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A survey of chronic pain in China

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ABSTRACT

There is an extensive body of research about chronic pain and treatment in developed countries. In contrast there is a lack of research on this topic in developing countries including China. This study was aimed to estimate the prevalence of chronic pain in different regions of China. Data on pain and its treatment were collected from 9357 participants using questionnaires and telephone-based interviews, from 31 regions of China. Gathered data were then coded into electronic data acquisition system and descriptive and inferential statistical analysis was performed. Out of 9298 participants, the ratio of chronic pain was 31.54% with the proportion of male having chronic pain (33.86%) was higher than that of female (29.53%). The average age of participants with pain (45.02 ± 15.07 years) was higher than free-pain participants (36.19 ± 11.12 years). There were also significant differences between groups in occupation, education levels, and illness history. Proportion of patients with pain duration of 1 year was 12.104%, between 1 and 5 years was 60%, and over 10 years was 10.74%. There were 63.9% of patients with moderate pain and 36.1% with severe pain. About 43.042% of patients thought that pain resulted in sleep disorder, 38.99% thought that it causes anxiety, and about 33% thought depression and irritable bowel was the result of their pain. For the chronic pain, more than half of patients used naprapathy, cupping, and other physical therapies. Up to 2016, the ratio of pain incidence was over 30% in China. The location of pain was focused on back and upper limb. There has been a lack of proper treatment. Patients with pain had obvious economic burden, and their quality of life and psychology were significantly affected.

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Mainland Chinese; chronic pain; prevalence; treatment of pain; epidemiological survey

1. Introduction

The International Association for the Study of Pain widely used definition states "Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." Therefore, pain should not be regarded as only a physiological process but also as a complicated psychological process [1]. Chronic pain is often defined as any pain lasting more than 1 month or keeping hurting months or even years after injury. It can have real effects on patient's mental health and day-to-day life, for example, the change of emotion, cognition, and motion, and the reduce of social rewards, activities, self-control, and self-actualization [2]. Generally, the morbidity of chronic pain was 20–45%, which the morbidity of England and Canada was 11%, Sweden was 40%, America was 2–45%, and New Zealand was 14–24%. The patients of chronic

pain accounts for 30–40% of pain clinic in our country. [3], while it was not a complete research on Chinese patients attached by chronic pain and treatment situation. Pain was a caution signal of tissue damage or possible body damage. It can cause a series of defensive reactions with nervous regulation to protect organism from damage or worse situation. Pain that persists for a long time has not a role of caution but takes physical and emotional torture for patients. Meanwhile, patients with chronic pain always have progressive autonomic symptoms, included by nervous, anxious, mental sluggishness, sleep disorder, boredom, anorexia, and so on. Chronic pain can have a marked effect on working, studying, dieting, and sleeping to reduce life quality of patients and result in serious economic and social problems. So, it is necessary for etiology to find, control, and treat. In this study, patients with chronic pain and treatment status from 31 provinces

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of China were investigated by the method of epidemiology cross-sectional study.

2. Methods

2.1. Questionnaires

Questionnaires were designed by medical experts from the department of pain treatment, Shanghai Jiaotong University (SJTU) to obtain information about chronic pain. It includes questions about; (a) injured parts, (b) order of severity, (c) duration of pain, (d) treatment and its effectiveness, (e) the cost of treatment, (f) changes of life habits, and (g) occurrence of anxiety and depression.

2.2. Cross-sectional investigation

According to published research [4], the Multistage cluster sampling method was used to investigate in different cities in 31 provinces, municipalities, and autonomous regions throughout mainland China by cross-sectional investigation, which the case rate (P) was 0.42 and the maximum permissible error was $0.1P$ ($\alpha = 0.05$, $N = 9357$, 300 in each region). The online data acquisition system was a combination of electronic data acquisition system and questionnaire to more effectively control the quality of data.

3. Results

Different regions had different proportions of participants with chronic pain. For example, among 517

respondents from the city of Shanxi, 59.1% said they had chronic pain while among 188 respondents from Beijing, only 29.6% had chronic pain. The prevalence of chronic pain among different ages was not the same with people aged under 30 years, had a lower proportion of chronic pain, and those over the age 49 years having a prevalence of 46.3% or above (CMH- $\chi^2 = 914.7693$, $P < 0.0001$) (Figure 1). The analysis of average age in different 31 regions has shown that the mean age in Guizhou, Shaanxi, and Henan was lower than other regions. There were also gender differences between the regions with female patients in Jiangsu, Beijing, Qinghai, Zhejiang, Sichuan, and Shanghai was higher (60%) than Anhui, Fujian, Shanxi, Yunnan, Hebei, Guizhou, Chongqing, Tianjin, Shandong, Hunan, and Inner Mongolia.

The proportion of the patients with less than 1-year duration of pain was 12.1%, though 60% patients had a duration from 1 to 5 years. In addition, only 10% of patients had duration of pain for 10 years. The duration of pain in Chongqing (average 9.94 years), Jiangxi (7.26 years), and Inter Mongolia (6.40 years) were the highest duration in the whole of the country. Location of pain was 74% in lower back, 37.57% in shoulders and upper limb, and only 3.03% in maxillofacial regions (Figure 2).

3.1. The effect of pain on daily life

In our research, 43.042% patients thought they had sleep disorders because of their pain, 38.997% always had tension and anxiety, 33% thought they were depressed and had irritability caused by pain, and

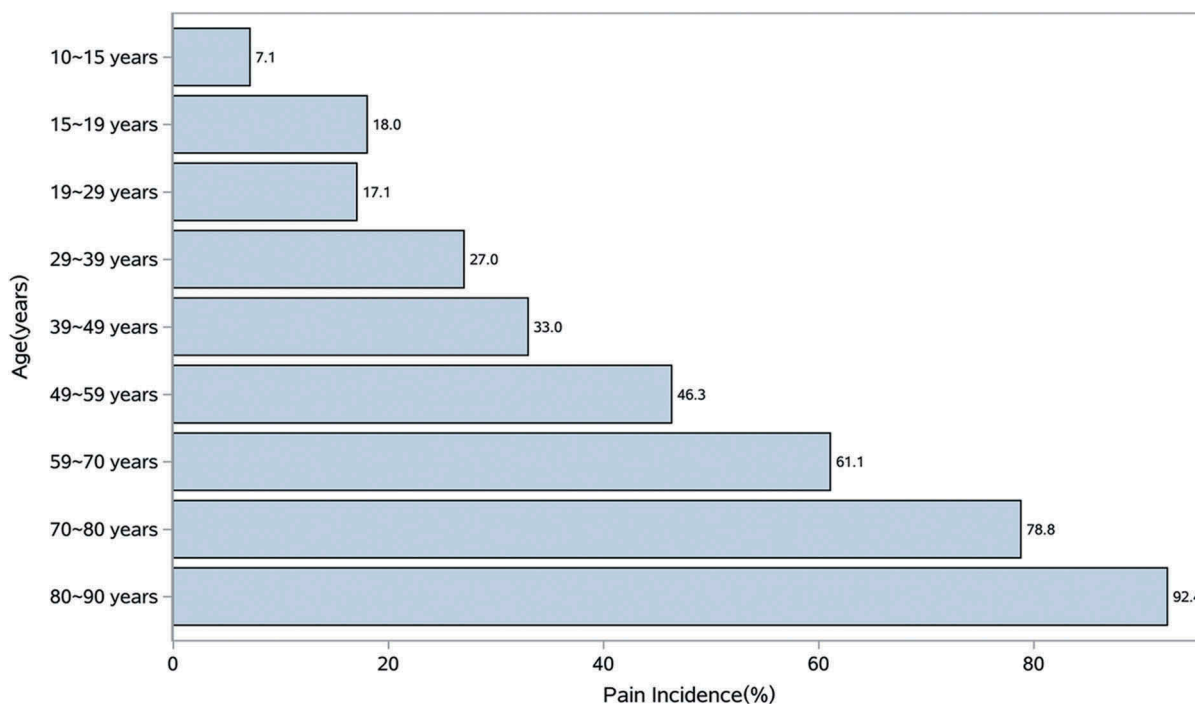


Figure 1. Proportions of participants with chronic pain according to their age.

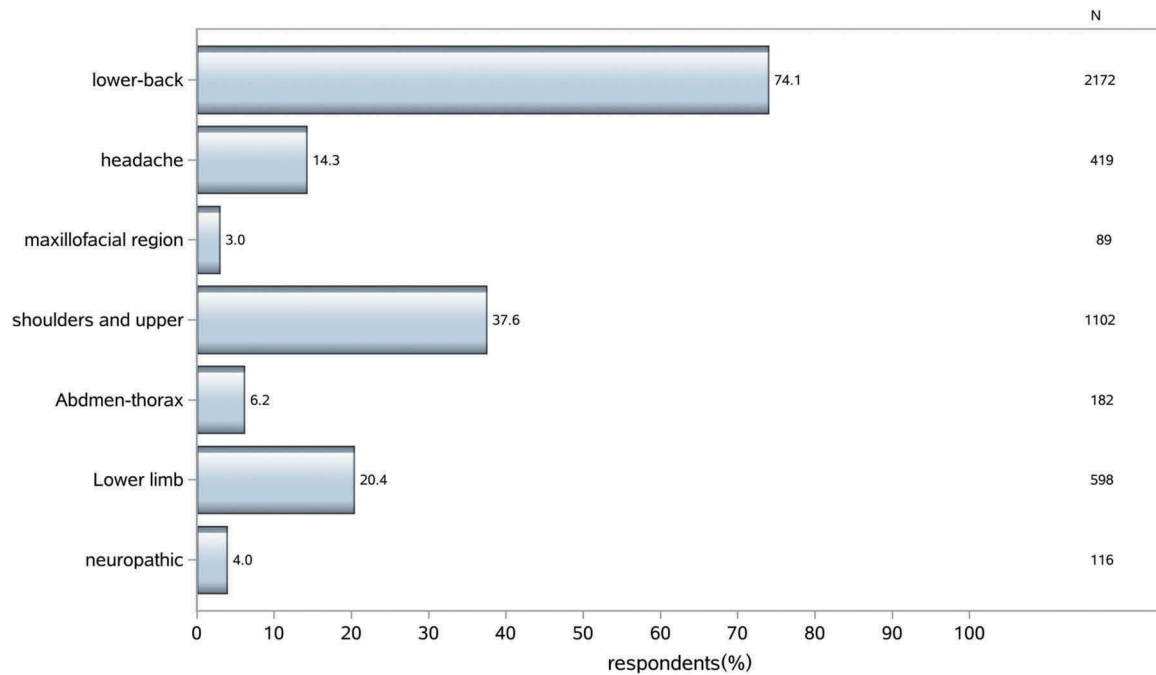


Figure 2. Location of chronic pain.

Table 1. The effect of pain on daily life.

Variable	Number (%)
Irritability*	
Yes	616 (33.2)
No	1238 (66.8)
Tension and anxiety*	
Yes	723 (39.0)
No	1131 (61.0)
Depressed*	
Yes	622 (33.5)
No	1232 (66.5)
Sleep disorder*	
Yes	798 (43.0)
No	1056 (57.0)
Suspected have disease*	
Yes	321 (17.3)
No	1533 (82.7)
Hallucination*	
Yes	46 (2.5)
No	1808 (97.5)

*Note: Indicates that the variable has missing data.

a few of people suspected having other diseases and even had hallucination (Table 1).

3.2. Chronic pain treatment

A large number of patients said that they received no treatment for their pain because of their perception that chronic pain is not harmful. However, the questionnaires revealed that for 3707 patient the treatment options were as follows: (66.8%) chose physiotherapy such as massage or cupping, 60.4% chose oral drug treatment, and approximately half of these patients used external drugs. Most patients accepted surgery and only 15% were willing to choose minimally invasive intervention (Figure 3). The costs of pain treatment varied within 6 months, 41.96% cost less than 1000 RMB, 39.27% cost between

1000 and 5000 RMB, 12.68% cost 5000–10,000 RMB, and only 6.09% expensed over 10,000 RMB to treat chronic pain.

4. Discussion

In this study, we investigated 9298 participants from 31 province of China. The results showed that the prevalence of chronic pain was 31.54% and most of the participants with chronic pain were in northern and southern coastal areas. Although chronic pain seriously affected subjects' psychology, 24.06% patients did not go to hospital and 36.788% patients never taken any treatment. The chronic pain treatment of Chinese population is still insufficient which is probably caused by the limitation of pain therapy and the lack confidence of patients in pain treatment.

This epidemiological survey indicated that chronic pain in China is prevalent and is more males are affected than females. This contrasts with other studies which showed that female prevalence of chronic pain is higher than that of males. The respondents in this survey were mostly of middle age at which the effect of estrogen is not manifested [5]. However, the finding that male frequently suffer chronic pain in our research is consistent with WHO research about newly diagnosed patients in 14 countries [6].

An epidemiological survey of chronic pain in Beijing, Chaoyang District, showed that prevalence of chronic pain was 52.99% in 4220 subjects [7]. An epidemiological survey of chronic pain diseases in Jinan subhealth population showed that over 80% subjects had chronic pain in 1200 respondents. However, unlike our study, the subjects of two

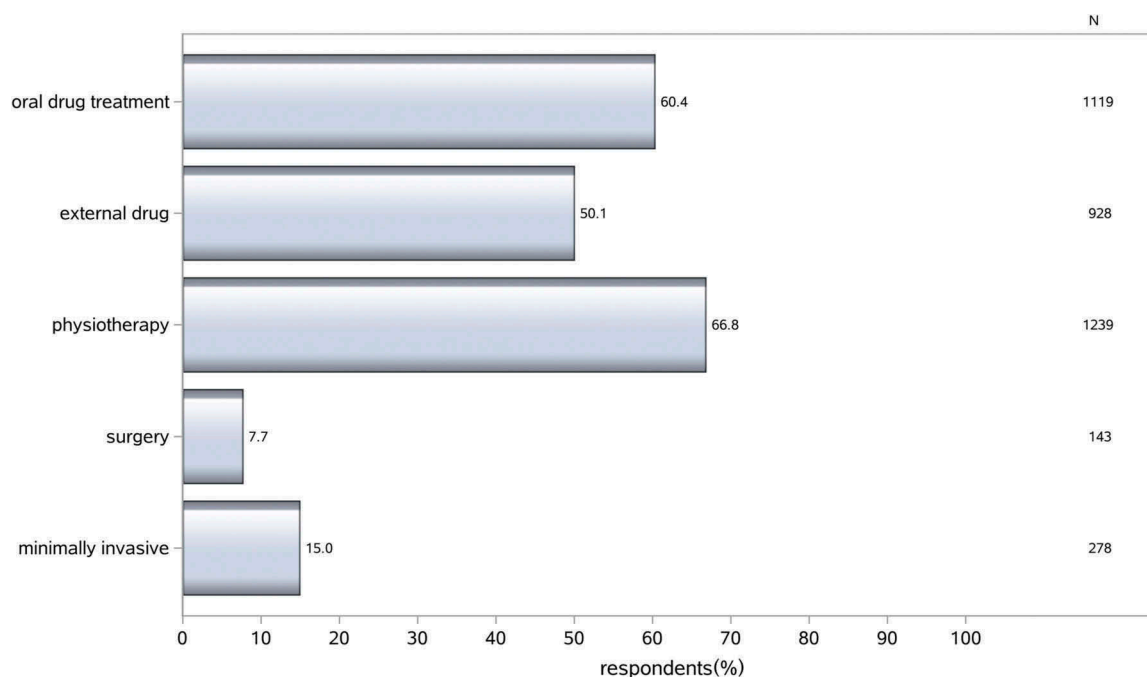


Figure 3. Treatment options and preference.

above studies were high-risk population of chronic pain [8]. Another research about chronic pain in China were the survey of 3226 subjects in the town of Guangdong. This survey revealed that the prevalence of chronic pain in this town was 53.6% [9]. Consistent with previous research, our study showed that northern, eastern and southern of China had high prevalence of chronic pain.

Chronic pain is a common and significant clinical problem that have the potential to affect quality of life. With the aging of the society, rapid development of economy and diversified culture, people faced more pressure get exhaustion more frequent and chronic pain possess a prominent effect their daily life. In this study, blue collar whose source of income is physical labor had high rate of chronic pain. The chronic pain not only affect the work efficiency, but also impact on competitive power of industry and induce output decline and in the end affect patients' income [10].

In western developed countries, community health care practitioners are responsible for patients' pain. They will assess and warning the treatment of pain which guide the standardized treatment and management [11]. In our study, 24.1% subjects never went to hospital and 36.8% never treated the pain which indicated that Chinese people have low awareness of chronic pain self-management. In this study, we used numerical rating scale (NRS) for pain assessment and we found that it is clear, intuitive and easy to fill in a large sample epidemiological investigation such as the one presented here. However, it may not be an effective reference for clinical pain management [12]. We recommend the use

of a more developed pain assessment tool. Based on Visual Analogue Scale for pain (VAS) and Facial Pain Scale (FPS), investigators put forward Global Pain Scale (GPS) concept. GPS include pain, emotional feelings, clinical manifestations, daily behavior, and other 20 entries of chronic pain feeling [13]. GPS as a comprehensive pain assessment tool which credible and effective were confirmed [14]. It contains subject and object assessment of pain could be a reliable reference for chronic pain management. For further research we suggest the use of GPS in epidemiological surveys as well.

5. Conclusion and perspective

Our study investigated chronic pain incidence rate and treatment of Chinese population in 31 provinces. The results showed that Chinese population had high rate of chronic pain and low rate of treatment. Chronic pain seriously impacts life quality and mentality of patients and even affected development of society economy. However, management of chronic pain in China still in initial stage, with insufficient awareness of chronic pain and low consultation rate. There are higher requirements to put forward to increase awareness of pain management and distribute public health resources toward chronic pain management.

Disclosure statement

No potential conflict of interest was reported by the authors.

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