Impact of Chronic Pain on Patients' Quality of Life: A Comparative Mixed-Methods Study

Muhammad Abdul Hadi, BPharm, MClinPharm, PhD[1] ,
Gretl A McHugh, MSc, PhD[2], and S José Closs, BSc, PhD[2]

Abstract

Background: Chronic pain has become a common problem within primary care and can negatively impact patients' lives. **Objective:** To assess and explore the impact of chronic pain on patients' quality of life (QoL) using quantitative and qualitative data, respectively. **Methods:** A convergent parallel mixed-methods design was used. Chronic pain patients were recruited from a community-based pain clinic located in the North of England. Quality of life was assessed using Short-Form 36 version 2. Quality of life data were also extracted from the Third Oxford and Lifestyles Survey and Welsh Health Survey to allow comparison of QoL of chronic pain patients with that of the general population and patients with long-term conditions. Qualitative interviews were conducted face-to-face using a semistructured topic guide. Quantitative data were analyzed using SPSS version 24 and qualitative data were analyzed thematically. **Results:** Seventy-nine patients participated in the quantitative phase. The mean (standard deviation) age was 46.5 (14.5). Lower back (54; 68.3%) followed by lower limb were the most common pain sites. Compared with the general population and patients with long-term conditions, chronic pain patients had significantly lower mean QoL scores across all domains of SF-36 (All $P < .05$). Six themes emerged from qualitative data: interference with physical functioning, interference with professional life, interference with relationships and family life, interference with social life, interference with sleep, and interference with mood. **Conclusion:** The multidimensional negative impact of chronic pain leads to poorer QoL among patients with chronic pain compared to the general population and patients with other long-term conditions.

Keywords

chronic pain, quality of life, mixed-methods, SF-36, qualitative

Introduction

Affecting approximately 1 in 5 adults in Europe (1), chronic pain is one of the most prevalent chronic disease conditions and has been identified as a global public health research priority (2). The direct and indirect costs associated with chronic pain have been estimated at €200 billion in Europe (3) and between US$560 and US$635 billion in the United States (4). The multidimensional nature of chronic pain makes its effective management challenging, especially within primary care settings (5). Subsequently and alarmingly, dissatisfaction with current treatment has been reported by almost two-thirds of chronic pain patients.

From physical well-being to mental health (MH), chronic pain interferes with all aspects of patients' lives (1,6). The impact of chronic pain on patients' lives has been well reported in the literature (1,6–9). Traditionally, researchers have used either qualitative (9–11) or quantitative research

methodologies (1,12,13) to assess the impact of chronic pain on patients' quality of life (QoL). However, to the best of our knowledge, no study has used a mixed-methods methodology to study the impact of chronic pain on patients' QoL. Although frequently used in research and clinical decision-making, questionnaire-based assessments of QoL have been criticized for not being "patient centered" as it can be argued that QoL is an individual construct and the use of preselected

[1] Leicester School of Pharmacy, De Montfort University, Leicester, United Kingdom
[2] School of Healthcare, University of Leeds, Leeds, United Kingdom

Corresponding Author:
Muhammad Abdul Hadi, Leicester School of Pharmacy, De Montfort University, Room 00.11 Hawthorne Building, The Gateway, Leicester LE1 9BH, United Kingdom.
Email: muhammad.hadi@dmu.ac.uk

structured responses and domains may not essentially represent individuals' health status (14). On the other hand, developing qualitative research themes in routine clinical practice is not practical. Therefore, in this study, qualitative and quantitative data have been combined in order to develop an in-depth understanding of the impact of chronic pain on patients' health-related quality of life (HRQoL).

This article presents a secondary analysis of quantitative and qualitative data obtained during a larger mixed-methods study evaluating the effectiveness of a community-based nurse–pharmacist-managed pain clinic. The study protocol and results of the main mixed-methods study have been described elsewhere (15–17). The aim of this present study was to understand the impact of chronic pain of patients' HRQoL using mixed-methods methodology and to compare chronic pain patients' HRQoL with patients with long-term conditions.

Methods

Study Design

Mixed-methods methodology was adopted for this study. Mixed-methods methodology is frequently used within the health-care research (18–20), and its use has been advocated in QoL research as it combines strengths of both quantitative and qualitative methodologies (21). Among a number of mixed-methods designs available, the convergent parallel design was adopted in the present study (22). In convergent parallel design, qualitative and quantitative data are collected and analyzed independently and given equal priority in answering the research question (22). Mixing of qualitative and quantitative components occurs during interpretation. The convergent design is best suited for "obtaining different but complementary data on the same topic (23)" overcoming weaknesses of one method and developing a more complete understanding of the research problem.

Data Collection

Quantitative data. All patients attending a community-based nurse–pharmacist managed pain clinic in the north of England between January 31, 2012, and September 31 2012, and meeting the following inclusion/exclusion criteria were invited to participate in the study. The inclusion criteria were age >18 years, history of pain for >3 months, and adequate ability to read and understand English. Pregnant women and patients with malignant pain, psychiatric disorders, or requiring acute medical/surgical intervention for their pain relief were excluded from the study.

All included patients completed The Brief Pain Inventory (24), the Hospital Anxiety and Depression Scale (25), the Short Form-36 Health Survey (SF-36v2) (26), and the Chronic Pain Grade questionnaire (27). Demographic and clinical data were collected using a standardized, pilot-tested, and structured questionnaire by reviewing case notes

and patient interviews. Only QoL and demographic data are presented in this article.

The Short Form-36 Health Survey is a generic measure of QoL and consists of 8 subscales: physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), emotional role, and MH (26). The validity and reliability of SF-36 is well established in different disease conditions and settings (28,29). Scores for each variable are summed, then transformed into a Likert scale ranging from 0 (worst) to 100 (best) (26). In order to compare the QoL of chronic pain patients to patients with other long-term conditions, data were also extracted from the Third Oxford and Lifestyles Survey (OHLS-III) (30) and Welsh Health Survey (WHS) (31). Third Oxford and Lifestyles Survey was a postal survey conducted in 4 English counties (Berkshire, Buckinghamshire, Northamptonshire, and Oxfordshire) (30). Of the 13 800 participants invited, 8889 adults between the age of 18 and 64 participated in the survey. For WHS, 13 917 adults older than 16 years were invited to participate. Data were collected through face-to-face interviews (response rate = 74%) and self-completed questionnaires (response rate = 84%) between January and December 2007 (31). Both of these surveys used SF-36 to assess QoL (30,31).

Qualitative data. Qualitative data were collected through face-to-face semistructured interviews (16). The interviews were conducted at either in patients' homes or at the pain clinic, depending on the patients' preference. A research pharmacist (M.A.H.), trained qualitative researcher, interviewed patients individually within 2 weeks after their discharge from the pain clinic. Interviews were audio-recorded. Each interview lasted between 30 and 45 minutes. Patient recruitment continued until "data saturation." A combination of convenience sampling and maximum variation sampling (32) was used to recruit patients from the pool of patients who participated in quantitative phase. The first 5 patients were recruited using convenience sampling technique, and the rest was recruited using maximum variation sampling. The maximum variation framework was developed based on gender, duration of chronic pain, and pain score to allow diversity of views. Initially for the first 5 interviews, convenience sampling was used and patients meeting the inclusion/exclusion criteria and consenting for an interview were recruited. A semistructured interview schedule was developed based on the literature and study objectives to guide the interviewer. The interview schedule guide covered the following areas: patients' experiences of living with chronic pain (impact on PF, sleep, emotions, etc), interaction with general practitioners (GPs)/primary care physicians and other health-care providers, experiences of the referral system, expectations of the pain clinic, efficacy of the service, and overall experiences. Patients were also provided with an opportunity to talk about any other issue related to chronic pain that was not covered during the interview.

Data Analysis

Qualitative and quantitative data were analyzed independently. All quantitative data were entered and analyzed using SPSS version 24. The SF-36 was scored using a scoring software provided by Quality Metric Incorporated (Lincoln, Rhode Island), and once scored, data were exported to SPSS. Health-related QoL data were also extracted from the OHLS-III (30) and WHS (31) in order to compare chronic pain patients' QoL with these 2 data sets. One-sample *Z*-test was used to compare mean scores of each of the 8 subdomains of SF-36 across 3 data sets. All statistical tests were 2 tailed and a *P* value less than .05 was considered statistically significant.

Qualitative data were analyzed using thematic analysis (32). A professional transcriber transcribed all interviews verbatim. The first author (M.A.H.) checked all interview transcripts for accuracy. Line-by-line coding mechanism was used to code each interview and a coding framework was developed. For quality assurance purpose, 2 senior qualitative researchers (Prof. Michelle Briggs, S.J.C.) checked 2 of the coded transcripts independently. Subsequently, the initial coding framework was revised. Different codes were then sorted into potential themes. As the new themes emerged, old themes were reviewed and renamed, if required. The iterative process continued until no new themes emerged.

Rigor and trustworthiness of qualitative findings were ensured by adopting 2 methods: peer review/debriefing and providing rich thick description (32). The research team held regular monthly meetings to discuss data collection, analysis, and interpretation as part of peer review/debriefing. To ensure transferability of study findings, a detailed description of the study settings, participants, sampling technique, and data analysis method has been provided.

Results

Quantitative Phase

Seventy-nine patients participated in the quantitative phase. The mean (standard deviation [SD]) age of patients was 46.5 (14.5) years (range: 22-86). The majority of the patients were female (67.1%). More than a quarter of the patients (25.3%) were unemployed due to pain (Table 1). Low back (68.4%) followed by lower limb (58.2%) were the most commonly reported pain sites. Of these, 43% of the patients had no other comorbidities.

The mean (SD) SF-36 scores for each of the 8 SF-36 domains were: PF 31.8 (27.2), RP 25.2 (26.6), BP 17.7 (14.9), GH 35.8 (22.4), VT 26.9 (21.6), SF 31.7 (26.1), ER 49.4 (35.1), MH 49.5 (23.0), physical component summary (PCS) 27.9 (9.5), and mental component summary (MCS) 35.4 (14.1). Chronic pain patients had significantly lower score across all 8 domains of SF-36 compared with that of the English (OHLS-III data) and the Welsh (WHS data) general population (all *P* < .0001; Tables 2 and 3). Similarly,

Table 1. Selected Sociodemographic Characteristics of Patients Included in Quantitative Phase.

Characteristic	n (%)
Age (mean: 46.5; SD: 14.5); range: 22-86	
18-35	18 (22.8)
36-50	37 (46.8)
51-65	17 (21.5)
>65	7 (8.9)
Gender	
Male	26 (32.9)
Female	53 (67.1)
Employment status	
Public	3 (3.8)
Private	19 (24.1)
Self-employed	3 (3.8)
Retired	14 (17.7)
Unemployed (pain)	20 (25.3)
Unemployed (other reason)	14 (17.7)
Student	2 (2.5)
Undisclosed	4 (5.1)
Ethnicity	
White	67 (84.8)
White others	3 (3.8)
Asian/Asian British	6 (7.6)
Arab	2 (2.5)
Undisclosed	1 (1.3)
Pain sites[a]	
Head, face, and neck	39 (49.4)
Upper shoulder	28 (35.4)
Thoracic region	7 (8.8)
Abdominal region	5 (6.3)
Low back	54 (68.3)
Lower limb	46 (58.2)
Pelvic region	7 (8.8)
Anal, perineal	2 (2.7)
Pain duration (years)	
<1 year	13 (16.5)
1-3	21 (26.6)
3-5	19 (24.1)
5-10	17 (21.5)
>10	9 (11.4)
Number of comorbidities	
None	34 (43.0)
1	19 (24.1)
2	15 (19.0)
3	10 (12.7)
4	1 (1.3)

Abbreviation: SD, standard deviation.
[a]Patients reported more then one pain site.

statistically significantly lower QoL scores were found among chronic pain patients compared to patients with long-term conditions in OHLS-III study and patients with limiting illness in WHS (all *P* < .0001; Tables 2 and 3).

Findings of qualitative phase. Nineteen patients were interviewed in the qualitative phase (Table 4). The patients reflected on the multidimensional negative impact of chronic pain which they found hard to describe to people.

Table 2. Comparison of QoL of Chronic Pain Patients (Present Study) With Participants Having No Long-Standing/Chronic Illness Between the Wales Health Survey (WHS) and the OHLS-III.[a]

Domain	Chronic Pain Patients		Patients With No Long-Standing Illness (OHLS-III)			Patients With No Limiting Illness (WHS)		
	N	Mean (SD)	N	Mean (SD)	P Value	N	Mean (SD)	P Value
PF	78	31.8 (27.2)	4962	94.0 (12.4)	.0001	9024	90.2 (18.9)	.0001
RP	78	25.2 (26.6))	5052	93.9 (13.3)	.0001	9306	92.0 (18.3)	.0001
BP	78	17.7 (14.9)	5078	87.1 (16.6)	.0001	9428	81.3 (21.5)	.0001
GH	77	35.8 (22.4)	4999	78.4 (15.6)	.0001	9331	75.4 (17.4)	.0001
VT	79	26.9 (21.6)	5076	62.9 (17.2)	.0001	9354	64.0 (18.6)	.0001
SF	78	31.7 (26.1)	5069	88.3 (18.4)	.0001	9438	90.3 (18.6)	.0001
ER	77	49.4 (35.1)	5058	89.6 (16.8)	.0001	9339	93.7 (16.8)	.0001
MH	79	49.5 (23.0)	5073	75.3 (16.1)	.0001	9335	77.7 (16.2)	.0001
PCS	74	27.9 (9.5)	4741	53.6 (5.9)	.0001			
MCS	74	35.4 (14.1)	4741	51.3 (9.0)	.0001			

Abbreviations: BP, bodily pain; ER, emotional role; GH, general health; MCS, mental component summary; MH, mental health; OHLS-III, Third Oxford and Lifestyles Survey; PCS, physical component summary; PF, physical functioning; QoL, quality of life; RP, role physical; SD, standard deviation; SF, social functioning; VT, vitality.
[a] Scores for WHS were not available.

Table 3. Comparison of HRQoL of Chronic Pain Patients (Present Study) With Patients Having a Long-Standing/Chronic Illness Between the Wales Health Survey (WHS), the OHLS-III, and the Present Study.

Domain	Chronic Pain Patients		Patients With Long-Term Conditions (OHLS-III)			Patients With Limiting Illness (WHS)		
	N	Mean (SD)	N	Mean (SD)	P Value	N	Mean (SD)	P Value
PF	78	31.8 (27.2)	3531	79.4 (24.3)	.0001	3423	45.7 (32.5)	.0001
RP	78	25.2 (26.6))	3594	77.6 (27.7)	.0001	3554	43.1 (33.9)	.0001
BP	78	17.7 (14.9)	3644	67.1 (25.6)	.0001	3785	42.9 (26.5)	.0001
GH	77	35.8 (22.4)	3556	60.8 (21.9)	.0001	3628	43.0 (22.7)	.0001
VT	79	26.9 (21.6)	3630	51.2 (20.7)	.0001	3729	40.2 (21.8)	.0001
SF	78	31.7 (26.1)	3642	75.1 (26.9)	.0001	3816	55.6 (31.9)	.0001
ER	77	49.4 (35.1)	3613	80.4 (25.1)	.0001	3538	69.7 (35.8)	.0001
MH	79	49.5 (23.0)	3638	67.3 (19.7)	.0001	3679	64.9 (21.7)	.0001
PCS[a]	74	27.9 (9.5)	3256	44.6 (12.2)	.0001			
MCS[a]	74	35.4 (14.1)	3256	48.2 (11.0)	.0001			

Abbreviations: BP, bodily pain; ER, emotional role; GH, general health; HRQoL, health-related quality of life; MCS, mental component summary; MH, mental health; OHLS-III, Third Oxford and Lifestyles Survey; PCS, physical component summary; PF, physical functioning; RP, role physical; SD, standard deviation; SF, social functioning; VT, vitality.
[a] Scores for WHS were not available.

It's hard to explain to people how you actually feel. It's like, walk in my shoes for a week and you will see exactly what my life is, you know. (Pt. 6, 58-year-old female)

Six themes emerged during data analysis, which are detailed below.

Interference with PF. The interference of chronic pain with PF was seen by the patients as the root cause of all the other problems in their lives. The patients even struggled to perform simple daily routine tasks like cooking, washing, and hoovering.

I can't do things that I want to do physically, it just restricts me and it's getting worse and worse and worse. (Pt. 4, 30-year-old male)

A few patients described chronic pain as an "energy drain"—depriving them of energy to perform physical activity. Subsequently, the patients had to adjust their lives accordingly.

Well basically it was like somebody had taken . . . zapped me of all my energy for one, and my life had to change because I couldn't do things like I did before. (Pt. 6, 58-year-old female)

Interference with professional life. The majority of the participants also described a negative impact of chronic pain on their professional lives. Since chronic pain restricted their physical activity, some patients had to stop working, switch jobs, or work only on a part-time basis leading to financial problems.

Table 4. Sociodemographic Characteristics of the Patients Included in Qualitative Phase.

ID	Age (Years)	Gender	Chronic Pain Duration (in Years)	Pain Intensity (Baseline)
P. 1	36	Female	5-10	5
P. 2	49	Male	5-10	5
P. 3	63	Male	5-10	5
P. 4	30	Male	5-10	6
P. 5	74	Female	<1	0
P. 6	58	Female	>10	7
P. 7	39	Male	1-3	7
P. 8	40	Female	<1	7
P. 9	51	Male	3-5	10
P. 10	54	Female	3-5	7
P. 11	44	Female	1-3	5
P. 12	39	Female	>1	8
P. 13	54	Male	5-10	10
P. 14	64	Female	>10	5
P. 15	55	Male	3-5	9
P. 16	54	Female	1-3	6
P. 17	48	Female	>10	4
P. 18	27	Female	1-3	5
P. 19	47	Male	>10	7

[a] Adapted and modified from Hadi et al (16).

It's ruined it (career). It's totally ruined it, you know. I can't work in my job I've done for 22 years, suddenly that's it, it's gone. (Pt. 9, 51-year-old male)

When I started with this back pain and I went off sick that was it. They waited the statutory 2 years and got rid of me. (Pt. 15, 55-year-old male)

A couple of patients, especially younger patients, described the impact of chronic pain on employment as non-significant and continued to work but had to bear pain.

Well it's not massively affected me. I mean . . . I can . . . I still do anything that I used to do it's just that I put up with the pain. (Pt. 2, 49-year-old male)

Interference with family life and relationships. A number of the patients described the undesirable impact on their relationships primarily due to their inability to fulfill their partner's expectations. The patients felt that they had become a burden on their partners/spouses as they were not able to perform their own daily routine tasks due to the pain.

Well it puts pressure on it (marriage) because I can't stand and iron, I can't hoover or anything for too long. If the pain's bad we won't go out anywhere because I just can't drive. So yes it does affect that, it puts a strain on it. (Pt. 4, 30-year-old male)

Well, our marriage has more or less broken down and I think that a lot of it is to do with me becoming less and less able to cope with life in general. (Pt. 10, 54-year-old female)

Quite a number reflected on their inability to actively engage in activities with their children which added to patients' annoyance and frustration.

I couldn't take my daughter places where I'd do things, you know, like running round the park as other parents do, I couldn't do any of that. (Pt. 15, 55-year-old male)

It just annoys me because you can't do stuff with the kids . . . (Pt. 7, 39-year-old male)

However, patients recognized the importance of support from family and friends in helping them in coping with chronic pain. Family and friends provided patients with both physical and emotional support and gave them a purpose to continue living and fighting their chronic pain.

Easily, I would have taken my life a long time ago if it weren't for my children and my husband, I wouldn't be here now, no way. (Pt. 12, 39-year-old female)

They're (children) the only people there that I can bounce off. Yes, yes, if it wasn't for my son and my daughter I'd either be locked up or dead, one of the two. (Pt. 13, 54-year-old male)

Interference with social life. As with other aspects of life, social life of patients suffered as well. The patients had to give up their social lives and became socially isolated either because of the restricted physical activity associated with chronic pain or due to depression resulting from the pain.

It's completely screwed my life up. I can't go out. I can't remember the last time I was in a pub, and I'm stuck in 4 walls . . . (Pt. 13, 54-year-old male)

I just cut back on doing things socially and that changes you as a person really when you're not sort of like getting the most out of things. (Pt. 19, 47-year-old male)

Patients avoided engagement in social activities when in pain as a coping strategy. Since the patients were not able to socially engage in activities outside their homes, they lost interest in getting dressed and their appearance, another indication of depression being a contributing factor.

I am a sociable person but when you're in pain I go quiet and I don't want to be talking . . . (Pt. 6, 58-year-old female)

No I don't bother getting dressed, I just think, well I'm not going out so what's the point. It's affected my appearance, I can't be bothered. (Pt. 8, 40-year-old female)

Interference with sleep. Sleep deprivation was also reported by a number of patients. In addition to the problem with falling asleep, repeatedly waking up during the night because of pain was also seen as a major issue which prevented them enjoying a good night's sleep.

I think the biggest problem for me is sleep deprivation. When I wake up in the night I find it very difficult to get back to sleep

and I think when you're tired everything is worse, the whole world is worse. (Pt. 1, 36-year-old female)

I'm always tired because yes you move about 10-15 times in a night but when you're in pain you wake up and it's hard to get back to sleep. (Pt. 7, 39-year-old male)

Patients believed that their poor sleep affected their ability to cope well with chronic pain.

If you get a good night's sleep it's not so bad, you can cope during the day but during the night when you're kept awake that is bad. (Pt. 14, 64-year-old female)

Interference with mood. Chronic pain not only affected patients physically but also mentally. A majority of the patients described a negative impact of chronic pain on mental functioning.

. . . Yes it does affect your mood, pain does. You try and ignore it but you can't sometimes.(Pt. 16, 54-year-old female)

Two important associations came up during the analysis. Firstly, the patients linked their anger and frustration with their inability to perform daily activities. As described above, the patients were unable to perform routine daily activities as their physical activity was limited by their pain.

You can't do things that you want to do or if you do them it's painful, it's very frustrating and that can make you very sort of, not anxious but very kind of het up about things and very frustrated. (Pt. 1, 36-year-old female)

I couldn't do things like I did before, like taking the curtains down and putting them up, like moving objects too heavy, so it was very frustrating and I was so annoyed, really angry that I couldn't do these things. (Pt. 6, 58-year-old female)

Secondly, patients described a 2-way association between pain and depression. Patients felt depressed due to pain and experienced more intense pain when depressed.

You know, if you're a bit depressed it (pain) seems to be worse than it is. (Pt. 3, 63-year-old male)

It's a bad combination, it's a really, really bad combination. It just . . . because when you get down you think about your pain more. (Pt. 12, 39-year-old female)

Foreseeing little to no chance of improvement in their pain and fearing continuous suffering associated with pain for the rest of their lives also contributed to patients' low mood.

. . . mentally I just thought, I don't want to live like this, you know. And that's when you think that it's never going to go away. (Pt. 5, 74-year-old female)

Discussion

The aim of the present study was to build further on our existing knowledge about the impact of chronic pain on patients' lives using quantitative and qualitative data, respectively. To the best of our knowledge, this is the first study to apply a mixed-methods methodology for assessing the impact of chronic pain on patients' QoL. The use of a mixed-methods approach allowed the researchers to understand the impact of chronic pain more comprehensively, beyond means and standard deviations. Table 5 presents the integration of qualitative and quantitative data. Although a number of qualitative themes identified overlapped with domains of SF-36, some new/independent qualitative themes such as interference with sleep and interference with relationships were also identified. This reiterates the importance of adding a qualitative dimension to studies using questionnaire-based QoL (eg, SF-36) measures only. Previous qualitative studies have also highlighted impact of chronic pain on various domains of QoL beyond SF-36 domains (9–11).

We found significantly poorer MCS score among chronic pain patients compared with patients with and without limiting illness. During qualitative interviews, patients described 2-way complex relationship between pain and depression, pain caused depression and depression resulted in more pain. Previous longitudinal studies have reported significant association between pain and depression as well (13,33). Chronic pain is a known risk factor for depression and/or anxiety and an increased number of suicide deaths have been reported among chronic pain patients with comorbid depression (33). On the other hand, depressed patients tend to report higher levels of pain intensity compared with nondepressed patients and remission of depression has shown to be associated with reduction in pain severity and number of painful locations (34). Increased pain ratings among patients with depression have been attributed to limited psychosocial functioning and insufficient coping strategies, often associated with depression (35).

Like the MCS, the PCS score was significantly lower among chronic pain patients compared to patients with and without limiting illnesses. During qualitative interviews, patients described a negative impact of chronic pain on PF and considered it as the root cause of interference with professional life, social life, family and relationships, and mood. Physical disability among chronic pain patients is also associated with depression (36). Previous quantitative and qualitative studies have also reported compromised PF among chronic pain patients (1,11). Chronic pain patients have been reported to engage more in daytime physical activity following a good night of sleep (37). However, qualitative findings from the present study suggested that chronic pain interfered with patients' ability to fall asleep, maintain sleep, and enjoy a good quality of sleep. Furthermore, patients also indicated that poor sleep quality negatively affected their ability to cope with pain, which may partly explain their inability to engage in physical activity.

Table 5. Integration of Findings of Qualitative and Quantitative Phases.

SF-36 Domain	Mean Difference[a]	Qualitative Theme[b]	Quotations
PF	−62.2	Interference with PF	"I found it difficult kind of managing . . . like cooking and cleaning around the house and taking my son out and about" (Pt. 8, 40-year-old female)
RP	−68.7		"I can't do things that I used to do." (Pt. 13, 54-year-old male)
BP	−69.4	Impact on patients' quality of life (main theme)	"I can't kneel down, I can't squat, I can't put my own socks on, he has to put my socks on for me. So that shows how much the pain affects your life." (Pt. 14, 64-year-old female)
GH	−42.6		"If you've got it [Pain] bad like I've got the pain you can't do nothing, your life just comes to a halt" (Pt. 15, 55-year-old male)
VT	−36.0		"It's [Pain] very debilitating . . . it keeps you awake; you've no energy to face the day." (Pt. 2, 49-year-old male)
SF	−56.6	Interference with social life	"Well I can't interact with people like I could do. I want to lock myself away, if you know what I mean. Because I don't want to become a pain to him [Friend] me harping on, because I think you can sometimes go on and on and on and people don't want to hear that." (Pt. 16, 54-year-old female)
ER	−40.2	Interference with mood	"When the pain was really bad I'd often kind of feel quite low and feel like it was never going to improve." (Pt. 18, 27-year-old female)
MH	−25.8		"I don't like to admit I'm depressed because depression is a sign of weakness." (Pt. 4, 30-year-old male)
			"I'm quite a reasonably active person and I do like to do things. But my mood is definitely changed with the levels of pain." (Pt. 7, 39-year-old male)

Abbreviations: BP, bodily pain; ER, emotional role; GH, general health; MH, mental health; OHLS-III, Third Oxford and Lifestyles Survey; PF, physical functioning; RP, role physical; SF, social functioning; VT, vitality.
[a] Mean difference between chronic pain patients and patients with no long-standing illness (OHLS-III).
[b] Not all the themes have been listed.

Overall, chronic pain patients were found to have lower QoL score compared to patients with other long-term conditions. A Finnish study (38) also recorded one of the lowest mean QoL score, measured using 15D—a generic preference-based measure to assess health-related quality (39), among chronic pain patients. The mean QoL score in the Finnish study was lower than the QoL scores documented in other studies involving Finish patients with diabetes mellitus (40), rheumatoid arthritis (41), inflammatory bowel disease (42), and chronic obstructive pulmonary disease (43).

Chronic pain patients' poor QoL reported in this study suggests poor pain management, perhaps, due to failure to recognize multidimensional nature of chronic pain. A need to improve access to and quality of chronic pain services has been previously highlighted in other studies (16,44). Given the multidimensional negative impact of chronic pain on patients' QoL, chronic pain management strategies should focus on improving patients' QoL in addition to relieving pain. A multidisciplinary holistic approach underpinned by biopsychosocial model which promotes self-management and self-efficacy together with pharmacological management is likely to improve patients' QoL and overall well-being (45).

Limitations

Since this article reports secondary analysis of previously collected data, there are some limitations to study findings. Our quantitative analysis was not matched in terms of gender, age, and chronicity of the disease. Furthermore, it is very likely that some of the patients with limiting illness in OHLS-III and WHS studies had chronic pain as limiting illness. We could not ascertain the number of chronic pain patients in the 2 data sets due to the nature of data available to us. Both of these factors might have introduced bias to statistical analysis and influenced study results. However, wide differences in the mean QoL scores across all domains between chronic pain patients and data extracted from OHLS-III and WHS were found, which is difficult to ignore. Future research should address these issues by collecting appropriate data prospectively and undertaking matched analyses as this would allow a comprehensive comparison between different groups. Since the qualitative topic guide was not specifically designed to obtain data on QoL, it is likely that we might have missed on some issues. However, as mentioned in Methods section that at the end of each interview, patients were given chance to talk about any additional issues not covered earlier.

Conclusion

Chronic pain patients had a poorer QoL compared to general population and patients with limiting illnesses. It restricts their physical activity, compromising their ability to work, playing with their children, enjoying a good relationship with their spouses, performing routine tasks, and enjoy a good night's sleep. This often leads to anger, frustration, and

depression. When depressed, the patients felt more pain and lacked motivation to engage in any physical activity. This became a vicious circle which was often difficult to break and come out from. Mixed-methods methodology can be effectively used in QoL research as it empowers researchers to develop in-depth understanding the impact of disease condition on QoL. The high prevalence of chronic pain and its massive negative impact on all aspects of patients' QoL calls for designing of effective and efficient chronic pain services.

ORCID iD

Muhammad Abdul Hadi, BPharm, MClinPharm, PhD https://orcid.org/0000-0003-0108-7833

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Author Biographies

Muhammad Abdul Hadi is a lecturer in pharmacy practice at the Leicester School of Pharmacy, De Montfort University, United Kingdom. His research interests include health services research, drug safety, and pharmacoepidemiology.

Gretl A McHugh is a professor of applied health research at School of Healthcare, University of Leeds, United Kingdom. Her research interests include applied health research, pain management, osteoarthritis self-management, and health services delivery research.

S José Closs is an emeritus professor of nursing research at School of Healthcare, University of Leeds, United Kingdom. Her research interests include pain management (both malignant and nonmalignant), health services research, and nonmedical prescribing.