

## MISE AU POINT / IN-DEPTH REVIEW CHRONIC PAIN : A REVIEW

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**ABSTRACT : Chronic pain has been increasing in prevalence. It is considered the most underestimated health care problem impacting quality of life.**

**A number of epidemiological studies conducted in different parts of the world, reported prevalence rates of chronic pain ranging from 12-80%. Chronic pain has detrimental effects on physical and mental health, daily activities, family relationships, employment, and economic well-being of the sufferers and family caregivers.**

**Since the epidemiological studies about chronic pain in Lebanon are limited, the aim of this article is to help understand the magnitude of the problem and to depict strategies for the prevention and management of chronic pain. The article provides a review of the literature on the prevalence of chronic pain and the factors associated with it in adults.**

### INTRODUCTION

In our world today, chronic pain has been increasing in prevalence ; it is considered the most underestimated health care problem impacting quality of life as well as a major burden on the health care system [1]. The International Association for the Study of Pain (IASP) and the European Federation of the IASP Chapters (EFIC) reported that one in five people suffer from moderate to severe chronic pain and one in three are unable to maintain an independent lifestyle due to chronic pain. Furthermore, one-half to two-thirds of people suffering from chronic pain are unable to exercise, sleep normally, attend social activities, and perform normal day-to-day activities such as walking, driving a car, and having sexual relations. Additionally, one in four chronic pain sufferers report broken or strained relationships with family and friends [1-2].

Several epidemiological studies have been conducted to estimate the prevalence of chronic pain and to understand the association between chronic pain and demographic characteristics [3-17], health characteristics [8-11, 13-14], pain characteristics [9-11, 13, 15-17], war and traumatic events [18, 19-25], work and litigation [3, 5, 10-11, 15], treatment modalities, use of health care settings [4, 6, 10-11, 26], and attitudes of patients and other people towards pain [10, 27].

Since epidemiological studies about chronic pain in Lebanon are limited, the aim of this article is to help us in

Lebanon understand the magnitude of the problem and to depict strategies for the prevention and management of chronic pain. The article will provide a review of the literature on the prevalence of chronic pain and the factors associated with it in adults.

### DEFINITION AND PREVALENCE OF CHRONIC PAIN

The International Association for the Study of Pain (IASP) defines pain as *"an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage"* [4]. Pain is described as being acute or chronic. Acute pain tends to be resolved once the underlying medical problem has been resolved. Chronic pain is referred to as pain or discomfort that has persisted continuously or intermittently for longer than three months [1]. Chronic pain has been defined in most studies reviewed as continuous pain experienced for at least three months in the last six months before the study [3-9, 15], or pain lasting for six months or more [10-12].

Prevalence studies on chronic pain report wide ranging rates which are often due to the different definitions of chronic pain and the different methodologies used. There are also differences in the sociodemographic characteristics and populations studied.

A number of epidemiological studies conducted in different parts of the world, reported prevalence rates of chronic pain ranging from 12-80%. Table I provides a summary overview of studies on chronic pain.

### DEMOGRAPHIC CHARACTERISTICS AND CHRONIC PAIN

Almost all studies reviewed showed a positive association between prevalence of chronic pain and female gender [3-13]. In the study conducted in Denmark, 19% of the population studied reported having chronic pain ; 21% females and 16% males [11]. Blyth and colleagues [3] had similar findings in the prevalence study done in Australia, where 20% of females reported experiencing chronic pain compared to 17.1% of males. In the Pan-European study by Breivik et al. [10], 56% of those suffering from pain were women. In Finland, however, a study evaluating the association between chronic pain and self-rated health found 35% of the population to have chronic pain, but unlike other studies, chronic pain was as common in men as in women [14]. Similar results were found in England in a seven-year longitudinal study on chronic widespread pain which also showed that men and women were equally likely to report chronic widespread pain [16].

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**TABLE I**  
PREVALENCE STUDIES OF CHRONIC PAIN

Study	Country	Prevalence	Methods/Findings
BECKHAM et al. (1997) [24]	USA	80% in PTSD patients	A study investigating chronic pain in 129 Vietnam veterans with posttraumatic stress disorder (PTSD). Of those reporting chronic pain, 20% reported pain in one major area, 31% reported pain in two major areas, 36% in three major areas, and 13% in four major areas.
BLYTH et al. (2001) [3]	Australia	17.1% of males 20% of females	Part of the 1997 New South Wales Health Survey; data were collected from 545 participants by telephone interview using the Computer-Assisted Telephone Interview (CATI). Pain was defined as pain experienced everyday for 3 months in the 6 months prior to interview. Prevalence was highest in the 55-59 year age group in both males and females. Association between chronic pain and older age, female gender, lower socio-economic status, poor education, poor health, increased level of psychological distress, and employment disadvantages were found.
BLYTH et al. (2003) [5]	Australia	22.1%	Data was collected from 484 participants aged 18 years and older using the Computer-Assisted Telephone Interview (CATI). Chronic pain was defined as pain experienced everyday for 3 months or more in the 6 months prior to interview. Prevalence of chronic pain in men was 19.9% and in women 22.1%. 28.6% of chronic pain participants, who reported working full time or part time, reported that their work was restricted by their pain problem.
ERIKSEN et al. (2003) [11]	Denmark	19%	Part of the 2000 Danish Health Interview Surveys conducted in Denmark; a national random sample size of 10,066 persons over 16 years of age; data collected via a face-to-face interview and self-administered questionnaires. Chronic pain was defined as pain lasting for 6 months or more. Prevalence of pain was 16% for males and 21% for females. It increased with increasing age.
HAETZMAN et al. (2003) [26]	UK	53.8%	1608 individuals participated in a study to determine the use of conventional and alternative therapy in chronic pain. Of those with chronic pain, 67.2% have seen their GP in the last 12 months; older individuals consulted a GP significantly more often than younger individuals. Females sought alternative therapy more frequently than males and younger individuals sought alternative therapy more frequently than older individuals.
MANTYSELKA et al. (2003) [14]	Finland	35.1%	4542 participants aged 15 to 74 years filled a questionnaire in the spring of 2002. Pain was defined as pain with duration of at least 3 months and was graded by frequency (at most once a week, several times a week, and daily or continuously). The prevalence of daily chronic pain was 14.3%. Chronic pain was as common in men as in women. The older the respondents, the higher the prevalence of chronic pain.
RUSTOEN et al. (2004) [8]	Norway	24.4%	1,912 participants aged 19-81 years filled a self-administered questionnaire evaluating quality of life, pain, health status, fatigue, and hope. Chronic pain was defined as pain of more than 3 months duration. Women reported more chronic pain than men and significantly higher pain intensities than men. Men with chronic pain reported poorer quality of life than women.

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Study	Country	Prevalence	Methods/Findings
BREIVIK et al. (2006) [10]	15 European countries and Israel	12-30%	46,394 participants took part in an in-depth telephone interview using the CATI. Chronic pain was defined as pain lasting more than 6 months, having pain during the last month, several times during the last week, and last experienced pain having an intensity of 5 or more on a Numeric Rating Scale of 1 to 10. Chronic pain prevalence ranged from 12% to 30%; highest in Norway, Poland and Italy, and lowest in Spain, Ireland and the UK.
GUEZ et al. (2006) [34]	Sweden	16% chronic low back pain 17% chronic neck pain	Part of a national health survey done regularly in Sweden; 4,415 subjects under the age of 65 participated. They filled a self-administered questionnaire and underwent a physical exam. Chronic low back pain was defined as continuous pain lasting more than 6 months. The alternatives in the questionnaire were whiplash, other neck or head injury, or no injury. Low back pain was more common in women and increased with age.
Yu et al. (2006) [9]	Taiwan	42%	219 persons aged 65 years and more were selected through a multi-stage, random sampling method. A face-to-face interview with a structured questionnaire was used to collect data. There were statistically significant correlations between chronic pain and being single, having a low educational level, being influenced by religious beliefs, and being in poor health.
FORMAN-HOFFMAN et al. (2007) [25]	USA	16%	3695 veterans of the first Gulf war participated in the study. Respondent were eligible if they reported having had bromyalgia or fibrositis in the year before the telephone interview, or if the respondent reported overall body pain that occurred almost every day with a minimum duration of 3 months during the year before the interview and reported any body pain in the 24 hours before the interview. Veterans with chronic pain reported significantly more impairment such as bed days, Veterans Affairs, disability, and compensation than veterans without chronic pain.
MIRO et al. (2007) [13]	Spain	70.8% to 72.1%	Total of 592 individuals aged 65 years and over participated in the study; they were interviewed using the Chronic Pain Grade Questionnaire. Chronic pain was defined as pain present for one day or longer for the past 3 months. Pain was significantly higher in females than males.
SJØGREN et al. (2008) [12]	Denmark	20.2%	Part of 2005 Danish Health Interview Surveys; 7275 individuals were interviewed and 5552 completed a self-administered questionnaire. Chronic pain was associated with female gender and increasing age; higher prevalence was associated with being divorced, widowed, or separated.
TSANG et al. (2008) [18]	7 developing countries 10 developed countries	37.3% in developed countries 41.1% in developing countries	Eighteen surveys were carried out in 17 countries in the Americas (Colombia, Mexico, United States), Europe (Belgium, France, Germany, Italy, Netherlands, Spain, Ukraine), the Middle East (Israel, Lebanon), Africa (Nigeria, South Africa), Asia (Japan, People's Republic of China: Beijing, Shanghai), and New Zealand. Interviews were carried out face-to-face by trained lay interviewers. Respondents were asked if they had ever had "arthritis or rheumatism", chronic back or neck pain, frequent or severe headache, and other chronic pain in their lifetime and if this had been present in the prior 12 months. Prevalence rates of headache, back pain, and other chronic pain conditions were higher in developing than developed countries. Arthritis/joint pain was higher in developed countries. For both groups of countries, all specific chronic pain conditions were significantly associated with depression-anxiety disorders status.

Increased age, decreased years of education, being widowed, divorced, as well as unemployed were positively associated with prevalence of chronic pain [3-9, 11, 13-14]. The age group 40 to 60 had the highest prevalence of chronic pain in most studies [3-4, 8, 10, 16]. Miro et al. [13] in a study on older adults in Spain found the prevalence of any pain to be 73.5%, of whom 94.2% suffered specifically from chronic pain. The mean age in the study was 74.9 years. Another study conducted in Taiwan showed 42% of the older adults with a mean age of 74.26 years, reporting chronic pain [9]. Age was also considered a predictive factor of chronic pain in a seven-year follow-up study conducted in the UK; participants 50 years and older reported chronic widespread pain three times more often than those younger than 50 [16]. Another 12-year follow-up study conducted in Sweden showed persistence of chronic widespread pain to be more prevalent in the age group 40 to 59 years of age [17].

In the Taiwanese study [9], the prevalence of chronic pain decreased with higher educational level; older people with elementary school education or less showed a significantly higher pain incidence than those who have completed more years of formal education. In addition in the same Taiwanese study, Yu et al. [9] reported that participants who were single (including widowed, unmarried, and divorced) demonstrated higher pain incidence as opposed to those with partners. Similar results were reported in Denmark [11] and in Australia [3] concerning the association of chronic pain with marital status and educational level. In Australia, Blyth et al. [3] reported that respondents who were unemployed for health reasons were almost eight times more likely to report chronic pain compared to respondents in full-time employment.

## PAIN CHARACTERISTICS

Breivik et al. [10] found the duration of chronic pain to range between 2-15 years in 60% of the pan-European study participants and more than 20 years in 21%. The highest prevalence for pain localization was in back/low back (range 24%-52%), shoulder/neck (range 9%-51%) and arms/legs (range 6%-53%) categories with intensity ranging between 5-7 on a 10 point Numeric Rating Scale (NRS) [9-11, 15, 13, 17].

Breivik et al. [10] reported severe pain (pain intensity of 8, 9, or 10 on NRS) to be present in 34% of chronic pain sufferers with the highest prevalence in Israel (50%), Spain (44%), and Italy (44%) and lowest prevalence in the Netherlands (18%), followed by Norway (24%) and Sweden (24%).

In the study conducted by Papageorgiou, Silman, and Macfarlane [16], the persistence of chronic pain after seven years was found to be among people who reported severe pain, or pain that kept them awake all night.

## HEALTH CHARACTERISTICS AND CHRONIC PAIN

Chronic pain affects people's well-being and their ability to maintain an independent lifestyle.

Chronic pain prevalence was found to increase with decreased self-rated health [9, 11, 14], and was positively associated with chronic diseases especially musculoskeletal diseases like osteoarthritis [18, 10-11, 13-14]. In the pan-European study, osteoarthritis/arthritis was found to be highest in prevalence in the UK, Ireland, Italy, Spain, Norway and Belgium [10]. Table II provides a summary of the prevalence of chronic pain according to various health characteristics in different parts of the world.

**TABLE II**  
PREVALENCE OF CHRONIC PAIN BY HEALTH CHARACTERISTICS

	Eriksen et al. (2003) [11]	Sjogren et al. (2008) [12]	Breivik et al. (2005) [29]	Yu et al. (2006) [9]	
	DENMARK Prevalence (%)	DENMARK Prevalence (%)	EUROPE Prevalence (%)	MALE Prevalence (%)	FEMALE Prevalence (%)
<b>Diseases</b>					
Musculoskeletal	57	66.8	46	25.1	58.9
Infections	51				
Digestive system	47	39.2			
Trauma/Injuries	45	57.3	22	5.7	1.8
Endocrine	40	30.1			
Genitourinary	40				
Circulatory system	38	34			
Psychiatric conditions	35	31.4			
Nervous system	32	37.8	26	8.3	8.9
Respiratory system	32	29.7			
Skin	29	37.7			
Non-malignant neoplasm	19				
Aging				33.3	5.4
Others	32	40		41.7	21.4

Regarding physical well-being, fatigue, sleeping difficulties, and interference of pain with activities of daily living were found to be positively correlated with chronic pain [3, 7, 9-10, 13, 16-17]. In the study conducted by Breivik et al. [10], 79% of participants reported an increase in pain intensity during the day secondary to engaging in activities. In other studies, interference of pain in activities of daily living was mild, and it was more common among older females, and those who were full-time employees [9-10]. A high level of chronic pain interference with activities of daily living was significantly associated with more use of health care settings [4].

Breivik et al. [10] provided the participants with a list of activities with a 3-level scale ; 56% were less able to sleep, 50% were less able to exercise, and 40% were less able to walk because of pain. Similar results were found by Ruchlman et al. [15] where pain mainly interfered with sleep, followed by exercise and routine physical activities like climbing stairs.

Mental well-being was found to be associated with chronic pain. Psychological distress, depression, anxiety, and stress levels were high in patients with chronic pain [3, 7-8, 14, 18]. Breivik et al. [10] found 21% of study participants to be diagnosed with depression because of their pain, with the highest prevalence in Spain. In a study conducted in seven developing countries, including Lebanon, and ten developed countries on common chronic pain conditions, all specific chronic pain conditions were found to be significantly associated with depression-anxiety disorders [18]. Headache was more strongly associated with depression-anxiety disorders than back pain, arthritis/joint pain and other chronic pain in developed countries ; the association was however stronger for headache and back pain than other specific chronic pain in developing countries [18].

#### WAR, TRAUMATIC EVENTS, AND CHRONIC PAIN

Many studies have provided evidence that chronic pain is strongly associated with stress, stressful life events, and posttraumatic stress disorders (PTSD) [18, 19-22]. In Lebanon, armed conflicts and civil unrest still impact the lives of millions of people. Unfortunately the vast majority of research on chronic pain has been conducted in countries least affected by armed conflict.

Young et al. [23] reported that pain scores among civilians increased 27% after September 11 attack on the World Trade Center, and it was significantly higher in females than in males. Yaari, Eisenberg, Adler, and Birkhan [22] reported that individuals who survived the Holocaust during World War II had significantly a larger number of pain sites and higher pain intensity compared to control groups who were not exposed to trauma, violence or killing, and symptoms still manifested 50 years after the war. Other studies mostly reported prevalence of chronic pain in war veterans, mainly the Gulf war and Vietnam war [24-25]. Veterans deployed to these two wars reported significantly higher prevalence of pain than

control subjects. No population-based studies were reported on the impact of war on chronic pain.

#### USE OF HEALTHCARE SETTINGS, TREATMENT MODALITIES AND CHRONIC PAIN

People with chronic pain use healthcare settings, mainly general practitioners and emergency departments, twice as much as people without chronic pain [4, 11]. Results showed that 60% of participants with chronic pain visited their doctors, mostly general practitioners, in the last six months between 2-9 times, and 11% at least ten times ; only 2% were seen by pain management specialists, 12% reported that their doctors never assessed their pain, and 9% said that their doctors used a pain scale to assess their pain [10].

The use of exercise, taking medications mainly analgesics, opioids, anxiolytics, and antidepressants, resting and the use of hot and cold packs were the most reported treatment modalities used by patients with chronic pain [6, 11]. In the pan-European study, the most non-drug modalities used were massage, physical therapy, and acupuncture ; 36% of participants were taking one or two non-prescription medications ; 44% of those taking prescription medications were taking NSAIDs, 23% weak opioids, and 5% strong opioids [10]. People with high socio-economic status reported more the use of active coping strategies like exercise as treatment modalities for chronic pain, less medication usage and fewer days of sick leave than those with lower socio-economic status [6]. Almost 40% of the European population studied by Breivik et al. [10] reported dissatisfaction with the treatment they were receiving and 38% were not satisfied with the physician treating their pain.

In the UK, in a study determining the use of conventional and alternative practitioners and medicines, GP was the most frequently consulted practitioner. Individuals with back pain or neck/shoulder pain consulted physical and alternative therapists more than individuals with pain elsewhere. Prescription and non-prescription medications were taken by 58.4 and 57.4% of individuals with chronic pain, respectively, and alternative medicine was used by 15.7% of individuals with chronic pain [26].

Opioids have been used liberally for many years in many countries in the treatment of chronic non-malignant pain although this practice is still controversial [11, 29-31]. Eriksen and colleagues [11] reported that opioid use was significantly associated with reporting of moderate to severe pain, poor self-rated health, unemployment, higher use of healthcare systems, and had a negative influence on quality of life.

Although opioid use is still very controversial in chronic pain management, its use and abuse are increasing at an alarming rate [31]. The American Society of Interventional Pain Physicians [31] has provided guidelines for the use of opioids in chronic non-malignant pain in order to bring consistency in opioid prescription. It was also done in response to the inadequate treatment of pain that has

been attributed to a lack of knowledge about pain management options, inadequate understanding of addiction, or to fears of investigation or sanction by federal, state, and local regulatory agencies [31]. These guidelines are intended for use by interventional pain physicians, and they do not represent standards of care. They are flexible recommendations that can be modified based on the patient's medical condition, personal needs and preferences, as well as the physician's experience. The guidelines will help in improving patient compliance, improving patient care with appropriate medical management, reducing misconceptions among providers and patients about opioids, improving ability to manage patient expectations, reducing abuse and diversion, improving cooperation among patients, providers, and regulatory agencies.

Lebanon lacks legal policies regarding pain control measures especially opioids ; at present morphine prescriptions can only be given to cancer patients by medical oncologists. Furthermore, Lebanon lacks pain specialists and pain clinics, as well as adequate preparation of health-care professionals in pain management [32]. In Lebanon, patients with chronic pain are not prescribed potent opioids such as Morphine and Fentanyl. Many factors continue to play a major role in prohibiting the use of such medications for the treatment of chronic pain and they are mainly related to regulations set by the Ministry of Health (MOH) in addition to social and administrative factors.

#### WORK, LITIGATION AND CHRONIC PAIN

All those suffering from chronic pain reported restrictions in their work performance, in addition to reporting more days of sick leave, and becoming unemployed because of chronic pain [3, 10-11, 15]. Unemployment was also correlated with higher scores of depression in people with chronic pain [7]. In the study by Blyth et al. [5], 68.5% reported continuing work despite the presence of chronic pain, but most reported reduced effectiveness. Of the sample studied, 8.7% were involved in some legal issues related to their pain, which was more prevalent in males than females. In Europe, one in four said their chronic pain affected their employment [10].

#### ATTITUDES AND BELIEFS ABOUT CHRONIC PAIN

In the pan-European study, 40% of participants felt that their pain prevented them from functioning properly, felt helpless, and were not able to concentrate and 16% wished for death because of their pain [10]. McCracken [27] investigated the relationship between the social context and acceptance of chronic pain and found a negative correlation between the solicitous, punishing and distracting responses of significant others and acceptance of chronic pain. In the study by Breivik et al. [10], around 30% of participants with chronic pain thought their significant others did not believe the intensity of their pain, and one in four to five considered their families, colleagues, and their doctors to be insensitive to their pain problem.

#### CONCLUSION

This review highlights the impact that chronic pain has on physical and mental health, daily activities, family relationships, employment, and economic well-being of the sufferers and family caregivers. The high prevalence of chronic pain will have an impact on the health and economic well-being of societies and nations at large.

In Lebanon, the prevalence of chronic pain has never been studied. The Lebanese people have been living with the turmoil of war and instability for around 30 years. Several barriers to effective pain management have been reported by Abu-Saad Huijer & Daher [33] and Daher et al. [32] ; all these factors make it increasingly important to study the prevalence of pain and its correlates at the national level. This review provides a baseline for future research in this field which will help determine the extent of the problem and will provide strategies for the prevention and management of chronic pain in Lebanon.

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