



Specialized Rural Pain Clinics: Lessons for a Small Country like Lebanon

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Abstract

Background: People with chronic pain and who live in rural communities often lack access to pain specialists. They end up relying on primary care providers who may be less prepared to deal with their conditions.

Purpose: The purpose of this study is to survey the existence of specialized pain clinics/services in rural Lebanon. It also aims at highlighting the importance of the existence of such clinics/services rurally.

Method: A review of the literature about pain in Lebanon was conducted using PubMed, Medline, Google Scholars, and Research Gate. Another search was conducted using Google Maps to locate any specialized pain clinics in the rural areas. The Lebanese Society for Pain Medicine was also contacted for information about the distribution of specialized pain clinics/services in Lebanon.

Results: Our results showed that the total number of pain clinics/services in Lebanon is ten. They are distributed as follows: Five in Greater Beirut including Metn (50%), one in North Lebanon (10%), two in South Lebanon (20%), one in Beqaa (10%), and one in Mount Lebanon (Chouf, Aley, Kesrouan/Jbeil) (10%). The majority (90%) of these services are hospital-based and are governed by the Anesthesia Departments. Moreover, a comprehensive palliative care approach towards pain management in terminally-ill cancer and non-cancer patients is still lacking nationwide.

Conclusion and implications: Rural Lebanon is still significantly underserved as far as the existence of specialized pain clinics is concerned. This calls for a quick interference by the health officials considering the fact that a significant proportion of Lebanese people live in the rural areas. In parallel, the international approaches to palliative care for chronic pain should be adopted. Lastly, an alternative to out-of-pocket payment for the consultation fees and treatments should be taken into consideration.

Keywords: Specialized pain clinic, Rural health, Lebanon.

Abbreviations: INCPAD-Indiana Cancer Pain and Depression, ASCO-American Society of Clinical Oncology, CNCP-Chronic Non Cancer Pain, COT-Chronic Opioid Therapy, CP- Clinical Pathway, IDET- Intra Discal Electrothermal Annuloplasty.

Introduction

Rural areas have exceptional health deliberations that eventually consequence in persistent health discrepancies in outcomes [1-5]. These discrepancies occur both when comparing urban to rural groups, and when comparing rural subgroups to each other. Rural communities tend to have unique health problems, economic concerns, demographic characteristics, resource shortages, and cultural behaviors that culminate together and thus affect the health of the residents [1,2,6-12]. Three of the most urgent challenges faced by rural residents are poverty, education, and access to proper health services.

Among such proper health services comes the importance of the existence of specialized pain clinics in the rural settings. This is based on the fact that the majority of the rural populations are farmers or technicians, jobs that are often physically demanding and have high risks of strenuous physical injuries, let alone exposure to hazardous chemicals. Adding to such risks is the continuous mental

pre-occupation by the idea of financial survival in the rural villages, which make the rural residents end up seeking help in relation to not only physical pain but also to psychosomatic one. Pain is a natural phenomenon. It acts as an alarming sign that something is going wrong inside our body, or could occur as a consequence of exposure to thermal, chemical, or physical injuries. Chronic pain is more than simply an unpleasant physical feeling. It brings one down on an emotional level too. In fact, one of the main reasons behind depression is chronic pain, which makes the sufferer goes into a vicious cycle, whereby chronic pain leads to depression and the latter in turn increases the perception of the pain. The end product is damage to both mental and physical health. Globally, 8 of the 12 most disabling conditions are related either to chronic pain or to the psychological conditions strongly associated with persistent pain [13].

Non-malignant chronic pain is one of the most common reasons for primary care visits in urban cities, let alone in rural areas. However,



rural areas do also have health care disparities, which add to the problem itself. Such disparities have been documented in relation to culture, beliefs, access to health care, socioeconomic status, gender, and race. They even have influenced pain management, since rurality as a social determinant of health has influenced opioid prescribing [14]. In a small country like Lebanon, where more than half of the population lives outside the capital city Beirut, the availability of and accessibility to specialized pain clinics in rural areas remain a major health concern. According to the 2017 statistics, the population in Lebanon reached 6,229,794 [15]. This includes around 1.5 million Syrian refugees, and another half-a-million Palestinian refugees. Rural Lebanon is made of four main geographic regions, namely South Lebanon, North Lebanon, Bekaa, and Mount Lebanon (Table 1). We aimed in this study at surveying the existence of specialized pain clinics/services in rural Lebanon, and at reflecting on the importance of the availability of such clinics/services rurally.

Rural Region		Area (Km ²)	Population	Density per Km ²	Number of Municipalities
South Lebanon	Nabatieh	1,098	368,077	335	117
	South	930	578,195	622	146
North Lebanon	Akkar	788	389,899	495	127
	North	1,236	782,436	633	144
Beqaa Region	Baalbek-Hermel	3,009	416,427	138	82
	Beqaa	4,429	536,768	121	86
Mount Lebanon	Baabda, Aley, Chouf, Matn, Keserwan, Jbeil	1,822	1,372,240	753	326

Table 1: Distribution of Rural regions in Lebanon, and their Demographics.

Materials and Methods

PubMed, Medline, Google Scholars, and Research Gate were the four search engines used. We conducted separate searches using a combination of any of the following MeSH terms “pain, pain clinic, pain intervention, palliative care, migraine, headache, low back pain, neck pain, shoulder pain, fibromyalgia, musculoskeletal pain, psychosomatic pain, osteoporotic pain, neuropathic pain, non-neoplastic pain, neoplastic pain, cancer pain, pediatric pain, elderly pain”, and “Lebanon”. We searched for such MESH terms in the title and/or abstracts of the published articles. We then filtered the articles based on those pertaining to human studies and published in English. No time-frame was used to filter out old versus new publications.

Google Maps was used as a GIS engine to locate any specialized pain clinic in the rural areas. The Lebanese Society for Pain Medicine was finally contacted to confirm the results obtained by Google Maps about the distribution of specialized pain clinics/services in Lebanon.

Results

Our literature search revealed 678 publications that included one or more of the MeSH terms described in the Materials and Methods section (Table 2). These publications were then filtered to human studies and in English, followed by manual selection based on relevance of the selected publications there were 70 hospital-based pain studies (45%), as compared to none in non-hospital-based specialized-pain clinics (0%). The majority (99%) of these 70 publications were conducted in Greater Beirut (Beirut City and the surrounding suburbs), as compared to one study (1%) conducted in Rural Lebanon. The Anesthesia specialty governed 74% of these studies, as compared to 26% conducted under other medical or surgical departments. There were 19 publications (12%) referring to palliative care.

Our results also showed that there are currently ten specialized pain settings in Lebanon. Greater Beirut (Capital City and surrounding suburbs, including Metn) hosts 50% of these settings, while the remaining ones are distributed in Rural Lebanon as follows: 1% in North Lebanon, 2% in South Lebanon, 1% in Beqaa, and 1% in Mount Lebanon (Chouf, Aley, Kesrouan/Jbeil) (Table 3).

Total number of publications found N	678
Total number of publications filtered to “Human” studies, and in “English” N	473
Total number of manually-selected publications based on relevance and following filtration to human studies and in English N (%)	155 (100%)
Hospital-based publications N (%)	70 (45%)
Non-Hospital, Specialized-Pain-Clinic-based-publications N (%)	0 (0%)
Hospital-based publications in Greater Beirut (Capital City of Lebanon and its surrounding suburbs) N (%)	69 (99%)
Hospital-based publications in Rural Lebanon N (%)	1 (1%)
Anesthesia Department- governed studies N (%)	52 (74%)
Non-Anesthesia Department- governed studies N (%)	18 (26%)
Studies referring to Palliative Care N (%)	19 (12%)

Note: Search engines used PubMed, Medline, Google Scholars, and Research Gate.

Table 2: Publications about pain in Lebanon.

	Greater Beirut including Metn N (%)	Rural Lebanon			Total N (%)	
		North N (%)	South N (%)	Beqaa N (%)	Mount Lebanon (Chouf, Aley, Kesrouan/Jbeil) N (%)	
Specialized Pain Settings in Lebanon	5	1	2	1	1	10
	50%	10%	20%	10%	10%	100%

Table 3: Distribution of Specialized Pain Settings in Lebanon.



Discussion

There were a few striking and surprising features observed in this study. First, specialized pain clinics or polyclinics are still lacking in

Lebanon. Second, pain management is still hospital-based, and is in the capital city and its suburbs, leaving rural Lebanon underserved. Third, the majority of pain management is still conducted through the Anesthesia Department. Fourth, complementary, alternative and integrative medicine, including palliative care, still has a long way to go in Lebanon. Fifth, opioids analgesia for terminally ill cancer and non-cancer patients has not yet been addressed efficiently by both the public health and legislation authorities in the capital city Beirut, and the situation is even worse in rural areas of Lebanon.

Lebanon is a small low-income country where a significant proportion of the population reside outside the capital city, namely in the North, South, Beqaa, and the mountain. Despite the continuous help and attempts of the international community to develop such rural areas of Lebanon, proper and structurally functional health care systems and services are still lacking. This becomes more evident when referring to pain management, be it for inpatients or outpatients.

Pain in low- and middle-income countries, and in rural areas

Pain is often classified as mild, moderate, severe, dull, sharp, localized, diffuse, sudden, chronic, or as a combination of two or more. Regardless to which of these categories it belongs, it remains an unpleasant sensation that affects the rich and the poor, the educated and uneducated, the peasant and the senior official, the baby, infant, adolescent, toddler, teenager, adult, and elderly. It is a universal phenomenon regardless of the human race, religion, or location on planet earth. However, what is different about pain in various countries is how the health care system is set to alleviate such human suffering, especially in rural underprivileged communities. In a study conducted by Jackson and colleagues, the authors investigated the psychosocial and demographic links with chronic pain solely from Low and Middle-Income Countries (LMICs), and compared them with current data worldwide [13]. Correlation with rural/urban location, gender, age, education level, insomnia, depression, anxiety, posttraumatic stress, disability, income, and additional sites of pain was studied for each type of chronic pain without clear etiology. Pain was reported in association with disability in 50 publications, female gender in 40 publications, older age in 34 publications, depression in 36 publications, anxiety in 19 publications, and multiple somatic complaints in 13 publications. Females, old patients, and labors in low-education and low-income subgroups were more likely to have pain in multiple sites, disabilities, and mood disorders. The authors concluded that recognition and management of pain are especially crucial in resource-poor geographic locations like rural areas [13].

Recognition and management of pain in rural areas has also been addressed by a recent study conducted by Katzman and colleagues through the ECHO Pain project [16,17]. It is a creative telementoring program for health professionals, which was created in 2009 at the University of New Mexico Health Sciences Center to fill considerable gaps in pain management expertise in rural areas. Substantive proceeding with instruction for clinicians who practice in provincial and underserved networks assembles week after week by methods for telehealth innovation. Demonstrations, case-based learning, and didactics are incorporated into the inter-professional program to improve pain management in the primary care setting. The project has proven to be a successful continuing professional development program. The telementoring model seems to compensate for the large knowledge gap in pain education seen in primary care and other settings. Expertise is conveyed by implementing effective, work-based and evidence-based education for diverse health professionals [16].

Living in rural areas, especially in poor countries, is often associated with low income, stress, work-related injuries, and boredom, to name a few, leading to psychological distress, severity of medical illness and dysfunction in conjunction with psychosomatic pain [18]. Thurston-Hicks and colleagues studied functional impairment accompanying severity of medical illness and psychological distress in rural primary care inhabitants, and investigated how such impairment speckled with chronic medical illness and psychological distress. The authors reported that the functional impairment was explicated more by psychological distress than by severity of medical illness. They concluded that decreasing the burden of psychological distress among primary care patients may improve functioning [19]. Other studies investigated work-related injuries in rural areas resulting in pain that is associated with musculoskeletal disorders (MSDs) [6]. Antonopoulos and co-workers reported that MSDs were common in patients attending the rural primary care centers in rural Greece, and were associated with a poor quality of life and mental distress that affected their consultation behavior [20]. The authors also reported that fewer patients seek care than those who report symptoms [10]. Dunstan & Covic suggested that independent, rural or community-based practitioners, working collaboratively using an integrated treatment program, can yield optimistic results for pain-disabled injured workers, and attain results similar to those conveyed by urban-based pain clinics [21].

Migraine

There seems to be a shift in low-resource nations, whereby the third epidemiological transition is becoming prevalent and is characterized by an increase in the burden of non-communicable health issues. Headache and related disorders make up a substantial proportion of such health issues. Population growth involving youthful demographic, and significant rural-urban migration have been witnessed in low-resource countries. Youthful demographic is often the natural cohort for migraine, and socioeconomic mobility and modern lifestyle associated with physical inactivity and obesity are all contributing to headache. Life expectancy is rising in some resource-restricted countries. This upsurge the incidence of secondary headache credited to neurovascular causes. Health care services are chiefly designed to respond to infectious epidemic, and not to evolving burden like headache, especially in low-resource-restricted settings that often suffer from ill-equipped regimes with malfunctioning health policies. As such, headache treatment and the know-how are scarce in these countries. Addressing the increasing burden of headache and related disorders in resource-limited settings is essential to avoid disability, which in turn decreases the socioeconomic performance in a young booming populace [22].

Palliative Care

Palliative care and the provision of pain relief medicine are essential components of health care. Palliative care has been an evolving science, and a rapidly growing specialty in medicine, nursing, and allied health professions in first-world countries. Palliative care teams now consist of oncologists, neurologists (pain specialists), palliative care nurse specialists, complementary and alternative (integrative) medicine specialist (naturopathic medicine), clinical pharmacists, clinical psychologists, and sociologists. Palliative care was first identified as a need for terminally-ill cancer patients, but has been evolving ever since to address chronic pain and related comorbidity in non-cancer patients [23,24].

In rural areas, the elements that hinder the provision of palliative care include inadequate access and readiness of pain medication, and providers' link of palliative care with end-of-life care. Satisfactory pain relief is often not a priority in a busy health care setting. Guaranteeing patients receive adequate relief for their pain requires interferences at both the clinical and policy levels. This includes the continuous supply of needed pain medications, and the training in palliative care for all providers [24].



Pain and depression are common and treatable symptoms among cancer patients, but they are frequently undertreated and undetected either due to cost or inexperience [18]. In a study conducted by the Indiana Cancer Pain and Depression (INCPAD) trial aiming at exploring the incremental cost effectiveness of the INCPAD intervention, the authors reported that telecare management coupled with automated symptom monitoring can improve pain and depression outcomes in cancer patients, and can be cost effective [25]. In 1998, the American Society of Clinical Oncology (ASCO) surveyed its members to evaluate the practices, challenges, and attitudes associated with end-of-life care of cancer patients. Pediatric oncologists conveyed a deficiency in formal courses in pediatric palliative care, and a need for strong role models in this area. The lack of a reachable pain service or palliative care team was often identified as a barrier to good care. Another identified hurdle was the communication difficulty that exists between parents and oncologists, especially regarding the shift to end-of-life care and adequate pain control. Integration of palliative care into the routine care of the seriously ill children through symptom control and psychosocial support has been put in place [26].

Another approach to palliative care that has been evolving as well is complementary and alternative (integrative) medicine (CAM), which also includes herbal medicine (naturopathic medicine). Although it is beyond the scope of this manuscript to highlight the pros and cons of CAM, we limit this section to two important studies for that matter. Guo and colleagues conducted a systematic review and meta-analysis on the efficacy of injecting the compound Kushen (CKI) in relieving cancer-related pain. Sixteen trials were identified with a total of 1564 patients. The total pain relief rate of CKI plus chemotherapy was better than chemotherapy alone, except for colorectal cancer. The treatment groups achieved a reduction in the incidences of leukopenia, as well as hepatic, gastrointestinal, and renal functional lesions [27]. In another study conducted by Denneson and co-workers, the authors reported on prior use and willingness to try CAM among 401 veterans experiencing chronic non-cancer pain, and explored the differences between CAM users and nonusers. Participants, who were recruited in a randomized controlled trial of a collaborative intervention for chronic pain from five Department of Veterans Affairs (VA) primary care clinics, self-reported prior use and willingness to try CAM. The authors detected few differences between veterans who had tried CAM and those who had not, suggesting that CAM may have broad appeal among veterans with chronic pain [28].

Opioid Therapy

Opioid therapy is often controversial and debatable when it comes down to prescription [29-31]. This is usually due to fear of abuse and addiction. However, the rules have been more lenient in the past decade, especially when dealing with pain in terminally-ill cancer patients, but predominantly in the urban and not in the rural areas. The universal framework to be yet established for using opioids for chronic pain that is not associated with cancer remains to be seen in both geographic areas as well. For clinicians, using opioid therapy for chronic non-cancer pain (CNCP) often results in a conflict between treating their patients' pain and fears of diversion of medication, legal action, or addiction. These consequent stresses on clinical encounters might in turn unfavorably affect some elements of clinical care. Buckley and co-workers evaluated a possible association between Chronic Opioid Therapy (COT) for CNCP and receipt of various preventive services. The authors found that patients using COT for CNCP were less likely to receive some preventive services, such as cancer and lipid profile screening and smoking cessation counseling [32]. Studies elsewhere have shown that rural citizens with persistent ache are much more likely to receive an opioid prescription than non-rural residents. Opioids were taken for pain alleviation through 76% of the rural citizens, as compared with 52% of the non-rural residents [33].

Pain Specialists

There are still some debates about the identification of the pain specialist, including his/her training background, specialty, and professional and career development in relation to pain management [34]. In a study conducted by Breuer and colleagues, the authors determined the profiles of the board-certified pain physician workforce, and the profiles of those residing near medical pain practices [35]. The 750 respondents were similar to the entire board-certified group in geographic distribution, age, and primary specialty. Pain practices were found to be underrepresented in rural areas. The majority of pain physicians treated chronic pain; 31% worked in an academic environment; 84% followed patients longitudinally; 29% focused on a single modality; and 50% had an interdisciplinary practice. Academics were more likely to be neurologists, and to have had a pain fellowship. Modality-oriented practitioners were more likely to be anesthesiologists, and were less likely to provide training to fellows, follow patients with chronic pain longitudinally, require an opioid contract, or prescribe controlled substances. The authors reported that although boarded specialists could benefit from similar curricula and must pass a certifying examination, their practices varied considerably. They concluded that data are needed to further elucidate the nature of workforce disparity, its impact on patient care, and the role of other pain management clinicians [35].

Other studies demonstrated that a Clinical Pathway (CP) enhances pain management in palliative care. However, studies on CPs in home palliative care, especially in rural areas, are little. Physicians performing palliative care in rural areas frequently face characteristic difficulties, and CP could be an effective tool to overcome such difficulties. Moreover, it could improve adherence to the pain management guidelines set by WHO [36].

The specialized pain clinic

The emergence of pain specialists, and his/her integration in the palliative care team as being an essential member who could function with the team inside and outside the hospital boundaries have led to the establishment of specialized pain clinics in first world countries. Such clinics are venues where patients from all age groups irrespective of the etiology of their pain, be it medical, surgical, orthopedic, traumatic, oncological, etc., are examined and treated. Visitors of these clinics include patients with cancer, back pain and radiculopathy, acute herpes zoster and post herpetic pain, facial neuralgias (trigeminal, occipital, others), painful peripheral neuropathy (diabetic, drug induced after chemotherapy and anti-tubercular treatment), headaches including migraine, central pain syndromes (deafferentation pain) of stroke, phantom limb pain and post-amputation stump pain, chronic pelvic pain particularly in women, myofascial and head and neck pain syndromes, fibromyalgias, unusual pain conditions like HIV, etc. [21,37-50].

The clinic should be equipped with fluoroscopy for pinpointing accuracy of the nerve blocks, nonionic radioopaque dyes, steroids like triamcinolone or depomedrol that have a slow release formulation which sustains the anti-inflammatory effect for two to three months to ensure that the nerve heals over that time, a safe technique like radiofrequency for denervation instead of neurolytic agents like phenol and alcohol which can give rise to neuropathic pain by themselves, implants like spinal cord stimulators for treating the pain of chronic backache, refractory angina, failed back surgery etc., intrathecal pumps tunneled subcutaneously to a pouch in the front of abdomen for other types of chronic pain and cancer pain, discography to pinpoint the intervertebral disc to be removed thereby avoiding failure of back surgery, needle procedures like Intra Discal Electro-thermal annuloplasty (IDET), and nucleoplasty to replace major invasive back surgery.



Conclusion

We attempted in this study to shed the light on a universal phenomenon that could strike anybody, anytime, anywhere, and that is pain. Pain management in Lebanon still needs proper organization and legislation at various levels. Pain management protocols should be established for inpatients and outpatients, and should be unified across the country. Special efforts should be targeted towards establishing specialized pain polyclinics, and rural areas should be given upmost priority. Palliative care, be it for cancer or non-cancer patients with chronic pain, should be a priority, and lessons learned from worldwide studies should be used to shorten the time frame needed to establish the system in Greater Beirut, and in the rural areas of Lebanon, namely North, South, Beqaa, and the Mountain.

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