiver graciously accept this help in order to give the provider the chance to eliminate some sins and be closer to God by doing good deeds. In turn, the sufferers eliminate their

sins by accepting and tolerating pain and surrendering to God, as presented in the qualitative section of this thesis. Moreover, the two participants who appeared to be less religious than the majority refused social support because they perceived it as demeaning. These two participants were more stigmatized, catastrophized about their condition and had more difficulties than others who were able to cope and exercise control over their pain. This is consistent with several studies indicating that people with chronic pain who have positive perceptions about social support and have good social relationships are more likely than those who do not to exercise control over their chronic pain, enabling them to develop active coping strategies that enhance their physical and mental health (Bjorck & Thurman, 2007; Callaghan & Morrissey, 1993; Jensen, Turner, Romano, & Karoly, 1991; Turner, Jensen, & Romano, 2000).

The literature has shown how various religious beliefs and social context across communities influence many health problems, especially those that entail long term symptoms or conditions like chronic pain. Indeed, religious beliefs and social context determine the way that people perceive pain, cope and adjust their behaviour, and find meaning for their pain as a way to live with it (Callaghan & Morrissey, 1993; Jensen et al., 1991; McCracken & Eccleston, 2003; Sorajjakool et al., 2006; Turner et al., 2000). Many previous studies have demonstrated strong relationships between coping and both religious beliefs and social support; poor coping was highly associated with severe pain and physical impairment (Brownell & Shumaker, 1984; Glover-Graf, Marini, Baker, & Buck, 2007; McCracken & Eccleston, 2003). Finding a reason to living with chronic pain helps sufferers to cope and improves the healing process, as well decreasing the impact of

pain on many aspects of life (Dunn & Horgas, 2004; Gall, 2003; Gall et al., 2005; Sorajjakool et al., 2006). Other studies indicate that a good relationship with God and staying connected spiritually by prayer or/and doing good deeds leads to increased hope. And hope positively affects physical and emotional well-being (Flores, Hansdottir, Malcarne, Clements, & Weisman, 1998; Gall et al., 2005; Keefe et al., 1990). Thus, using either religious beliefs or social support or both, as most of our participants did to cope with chronic pain, would enable sufferers to maintain or enhance mental, social or/and physical function. This supports our survey results regarding mental health and social functioning, where we found no significant impact of increasing pain intensity and location on those domains.

Concerning vitality VT (energy/fatigue) and general health GH, our quantitative measures revealed that there was no significant impact on these domains by increasing pain intensity and locations. As we explained earlier, our participants attributed this to good social relationships and religious beliefs; they received emotional and physical support most of the time by social and religious systems that are inextricably linked within their culture. This network of support contributes to their happiness, sense of hope and ability to exercise control over their pain. The experience of pain was therefore less likely to affect their vitality and general health. This is consistent with previous findings by Jensen et al. who reported that support from others increases the ability of those living in chronic pain to function physically and psychologically (Jensen et al., 1991; Turner et al., 2000). Moreover, other studies found that social support derived from religion and surrendering to God in the belief that God will share the pain and help control it were

related to higher levels of optimism, relief, comfort and satisfaction on general health and energy (Gall et al., 2005; Hubert, 1984; Sorajjakool et al., 2006). Most participants argued that an uncertain future and conviction that God has the ultimate control and knows about the future led them to adopt a positive attitude of “who knows” and “why not”. This increased sufferers’ hope and desire to live according to a positive perception about their health and about the future.

As an alternative treatment, most of our participants used wet cupping therapy, which afforded them some temporary relief. Several clinical trials have demonstrated that wet cupping therapy has a significant impact on reducing pain severity and enhancing some aspects of quality of life (Ahmadi, Schwebel, & Rezaei, 2008; El Sayed, Mahmoud, & Nabo, 2013; Farhadi et al., 2009; Hanan & Eman, 2013; Tabatabaee, Zarei, Javadi, Mohammadpour, & Bidaki, 2014). This supports our finding about wet cupping, which was used by eight of our participants with a consensus by all concerning its positive effect. Thus, cupping therapy helped sufferers find relief from their pain.

Uncertainty regarding pain diagnosis and treatment procedures is another dimension that our participants had to live with it. Most of our participants were not satisfied with health care providers. After exhausting all medical avenues of pain resolution, participants came to understand that there was no cure for their pain. They tried to avoid relying on the health care system. This led most of the participants to rely on whatever resources they had outside the standard medical system, including resources that are culturally established since this is what they know best. The religion that shapes most of their lives

sets out many roles that shape social context and beliefs. This helps explain our participants' acceptance of social support and wet cupping therapy, both of which help people living with chronic pain to adapt and cope with their pain.

Findings from this mixed methods study confirm those of previous studies showing that increasing chronic pain severity and location have a significant impact on daily functioning and on some domains of quality of life. The literature shows that quality of life domains are affected either completely or partially by chronic pain, but the effects seem to differ in different parts of the world. However, there is inadequate evidence regarding which factors influence the different domains of quality of life in populations with chronic pain. The findings from our study contribute to filling this gap in the literature. With more research on the experiences of other populations of pain patients, we can gain a better understanding concerning how quality of life can be improved for those with severe chronic pain. This knowledge will inform decision makers to improve strategies that will help chronic pain patients cope with their pain and maintain a satisfactory quality of life.

6. Conclusion

Data collected from people living in Qatar with non-malignant chronic pain revealed that half of our participants reported having chronic pain in more than one location. Most participants (54.6%) had pain in the back. Multiple linear regression analysis revealed that increasing chronic pain severity and location had a significant negative effect on daily functioning, with no statistical differences between locations. Finally, we measured the impact of increasing pain intensity and location on quality of life domains using SF-36. We found that mental health, social functioning, vitality and general health were not affected; in contrast, there was a significant impact on MH and SF with older age. These survey results were explored through the findings of in-depth individual interviews.

Although all participants in the qualitative portion experienced severe chronic pain in different locations, the content analysis of the narratives showed both unique and common perspectives on their experiences with chronic pain. Participants' perspectives provided rich descriptions of living with chronic pain with no major impact on quality of life. Two major key elements emerged to account for their ability to live and cope with chronic pain: (1) social context and (2) religious beliefs. These two themes were usually interwoven with subthemes that contributed to our understanding of pain. Subthemes included feeling disabled, the meaning of having and coping with chronic pain, perceptions of health, the future and pain, and alternative therapy. The subthemes were influenced positively by social context and religious beliefs; socially connected and religiously oriented people with chronic pain were therefore able to maintain or enhance some domains of their quality of life.

Including the life experiences of people suffering from severe chronic pain provided detailed explanations of unique quantitative results and a deeper understanding of the relationship between chronic pain and different quality of life domains. Gaining in-depth understanding and exploring the diversity of those relationships with many aspects of quality of life will assist in the development or application of the most appropriate therapeutic strategies. Applying a mixed methods approach with chronic pain patients provided meaningful information to better understand how pain shapes quality of life while elucidating how sufferers deal with chronic pain.

6.1 Strengths and Original Contribution of this Thesis

The major strength of our study is its innovative design. To our knowledge, this is the first study that used a sequential mixed methods design to assess the impact of chronic non-malignant pain on quality of life as well as exploring life experience of individuals living with chronic pain. In addition, we used one tool that provides a descriptive assessment of the impact on daily activities, then another tool to measure the impact on several domains of quality of life.

Moreover, the inclusion of individuals with severe chronic pain to be part of a deep investigation to explore lived experiences, provides detailed explanations about the impact of chronic pain on the domains of quality of life. These findings provide a better understanding of the impact and lived experience of chronic pain.

6.2 Implication for future work

We acknowledge that further studies are needed to duplicate and confirm our outcomes in different settings. Our findings provide rich and useful information that can direct future investigations and shed light on existing chronic pain conditions and their impact on quality of life. Furthermore, further studies can be designed based on our findings to investigate other areas of research interest. Our study is, to our knowledge, the first study in the region to investigate the impact of chronic pain quantitatively and qualitatively. Therefore, our study has pioneered an approach that could be applied by others in future investigations. Moreover, findings from this study can guide practitioners and decision-makers in enhancing pain management through promoting family and social support.

6.3 Study Limitations

Our study has several limitations that should be considered for future research. First, limited by time and other resources, we had to include only chronic non-malignant pain conditions; however, chronic pain is also related to cancer and genetic conditions. Thus, further research is needed to include other conditions in order to assess and compare the impact of chronic pain on quality of life.

The second limitation was due to the availability of individuals living with chronic pain. In our study, the only available place to recruit participants was Hamad General Hospital. Based on my knowledge about this culture, I believe that there are individuals suffering from various conditions who do not seek help from health care services. Further investigations based on the general population are therefore highly recommended in this region. Furthermore, a longitudinal prospective approach is also needed to follow up individuals with chronic pain.

The third limitation was due to using wet cupping therapy; we found in our qualitative study that most participants have used this therapy to reduce the intensity of pain. Future studies might conduct randomized clinical trials with a control group to assess the impact of chronic pain on quality of life among groups and the effectiveness of wet cupping therapy as an alternative remedy.

6.4 Knowledge Translation

The findings of this study have increased our understanding of how chronic pain may specifically affect some HRQOL domains, but not others. This knowledge can lead to the development of social support and beliefs initiatives that health care providers and decision makers can use to initiate individualized targeted therapeutic approaches, thus enhancing or maintaining the most important aspects of HRQOL.

These study findings have been presented at the annual Pain Day, sponsored by the McGill Center for Research on Pain, as well as at the annual Dentistry Research Day at McGill University. Moreover, a report of the study results will be disseminated to the Pain Department and Medical Research Center at Hamad General Hospital, where we conducted this study. Furthermore, we are working currently to format the manuscripts in order to submit them to the relevant journals for publication.

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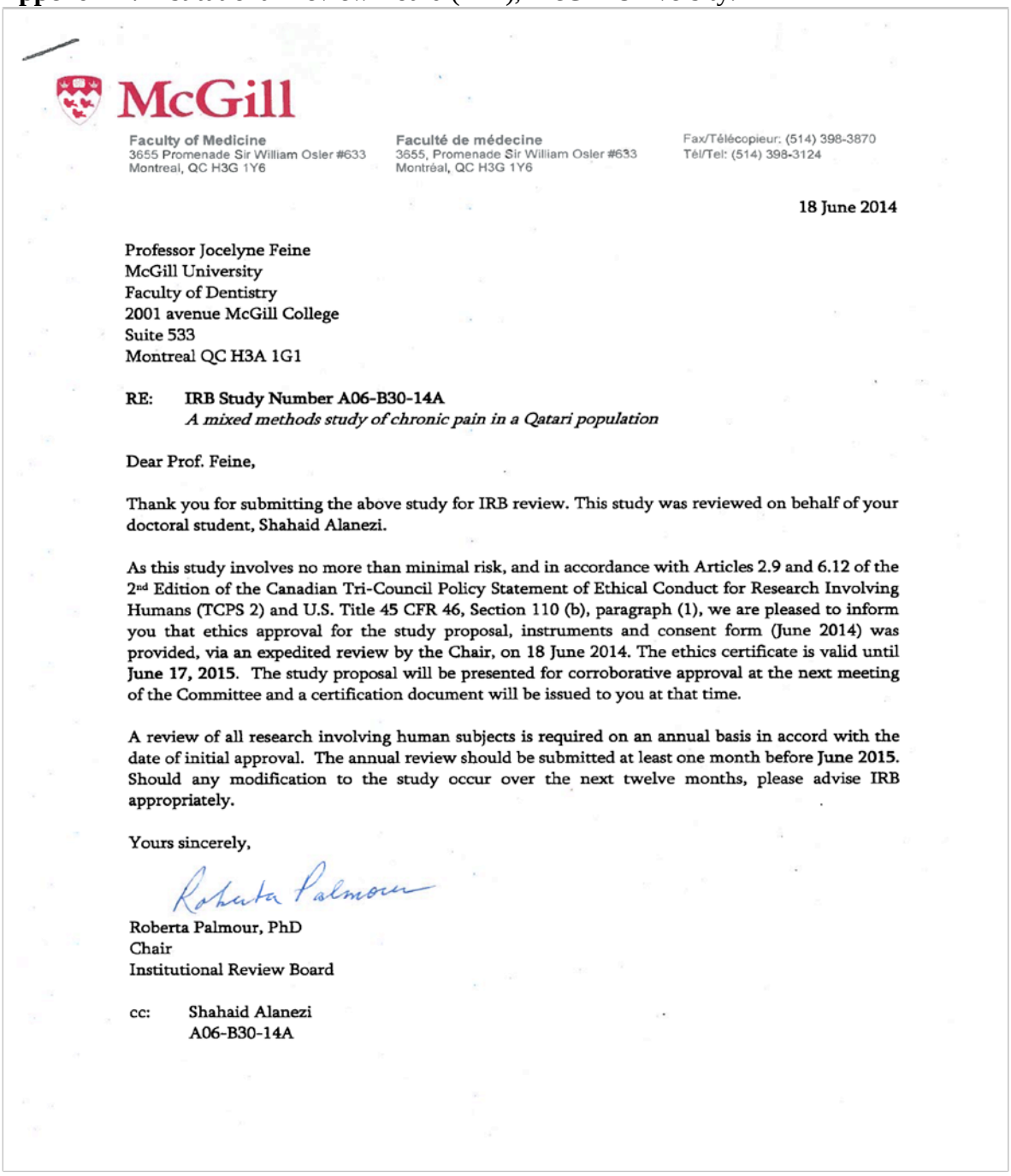
APPENDICES:

Appendix I: Institutional Review Board (IRB), McGill University.



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18 June 2014

Professor Jocelyne Feine
McGill University
Faculty of Dentistry
2001 avenue McGill College
Suite 533
Montreal QC H3A 1G1

RE: **IRB Study Number A06-B30-14A**
A mixed methods study of chronic pain in a Qatari population

Dear Prof. Feine,

Thank you for submitting the above study for IRB review. This study was reviewed on behalf of your doctoral student, Shahaid Alanezi.

As this study involves no more than minimal risk, and in accordance with Articles 2.9 and 6.12 of the 2nd Edition of the Canadian Tri-Council Policy Statement of Ethical Conduct for Research Involving Humans (TCPS 2) and U.S. Title 45 CFR 46, Section 110 (b), paragraph (1), we are pleased to inform you that ethics approval for the study proposal, instruments and consent form (June 2014) was provided, via an expedited review by the Chair, on 18 June 2014. The ethics certificate is valid until **June 17, 2015**. The study proposal will be presented for corroborative approval at the next meeting of the Committee and a certification document will be issued to you at that time.

A review of all research involving human subjects is required on an annual basis in accord with the date of initial approval. The annual review should be submitted at least one month before **June 2015**. Should any modification to the study occur over the next twelve months, please advise IRB appropriately.

Yours sincerely,

Roberta Palmour

Roberta Palmour, PhD
Chair
Institutional Review Board

cc: Shahaid Alanezi
A06-B30-14A

Appendix II: Ethics Approval, Hamad Medical Research Center and Informed Consents.

مؤسسة حمد الطبية
Hamad Medical Corporation
HEALTH - EDUCATION - RESEARCH صحة - تعليم - بحوث
Hamad

مركز البحوث الطبية
Medical Research Center

Ref. No: MRC/927/ 2014
Date: 8th June 2014

Dr. Ahmed Fayed El Geziry
Consultant
Anesthesia - ICU & Pain Mgt.
HGH

Dear Dr. El Geziry,

Research Proposal #14187/14: "A Mixed Method Study of Chronic Pain in the Qatari Population"

The above titled Research Proposal submitted to the Medical Research Center has been reviewed and classified as 'Exempt' under SCH guidelines for exempt research and approval is granted from 8th June 2014.

This research study should be conducted in full accordance with all the applicable sections of the rules and regulations for research at HMC and you should notify the Medical Research Center immediately of any proposed protocol changes that may affect the 'exempt' status of your research proposal. It is the Principal Investigator's responsibility to obtain review and continued approval of the proposal if there is any modification to the approved protocol.

Documents reviewed by the Research Center:

- Research Proposal
- Consent form: Waiver of Informed Consent
- Appendix IV-Brief Pain Inventory Questionnaire(English & Arabic Version)Dated: December 2009
- Appendix IIV- Short- Form Health Survey(SF-36v2) English & Arabic Version
- Research Information Sheet-English & Arabic version Dated: 1st June 2014

A study progress report should be submitted bi-annually and a final report upon study's completion.

We wish you all success and await the results in due course.

Yours sincerely,

Ms. Angela Heather Ball
AED Business Develop & Research
Medical Research Center

Cc:

1. Prof. Jocelyne Feine, Oral Health & Society Section, Epidemiology & Biostatistics- McGill University
2. Dr. Emad Ibrahim, Sr. Consultant, Anesthesia & Pain Mgt.-HGH
3. Prof. Richard Hovey, Oral Health & Society Dept. - McGill University
4. Shadaid Alanezi, PhD Candidate, Oral Health & Society Dept. - McGill University
5. Dr. Nick B. Scott, Deputy Chair Anesthesia /ICU & Pain Mgt.-HGH
6. Dr. Yousef Al Maslamani, Medical Director- HGH

Sa

Tel: (+974)4439 2440
Fax: (+974) 4439 5402
P.O.Box 3050
Doha. Qatar

RESEARCH INFORMATION SHEET

Dear Participant:

You are invited to participate in Project title:

"A Mixed Methods Study of Chronic Pain in Qatari Population"

Name of Principal Investigator: Dr. Ahmed El Geziry, Hamad Medical Corporation

The Chronic Pain Clinic at Hamad Medical Corporation is conducting this research to better understand your experience of chronic pain. Therefore, we are carrying out this study to get information from you about what type of pain you have, how intense the pain feels and how it affects your life and your life quality.

The purpose of this study to measure the intensity/dysfunction and type of chronic pain, and the impact of chronic pain on patient's quality of life, and to explore the relationships between chronic pain intensity/dysfunction and quality of life from patient's in-depth view

The results of this study will provide further knowledge and thick explanation of how chronic pain affects the quality of life.

We plan to study all patients coming to HGH pain chronic clinic during the period of 6 months (from June 2014 till December 2014).

If you agree to participate in this study, your participation will take approximately 20 minutes to fill out two short questionnaires. The first questionnaire will be about your chronic pain intensity, location, and inferences with your daily activity; the second questionnaire will be about your health related quality of life. We encourage you to answer all questions in the questionnaires.

If the researcher feels that he needs more explanation and in-depth understanding, he might invite you to participate in an interview which will be open 1:1 conversation interview that will lasted for 30-45 minutes to gain in-depth understanding and thick explanations about your results. The interview will be recorded and records will be destroyed after transcription. Your name and information will not be recorded and your participation will be completely anonymous and no one will have access to study information except the researcher (interviewer). Your participation in this interview is entirely voluntary and you have the right to participate, refuse or leave the interview at any time without penalty. Also, you can refuse to answer any questions during the interview, or ask to be not recorded.

There are no risks on you from your participation in this study.

We cannot promise any benefit to you or to others from you joining this study. However, your participation in this study will help us in establishing data base and increase knowledge regarding chronic pain and its impact on quality of life in order to inform decision makers and health providers to enhance and improve strategies, treatments or delivered services for you and other chronic pain patients in Qatar.

RESEARCH INFORMATION SHEET

In addition, there are no tests or physical examinations done for this study.

You may refuse or stop participating at any time to participate and we will not hold it against you. You will be still receiving the routine clinical care for your case.

No financial compensation for your participation

The HMC MRC (Medical research center) will be covering the costs of the study

You have the right of knowing the results of this study at the end of it.

The total estimation for this study is 6 months.

If you have questions or concerns, or if you think the research has hurt you, talk to the research team at: 55501047
If you have questions about your rights as a volunteer, or you want to talk to someone outside the research team, please contact:

- HMC Medical Research Centre at 4439 2440 or research@hmc.org.qa

Medical Research Centre
8th June 2014
to
7th June 2015
Hamad Medical Corporation · Doha · Qatar

مؤسسة حمد الطبية
Hamad Medical Corporation
HEALTH • EDUCATION • RESEARCH صحة • تعليم • بحوث

نشرة المعلومات عن البحث

عزيزي المشارك / عزيزتي المشاركة:

أنت مدعوا/مدعوة للمشاركة في: " دراسة وقياس الآلام المزمنه في المجتمع القطري (دراسه كميه ونوعيه)."

للباحث في مؤسسة حمد الطبية د. أحمد الجزيري, قسم التخدير, عيادة الألم

يقوم قسم عيادة الألم المزمن في مؤسسة حمد الطبية بإجراء هذه الدراسة لفهم أفضل لتجربة الألم المزمن لديك. لذلك، نحن نجري هذه الدراسة للحصول على معلومات منك عن نوع الألم ومدى شدته لديك، ومدى تأثيره على نشاطاتك اليوميه وايضا تأثيره على نوعية الحياه.

الهدف من هذه الدراسة هو قياس شدة الالم المزمن / وتأثيره على النشاطات اليوميه ومدى تأثيره على جودة الحياه للمريض، واستكشاف العلاقات بين شدة الالم المزمن/ والخلل المتسبب بسببه ونوعية الحياة من وجهة نظر المريض.

فإن نتائج هذه الدراسة ستقدم المزيد من المعرفة والتفسير للألم المزمن وتأثيره على كيفية ونوعية الحياة.

نحن نخطط لدراسة جميع المرضى القادمين لعيادة الالم المزمن في مستشفى حمد العام خلال فترة 6 أشهر (من يونيو 2014 حتى ديسمبر 2014)

إذا كنت توافق على المشاركة في هذه الدراسة، فإن مشاركتكم سوف تأخذ حوالي 20 دقيقة لملئ استبيانين قصيرين. سوف يكون الاستبيان الأول حول شدة الألم المزمن، والموقع، والاستدلالات مع النشاط اليومي الخاص بك؛ وسوف يكون الاستبيان الثاني حول مدى تأثير الألم المزمن لديك حول جودة الحياه من حيث القدره على القيام بالنشاطات اليوميه العامه والخاصه. نحن نشجعكم على الإجابة على جميع الأسئلة في الاستبيانات.

إذا شعر الباحث أنه في حاجة إلى مزيد من التوضيح والفهم العميق، سوف يدعوك بعد موافقتك لإجراء المقابلة الفردية التي تستمر لمدة 30 -45 دقيقة من اجل فهم افضل لنتائجك. سيتم تسجيل المقابلة وسيتم تدمير السجلات بعد النسخ .لن يتم تسجيل اسمك ومعلوماتك وسوف تكون مشاركتكم مجهولة المصدر تماما، ولن يحصل أحد على معلومات الدراسة باستثناء الباحث (الذي يجري المقابلة). مشاركتكم في هذه المقابلة هو طوعي تماما ولديك كامل الحق في المشاركة، الرفض أو ترك المقابلة في أي وقت من دون أي عواقب أيضا، يمكنك رفض الإجابة على أية أسئلة خلال المقابلة، أو اطلب عدم التسجيل.

لا توجد اي مخاطر من المشاركة في هذه الدراسة.

لا يمكننا أن نعدك بأي فائدة مباشره لك أو للآخرين حاليا جرّاء انضمامكم لهذا البحث. ومع ذلك، ممكن أن تتضمن الفوائد المحتملة في ان نتائج هذه الدراسة سوف تساعد في توجيه واضعي السياسات وصانعي القرار ومقدمي الرعاية الصحية لتركيز جهودهم على حالات الآلام المزمنه الموجوده والكامنه ومدى تأثيرها على المرضى والمجتمع والاقتصاد ونظام الرعاية الصحية من اجل تحسين الاستراتيجيات وبرامج العلاج والتثقيف أو الخدمات المقدمة لك وللآخرين الذين يعانون من الآلام المزمنه في قطر.

بالإضافة إلى ذلك، لا نقوم باي اختبارات أوفحوصات جسدية لهذه الدراسة.

يمكن ان ترفض المشاركه في البحث ولن يستخدم قرارك ضدك بأي حال من الأحوال. وأيضا يمكنك التوقف عن المشاركة بهذا البحث بأي وقت، ولن يستخدم قرارك ضدك ولن يؤثر على أهليتك في العلاج الاعتيادي الخاص بك.
ولن يكون هناك اي تعويضات ماليه للمشاركه في هذه الدراسه.

مؤسسة حمد الطبية
Hamad Medical Corporation
صحة · تعليم · بحوث HEALTH · EDUCATION · RESEARCH

نشرة المعلومات عن البحث

ان هذا البحث ممول من قبل مركز الابحاث في مؤسسة حمد الطبية.

ولك كامل الحقّ للاطلاع على النتائج في نهاية الدراسة

نتوقع أن يستمر البحث لمدة ستة اشهر.

لطرح أية أسئلة أو مناقشة أي مخاوف, أو إذا كنت تعتقد أن البحث قد أضر/ يضر بك، قم بالتحدث مع فريق البحث على: 55501047

إذا كان لديك أسئلة حول حقوقك كمشارك بالبحث، أو كنت ترغب في التحدث مع شخص من خارج فريق البحث، يرجى الإتصال ب: مركز الأبحاث, مؤسسة حمد الطبية, تلفون: 44392440 أو إيميل: research@hmc.org.qa

Medical Research Centre
8th June 2014
to
7th June 2015
Hamad Medical Corporation
Doha

Appendix III: Socio-demographic Characteristics Sheet, English and Arabic Versions.

Participant ID: _____ Date: _____

1. Age: _____ 2. Gender: ❑Male ❑Female
3. Marital Status (please check one): ❑ Single ❑Married ❑Separated / Divorced ❑Widowed
4. Education Level: ❑Elementary school ❑Undergraduate degree ❑Intermediate school ❑Graduate degree ❑High school ❑ Other: please specify _____
5. Nationality: ❑Qatari ❑Non-Qatari
6. Do you smoking? ❑YES ❑NO
7. Do you drinking alcohol? ❑YES ❑NO
6. Are you working? (please, check): ❑YES ❑ NO If YES, please indicate your type of work/occupation: _____ ❑ Full-time ❑Part-time
7. Type of home/living environment (please check one): ❑House ❑Apartment ❑Duplex ❑Other (please specify): _____

8. Income per month:_____
I prefer not to answer

9. Religion:

❑Muslim ❑Hinduism

❑Christian ❑Buddhist

❑Jewish ❑ Other: please specify _____

I prefer not to answer

10. What is the medical diagnosis for your chronic pain?

_____

11. Body Mass Index (BMI): _____.

الخصائص الديموغرافيه للمشاركين:

رمز المشارك: _____. التاريخ: _____.

1. العمر: _____. 2. الجنس: ❑ذكر / انثى❑
3. الحاله الاجتماعيه: ❑اعزب / ❑متزوج مطلق❑ / ارمل❑
4. المستوى التعليمي: ❑ابتدائي ❑متوسط ❑ثانوي ❑جامعي اخرى(من فضلك حدد): _____.
5. الجنسيه: قطري❑ غير قطري❑
6. هل لديك عادة التدخين؟ ❑نعم ❑لا
7. هل لديك عادة شرب الكحول؟ ❑نعم ❑لا
8. هل تزاول مهنة او عمل(وظيفه)؟ ❑نعم ❑لا في حال اجبت بنعم, فضلا حدد نوع العمل الذي تمارسه: _____. 9. هل تقوم بعملك او وظيفتك بشكل: كامل❑ / جزئي❑
10. نوع السكن: ❑فيلا ❑شقه ❑فيلا صغيره (ديبلوكس) اخرى (من فضلك حدد): _____.
11. الدخل الشهري: _____.

12. الديانه:

❑مسلم ❑مسيحي ❑هندوسي ❑يهودي ❑بوذي

اخرى (من فضلك حدد): _____.

13. ماهو التشخيص الطبي للألم المزمن لديك؟
من فضلك حدد: _____.

_____

. مؤشر كثافة الجسم (الوزن كجم/الطول سنتيمتر^2):

Appendix IV: Brief Pain Inventory (BPI), English and Arabic versions

(APPENDIX-IV)

Brief Pain Inventory- BPI Questionnaire (English Version):

STUDY ID# _____ HOSPITAL # _____

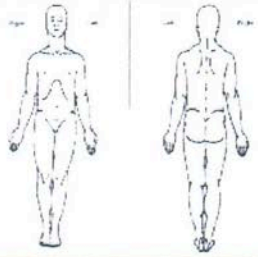
DO NOT WRITE ABOVE THIS LINE

Brief Pain Inventory (Short Form)

1. Throughout our lives, most of us have had pain from time to time (such as minor headaches, sprains, and toothaches). Have you had pain other than these every-day kinds of pain today?

1. Yes 2. No

2. On the diagram, shade in the areas where you feel pain. Put an X on the area that hurts the most.



3. Please rate your pain by circling the one number that best describes your pain at its worst in the last 24 hours.

0 1 2 3 4 5 6 7 8 9 10
No Pain — Pain as bad as you can imagine

4. Please rate your pain by circling the one nuimber that best describes your pain at its least in the last 24 hours.

0 1 2 3 4 5 6 7 8 9 10
No Pain — Pain as bad as you can imagine

5. Please rate your pain by circling the one number that best describes your pain on the average.

0 1 2 3 4 5 6 7 8 9 10
No Pain — Pain as bad as you can imagine

6. Please rate your pain by circling the one number that tells how much pain you have right now.

0 1 2 3 4 5 6 7 8 9 10
No Pain — Pain as bad as you can imagine

Brief Pain Inventory (BPI)

7. What treatments or medications are you receiving for your pain?

8. In the last 24 hours, how much relief have pain treatments or medications provided? Please circle the one percentage that most shows how much relief you have received.

0% No Relief 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Complete Relief

9. Circle the one number that describes how, during the past 24 hours, pain has interfered with your.

A. General Activity	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
B. Mood	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
C. Walking Ability	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
D. Normal Work (includes both work outside the home and housework)	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
E. Relations with other people	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
F. Sleep	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes
G. Enjoyment of life	0 Does not Interfere	1	2	3	4	5	6	7	8	9	10 Completely Interferes

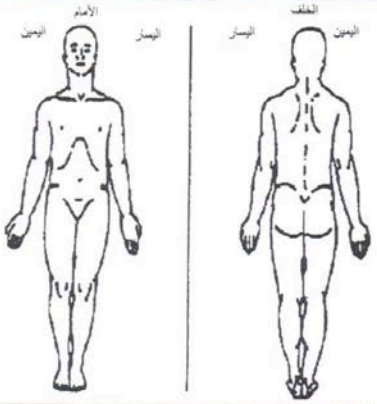
STUDY ID # _____ DO NOT WRITE ABOVE THIS LINE HOSPITAL #: _____

قائمة مختصرة بالألم (استمارة مختصرة)

1. خلال حياتنا، يعاني معظمنا من بعض الالام بين حين واخر (كالصداع البسيط او التواءات العضلات والمفاصل او الم الاسنان). هل تعاني اليوم من الم يختلف عن هذه الانواع من الالام العادية؟

1. نعم 2. لا

2. في المخطط التالي، ظلل مواضع الالم الذي تشعر به، ضع علامة × في المواضع الاشد الما.



3. من فضلك، ضع دائرة حول الرقم الذي يصف المك في اسوا حالاته خلال الاربع والعشرين ساعة الماضية.

0	1	2	3	4	5	6	7	8	9	10
لا يوجد الم										أسوأ ما يمكن تصوره من الألم

4. من فضلك ضع دائرة حول الرقم الذي يصف المك في اخف حالاته خلال الاربع والعشرين ساعة الماضية.

0	1	2	3	4	5	6	7	8	9	10
لا يوجد الم										أسوأ ما يمكن تصوره من الألم

5. من فضلك ضع دائرة حول الرقم الذي يصف المك في معظم الاوقات في الاربع والعشرين ساعة الماضية.

0	1	2	3	4	5	6	7	8	9	10
لا يوجد الم										أسوأ ما يمكن تصوره من الألم

6. من فضلك حدد درجة المك بوضع دائرة حول الرقم الذي يصف مستوى المك الان.

0	1	2	3	4	5	6	7	8	9	10
لا يوجد الم										أسوأ ما يمكن تصوره من الألم

STUDY ID # _ _ _ _ _ _ _ DO NOT WRITE ABOVE THIS LINE HOSPITAL #: _ _ _ _ _ _ _ _

7. ما هي انواع العلاج او الادوية التي تتلقاها للالم؟

8. خلال الاربع والعشرين ساعة الماضية، ما مدى الارتياح الذي استفدته من العلاج او الادوية التي أعطيت لك. من فضلك ضع دائرة حول النسب المئوية التي توضح الارتياح الذي استفدته.

0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
لم يحصل أي ارتياح										ارتياح كامل

9. ضع دائرة حول الرقم الذي يصف مدى الاعاقة او العرقلة التي سببها لك الالم خلال الاربع والعشرين ساعة الماضية في النواحي التالية:

أ. النشاطات العامة

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

ب. المزاج

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

ج. القدرة على المشي

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

د. العمل العادي (يشمل ذلك العمل خارج المنزل والعمل المنزلي)

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

هـ. العلاقات مع الناس الاخرين

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

و. النوم

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

ز. الاستمتاع بالحياة

0	1	2	3	4	5	6	7	8	9	10
لا إعاقة										إعاقة كاملة

Appendix V: Short-Form Health Survey (SF-36), English and Arabic versions

(APPENDIX IIV): Short-Form Health Survey (SF-36), English Version:

The SF-36v2™ Health Survey

Instructions for Completing the Questionnaire

Please answer every question. Some questions may look like others, but each one is different. Please take the time to read and answer each question carefully by filling in the bubble that best represents your response.

EXAMPLE

This is for your review. Do not answer this question. The questionnaire begins with the section ***Your Health in General*** below.

For each question you will be asked to fill in a bubble in each line:

1. **How strongly do you agree or disagree with each of the following statements?**

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
a) I enjoy listening to music.	○	●	○	○	○
b) I enjoy reading magazines.	●	○	○	○	○

Please begin answering the questions now.

Your Health in General

1. **In general, would you say your health is:**

Excellent	Very good	Good	Fair	Poor	
○1	○2	○3	○4	○5	GH01

2. **Compared to one year ago, how would you rate your health in general now?**

Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago	
○1	○2	○3	○4	○5	HT

Please turn the page and continue.

49

3. **The following questions are about activities you might do during a typical day. Does <u>your health now limit you</u> in these activities? If so, how much?**

	Yes, limited a lot	Yes, limited a little	No, not limited at all	
a) **Vigorous activities**, such as running, lifting heavy objects, participating in strenuous sports	○1	○2	○3	PF01
b) **Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	○1	○2	○3	PF02
c) Lifting or carrying groceries	○1	○2	○3	PF03
d) Climbing **several** flights of stairs	○1	○2	○3	PF04
e) Climbing **one** flight of stairs	○1	○2	○3	PF05
f) Bending, kneeling, or stooping	○1	○2	○3	PF06
g) Walking **more than a mile**	○1	○2	○3	PF07
h) Walking **several hundred yards**	○1	○2	○3	PF08
i) Walking **one hundred yards**	○1	○2	○3	PF09
j) Bathing or dressing yourself	○1	○2	○3	PF10

4. **During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work or other regular daily activities <u>as a result of your physical health</u>?**

	All of the time	Most of the time	Some of the time	A little of the time	None of the time	
a) Cut down on the **amount of time** you spent on work or other activities	○1	○2	○3	○4	○5	RP01
b) **Accomplished less** than you would like	○1	○2	○3	○4	○5	RP02
c) Were limited in the **kind** of work or other activities	○1	○2	○3	○4	○5	RP03
d) Had **difficulty** performing the work or other activities (for example, it took extra effort)	○1	○2	○3	○4	○5	RP04

5. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time	
a) Cut down on the **amount of time** you spent on work or other activities	○1	○2	○3	○4	○5	RE01
b) **Accomplished less** than you would like	○1	○2	○3	○4	○5	RE02
c) Did work or other activities **less carefully than usual**	○1	○2	○3	○4	○5	RE03

6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

Not at all	Slightly	Moderately	Quite a bit	Extremely	
○1	○2	○3	○4	○5	SF01

7. How much bodily pain have you had during the past 4 weeks?

None	Very mild	Mild	Moderate	Severe	Very severe	
○1	○2	○3	○4	○5	○6	BP01

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely	
○1	○2	○3	○4	○5	BP02

9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time	
a) did you feel full of life?	○1	○2	○3	○4	○5	VT01
b) have you been very nervous?	○1	○2	○3	○4	○5	MH01
c) have you felt so down in the dumps that nothing could cheer you up?	○1	○2	○3	○4	○5	MH02
d) have you felt calm and peaceful?	○1	○2	○3	○4	○5	MH03
e) did you have a lot of energy?	○1	○2	○3	○4	○5	VT02
f) have you felt downhearted and depressed?	○1	○2	○3	○4	○5	MH04
g) did you feel worn out?	○1	○2	○3	○4	○5	VT03
h) have you been happy?	○1	○2	○3	○4	○5	MH05
i) did you feel tired?	○1	○2	○3	○4	○5	VT04

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10. During the <u>past 4 weeks</u>, how much of the time has your <u>physical health or emotional problems</u> interfered with your social activities (like visiting friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time	
O_1	O_2	O_3	O_4	O_5	SF02

11. How TRUE or FALSE is <u>each</u> of the <u>following statements for you?</u>

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false	
a) I seem to get sick a little easier than other people	O_1	O_2	O_3	O_4	O_5	GH02
b) I am as healthy as anybody I know	O_1	O_2	O_3	O_4	O_5	GH03
c) I expect my health to get worse	O_1	O_2	O_3	O_4	O_5	GH04
d) My health is excellent	O_1	O_2	O_3	O_4	O_5	GH05

- استبيان صحي -

من فضلك، أجب على كل الأسئلة الموجودة في هذا الاستبيان. في حالة عدم وضوح أي سؤال، أرجو اختيار أقرب اجابة لمفهومك للسؤال.

١- بصورة عامة، كيف ترى حالتك الصحية؟

(اختر اجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ ممتازة
- ☐ جيدجدا
- ☐ جيدة
- ☐ لا بأس بها
- ☐ سيئة

٢- مقارنة بعام مضى، كيف تقيم حالتك الصحية الآن بصورة عامة؟

(اختر اجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ أفضل بكثير مما كانت عليه قبل عام
- ☐ أفضل نوعا ما من العام الماضي
- ☐ تقريبا على ما هي عليه
- ☐ أسوأ نوعا ما من العام الماضي
- ☐ أسوأ بكثير مما كانت عليه قبل عام

٣- **تتعلق البنود التالية بأنشطة يمكن ان تقوم بها خلال يومك العادي.** **في الوقت الحالي**، الى اي مدى **تقيدك حالتك الصحية**:	(اختر اجابة واحدة وضع علامة ✓ تحت الاجابة المناسبة)		
	نعم تقيدني كثيرا	نعم تقيدني قليلا	لا تقيدني اطلاقا
أ) من ممارسة **الأنشطة الشاقة** مثل: الجري، حمل الاشياء الثقيلة او مزاولة الأنشطة الرياضية المجهدة جدا؟	☐	☐	☐
ب) من ممارسة **الأنشطة متوسطة الجهد**، كتحريك الطاولة او التنظيف باستخدام المكنسة الكهربائية او تنظيف حديقة المنزل والعناية بها ؟	☐	☐	☐
ج) من حمل المشتريات من البقالة او السوق المركزي (السوبرماركت)؟	☐	☐	☐
د) من صعود الدرج **لعدة ادوار**؟	☐	☐	☐
هـ) من صعود الدرج **لدور واحد فقط**؟	☐	☐	☐
و) من الانحناء او الركوع او السجود ؟	☐	☐	☐
ز) من المشي لأكثر من **كيلومتر ونصف**؟	☐	☐	☐
ح) من المشي **لمسافة نصف كيلومتر**؟	☐	☐	☐
ط) من المشي **لمسافة مئة متر**؟	☐	☐	☐
ي) من الاستحمام او ارتداء الملابس بنفسك؟	☐	☐	☐

الصحة الجسمية

٤- تتعلق البنود التالية (أ ، ب ، ج ، د) بالمشاكل التي يمكن ان تواجهـــك خلال تأديتك لعملك او للأنشطة اليومية المعتادة نتيجة لحالتك الصحية الجسمية. **خلال الأسابيع الأربعة الماضية**، هل تسببت **حالتك الصحية الجسمية في**:	نعم	لا
أ) **التقليل من الوقت** الذي تقضيه في العمل او اي انشطة اخرى؟	☐	☐
ب) **التقليل** مما تود **انجازه** من العمل أو أي أنشطة أخرى؟	☐	☐
ج) **تقييدك في أداء نوع** معين من الأعمال أو أي أنشطة أخرى؟	☐	☐
د) **أن تجد صعوبة في** تأدية العمل أو أي أنشطة أخرى؟ (على سبيل المثال، احتجت الى جهد اضافي لتأديتها)	☐	☐

(اختر اجابة واحدة وضع علامة ✓ تحت الاجابة المناسبة)

الصحة النفسية

٥- تتعلق البنود التالية (أ ، ب ، ج) بالمشاكل التي يمكن ان تواجهك خلال تأديتك لعملك او الانشطة اليومية المعتادة كنتيجة لحالتك الصحية النفسية. (مثلا الشعور بالاكتئاب او القلق) **خلال الاسابيع الأربعة الماضية**، هل تسببت **حالتك الصحية النفسية في**:	نعم	لا
أ) **التقليل من الوقت** الذي تقضيه في العمل او اي انشطة اخرى؟	☐	☐
ب) **التقليل** مما تود **انجازه** من العمل أو أي أنشطة أخرى؟	☐	☐
ج) عدم **انجاز** العمل او اي انشطة اخرى **بالحرص المعتاد**؟	☐	☐

(اختر اجابة واحدة وضع علامة ✓ تحت الاجابة المناسبة)

الصحة الجسمية او النفسية

٦- **خلال الاسابيع الاربعة الماضية**، الى اي مدى تعارضت **صحتك الجسمية او النفسية** مع تأديتك لنشاطاتك الاجتماعية المعتادة مع عائلتك او اصدقائك او جيرانك او اي من المناسبات الاجتماعية الأخرى؟

(اختر اجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ لم يكن هناك أي تعارض اطلاقا
- ☐ كان هناك تعارض قليل
- ☐ كان هناك تعارض متوسط
- ☐ كان هناك تعارض كبير
- ☐ كان هناك تعارض كبير جدا

شدة الألم

٧- ما شدة **الألم الجسمي** الذي عانيت منه خلال **الاسابيع الاربعة الماضية**؟

(اختر اجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ لم يكن هناك أي ألم
- ☐ كان هناك ألم خفيف جدا
- ☐ كان هناك ألم خفيف
- ☐ كان هناك ألم متوسط
- ☐ كان هناك ألم شديد
- ☐ كان هناك ألم شديد جدا

٨- **خلال الاسابيع الاربعة الماضية**، الى اي مدى ادى الألم **الجسمي** الى التعارض مع تأديتك لأعمالك المعتادة (سواء داخل المنزل او خارجه)؟

(اختر اجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ لم يكن هناك أي تعارض
- ☐ كان هناك تعارض قليل جدا
- ☐ كان هناك تعارض متوسط
- ☐ كان هناك تعارض كبير
- ☐ كان هناك تعارض كبير جدا

٩- الأسئلة التالية تتعلق بكيفية شعورك وطبيعة سير الأمور معك **خلال الأسابيع الأربعة الماضية**. الرجاء اعطاء اجابة واحدة لكل سؤال بحيث تكون هذه الاجابة هي الأقرب الى الحالة التي كنت تشعر بها.

خلال الأسابيع الأربعة الماضية، كم من الوقت:

(اختر اجابة واحدة وضع علامة ✓ تحت الاجابة المناسبة)

	في كل الأوقات	في معظم الأوقات	في كثير من الأوقات	في بعض الأوقات	في قليل من الأوقات	لم اشعر في أي وقت من الأوقات
أ) شعرت بأنك ملئ بالحيوية والنشاط؟	☐	☐	☐	☐	☐	☐
ب) كنت شخصا عصبيا جدا؟	☐	☐	☐	☐	☐	☐
ج) شعرت بأنك في حالة اكتئاب الى درجة لم يمكن معها ادخال السرور اليك؟	☐	☐	☐	☐	☐	☐
د) شعرت بالهدوء والطمأنينة؟	☐	☐	☐	☐	☐	☐
هـ) كانت لديك طاقة كبيرة؟	☐	☐	☐	☐	☐	☐
و) شعرت بالاحباط واليأس؟	☐	☐	☐	☐	☐	☐
ز) شعرت بأنك منهك (استُنْفِذت قُواك)؟	☐	☐	☐	☐	☐	☐
ح) شعرت بأنك شخص سعيد؟	☐	☐	☐	☐	☐	☐
ط) شعرت بأنك تعبان؟	☐	☐	☐	☐	☐	☐

١٠- **خلال الاسابيع الأربعة الماضية**، ما مقدار الوقت الذي تعارضت فيه صحتك الجسمية أو مشاكلك النفسية مع نشاطاتك الاجتماعية (مثل زيارة الأصدقاء والأقارب وغير ذلك) ؟

(اختر أجابة واحدة وضع علامة ✓ أمام الاجابة المناسبة)

- ☐ كان التعارض في كل الأوقات
- ☐ كان التعارض في معظم الأوقات
- ☐ كان التعارض في بعض الأوقات
- ☐ كان التعارض في قليل من الأوقات
- ☐ لم يكن هناك تعارض في أي وقت من الأوقات

١١- ما مدى **صحة او خطأ** كل من العبارات التالية (أ ، ب ، ج ، د) بالنسبة الى حالتك الصحية؟ (ضع علامة ✓ في المربع المناسب)	صحيحة تماما	صحيحة غالبا	لا اعلم	خطأ غالبا	خطأ تماما
أ) يبدو أنني أصاب بمرض أسهل من الآخرين	☐	☐	☐	☐	☐
ب) حالتي صحية مساوية لأي شخص أعرفه	☐	☐	☐	☐	☐
ج) أتوقع أن تسوء حالتي الصحية	☐	☐	☐	☐	☐
د) حالتي الصحية ممتازة	☐	☐	☐	☐	☐

..... شكرا لتعاونكم .....

Source: Coons, Stephen Joel, JOLaine R. Draugalis, and Ron D. Hays. *Translation of the RAND 36-ITEM Health Survey 1.0 (aka SF-36) into Arabic*.Vol. 7995.Rand, 1997.

Appendix VI: Interview Guidelines.

1- For how long have you lived with this pain?

2- Can you remember when it started, what happened at that time?

3- How would you describe your life before and after pain?

4- How did you feel after you got this pain?

5- How do you see yourself now living with your pain?

6- Who knows about your pain and how do they treat you?

7- What about your job and colleagues?

- Are you able to continue to work?

If so, did people where you are/were working understand your suffering and facilitate things for you?

8- How did your family treat you once you were in pain? And later?

9- Did your pain isolate you from people around you or from social responsibilities?

10- How do you deal with your pain? What changes have you had to make?

11- Have you used any strategies or methods to learn how to live with your pain?

12- has your pain affected your life or influenced your activities?

13- How do you see your life right now?

14- How do you see your pain? Or

Is there any meaning to your pain?

15- have you tried alternative ways (give the participant some examples) to reduce your pain? And why?

17- How would you compare your life with other people's?

18- What are your expectations for the future?

- Why does pain not affect your quality of life in term of mental health, social functioning, vitality and general health? What do you do? Who helps you to live with or overcome your pain?
- Why does your pain affect your mental health and social functioning (for older people)?

Appendix VII: Consent Agreement.

Project Title: A Mixed Methods Study of Chronic Pain in Qatar.

Principal Investigator: Professor Jocelyne Feine (Faculty of Dentistry, McGill University, Montreal, Quebec, Canada).
Co-supervisor: Richard Hovey
Research team members:
Laura Stone
Elham Emami

1. Purpose of the Consent Form:

We would like you to consider the participation in this study, which designed to measure chronic pain conditions, and the impact on patient's quality of life, and to explore in-depth the relationship between chronic pain and quality of life. The findings of this study will provide further knowledge and thick explanation of how chronic pain affects the quality of life. This consent form will:

A. Inform you, as completely as possible, about the nature, purpose and benefits involved in this study.

B. Provide you with the necessary information you require to decide whether you will participate or not.

C. Provide us an opportunity to have wide knowledge and an in-depth understanding about chronic pain and its impact/relationship on patient's quality of life.

Please read this consent form carefully and fell free to ask questions as many as you want before deciding whether or not to participate in this study. The researcher here is to help

you to understand all the details that you may want to know about the study. Your participation is entirely voluntary and if you refuse to participate there will be no penalty or loss of benefits to which you are entitled.

2. Introduction:

Many studies have shown that chronic pain has negative impacts on a person's quality of life depending on pain's intensity, location and dysfunction on daily activities. Moreover, chronic pain have influenced by many factors, such as perception, belief and experience. The aim of this study is to measure the intensity/dysfunction and type of chronic pain, and it's impact on patient's quality of life, and to explore the relationships between chronic pain intensity/dysfunction and quality of life from patient's in-depth view.

We would like to better understand your experience of chronic pain. Therefore, we are carrying out this study to get information from you about what type of pain you have, how intense the pain feels and how it affects your life and your life quality.

3. The Purpose of this Study:

1- To measure the extent and type of chronic pain experienced by adult patients.
2- To measure the impact of chronic pain on quality of life among chronic pain patients.
3- To identify the relationship between chronic pain intensity/dysfunction and a patient's quality of life, including their attitudes about their pain, as well as their coping strategies.

4. Study Procedure:

If you agree to participate in this study, your participation will take approximately 20 minutes to fill out three short questionnaires. The first questionnaire will be about your socio-demographic characteristics; the second questionnaire will be about your chronic

pain intensity, location, and inferences with your daily activity; the last questionnaire will be about your health related quality of life.

4.1 Individual Interviews:

Your participating in this portion of the study will be open conversation interview that will lasted for 30-60 minutes to gain in-depth understanding and thick explanations about your results in the quantitative portion. The interview will be recorded for analysis purpose. Your name and information will be anonymous and no one will have access to this information except the researcher (interviewer). Your participating in this portion is entirely voluntary and you have the right to participate, refuse or leave the study at any time without penalty. Also, you can refuse to answer any questions during the interview, or ask to be not recorded.

5. Benefits and Risks:

There are no risks on you from your participating in this study. Benefits of your participating that you will help in establishing data base and increase knowledge regarding chronic pain and its impact on quality of life in order to inform decision makers and health providers to enhance and improve strategies, treatments or delivered services for you. In addition, there are no tests or physical examinations and there will be no financial compensation for your participating.

6. Participant Rights:

Your participation in this study is voluntary and you have the right to leave the study at any time without penalty. We encourage you to answer all questions in the questionnaires. However, you are not under pressure to do even from your physician and

this will not affect your treatments. We will provide you an email address in case you need to ask any questions about the study.

7. Confidentiality:

All information that will be collected from you will be confidential. Your ID will be anonymous since we will assign code for each participant. All data will be securely saved and no one will have access to these data except the researcher. Up on completion of the study, all information will be destroyed.

8. Contact:

Do not hesitate to ask any further information about this study, please feel free to contact the researcher of this study Shadaid Alanezi by email at shadaid.alanezi@mail.mcgill.ca

9. Declaration of this consent

By declaring to this consent form, I declare that;

A. The study has been completely explained to me and I had the opportunity to ask questions and seek clarification about any issues that I found unclear or hard to understand.

B. My participation in this study is entirely voluntary. I can leave the study at any time without penalty. In addition, in this study my refusal, participation or withdrawal will not affect my treatment plan or what I have been entitled.

C. I declare that I have signed this consent form without any pressure and I have received a copy of the consent form with explanation of the nature, purpose, benefits, risks, as well as my rights as a participant.

10. Signature:

a. Participant

Name of Participant: _____.

Signature of Participant: _____.

b. Principle Investigator

Name of the principal Investigator: _____.

Signature of the Principle Investigator: _____.

c. Witness

Name of the Witness: _____.

Signature of the Witness: _____.

Signed at _____ on _____ /_____ / _____.