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Study on chronic pain distress and coping strategies of the elderly in nursing home

He Lifang[1,a], Liao Xi[1,b], Li Pan[1,c,*], Tuo Chi[1,d], Liu Jun[1,e], Liu Pinrong[1,f], Xiang Pan[1,g]

[1]School of Nursing, Xiangnan University, Chenzhou, 423000, China
[a]937994755@qq.com, [b]852131556@qq.com, [c]278369323@qq.com, [d]2316671617@qq.com, [e]2075395769@qq.com, [f]3338720571@qq.com, [g]2271453228@qq.com
[*]Corresponding author

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Abstract: In this paper, we investigate the impact of chronic pain on the elderly in nursing homes and their coping strategies, analyze the factors influencing maladaptive pain responses, and provide references for nursing homes to manage chronic pain and improve the quality of life for the elderly residents. The convenience sampling method was used to investigate 122 elderly people with chronic pain from 6 nursing homes in Chenzhou by using a general information questionnaire, the Brief Pain Inventory (BPI), and the Coping Strategies Questionnaire-Revised (CSQ-R). Findings revealed that the most common sites of chronic pain were lower limbs (39.34%) , waist and back (32.79%) and neck (31.97%) , the most significant effects of chronic pain on daily life of the elderly were sleep (4.48 ± 2.55) , daily activities (4.41 ± 2.26) , daily work-housework (4.33 ± 2.22) and mood (4.03 ± 2.27) . The main coping styles of the elderly with chronic pain were “Distraction” (3.48±0.91) and “Coping self-statements” (3.38 ± 0.76). The passive coping styles of “Praying” (2.75 ± 0.87) and “Catastrophizing” (2.66 ± 0.85) were less. Marital status, present pain degree, and religion were the main influencing factors of passive coping strategies ($p<0.05$). The study concludes that the situation of chronic pain among the elderly in nursing home is concerning. The nursing home and its nursing staff should improve the level of cognition and management of chronic pain among the elderly, guide and support the elderly patients to adopt active coping strategies and conduct comprehensive intervention from multiple aspects of physiology, psychological, emotional, and spiritual support.

1. Introduction

The International Association for the Study of Pain (IASP) defines chronic pain as an unpleasant sensory or emotional experience that lasts for 3 months or more beyond the general course of the associated disease or the healing time of the injury [1]. Studies have shown that chronic pain is prevalent among older adults, and the prevalence of chronic pain among older adults in nursing facilities is even higher and can be as high as 83% to 93% [2]. However, chronic pain in elderly residents of nursing homes often goes unrecognized and unreported because society, including the elderly themselves, typically views it as a consequence of aging and morbidity[3]. Undetected

chronic pain can lead to declines in physical and cognitive function, symptoms such as anxiety, depression, and sleep disturbances, severely affecting the quality of life for the elderly, while also increasing caregiving needs and medical burdens [4-6]. Studies suggest that individuals who adopt active or adaptive coping strategies can positively influence the reduction of pain and its effects [7]. Therefore, this study investigates the coping strategies for chronic pain among elderly residents in nursing homes and analyzes the influencing factors, aiming to draw attention to the issue of chronic pain in this population and provide a reference for nursing homes to implement chronic pain management and improve the quality of life for elderly residents.

2. Materials and methods

2.1 Participants

This study used a convenience sampling method to select elderly individuals from six nursing homes in Chenzhou City who met the inclusion and exclusion criteria for the survey. Inclusion criteria: ① age ≥ 60 years; ② pain lasting for 3 months or more; ② normal cognitive function; ③ ability to communicate effectively; ④ informed consent and voluntary participation in this survey. Exclusion criteria: ① cancer pain patients; ② serious diseases or terminal stage can not complete the survey.

2.2 Questionnaires

(1) General Information Questionnaire for the Elderly: to investigate the general information situation of the elderly, including age, gender, marital status, literacy, occupation before moving in, type of health insurance, chronic disease status, and religious beliefs. (2) Brief Pain Inventory (BPI) [8]: the scale evaluates aspects such as the site of pain, the level of pain, and the impact of pain. Pain intensity includes the most severe and least severe pain levels experienced in the past week, the average pain level, and the current pain level. The impact of pain assesses the influence of chronic pain on 7 items, including General Activity, Mood, Walking ability, Normal work (including work outside the home and housework), Relations with other people, Sleep, and Enjoyment of life.The pain level and its impact were rated on a scale of 0 to 10, with 0 representing no pain and no impact and 10 representing the most pain imaginable and complete impact. (3) Coping Strategies Questionnaire-Revised (CSQ-R): developed by Riley and Robinson [9], it has been widely used to measure the coping strategies of chronic pain patients. He et al [10] conducted a Chinese adaptation of the scale, which consists of 27 items covering 6 dimensions: Distraction, Coping self-statements, Ignoring pain sensations, Distancing from pain, Praying, and Catastrophizing, of which Praying and Catastrophizing are considered to be negative coping styles. The scale was scored on a 7-level Likert scale (0 = never, 6 = always). The Cronbach's alpha coefficients for each dimension of the Chinese version of the scale ranged from 0.788 to 0.941, with good reliability and validity.

2.3 Data collection

After obtaining the consent of the administrators of the institutions and the elderly individuals, questionnaires were distributed to the elderly on an institutional basis. Trained surveyors used the same script to fill out the questionnaires anonymously, which were collected on the spot. For some elderly individuals who had difficulty reading, the surveyors assisted by asking questions and filling out the forms. A total of 126 questionnaires were distributed and 122 valid questionnaires were collected, with a validity rate of 96.82%.

2.4 Statistical Analysis

SPSS18.0 statistical software was used for data statistics and analysis. Frequency, percentage, and mean ± standard deviation ($\bar{x} \pm S$) were used for statistical description, and one-way ANOVA, non-parametric test, and multiple stepwise regression analysis were used to analyze the factors affecting chronic pain maladaptation in the elderly. Statistical significance was defined as $P < 0.05$.

3. Results

3.1 General information and pain effects of the elderly

Table 1: General information and pain effects in the elderly (n = 122).

Project	n (%)	Project	n (%)/$\bar{x} \pm S$
Age		**Chronic condition**	
60-70	75(61.48)	None	25(20.49)
70-80	40(32.79)	Having one chronic disease	50(40.98)
≥80	7(5.74)	Having two chronic disease	33(27.05)
Gender		Having three or more chronic disease	14(11.48)
Male	50(40.98)	**Site of pain**	
Female	72(59.02)	Head and face	25(20.49)
Marital status		Neck	39(31.97)
Having spouse	93(76.23)	Upper limbs	14(11.48)
Having no spouse	29(23.77)	Waist and back	40(32.79)
Level of education		Visceral organs	23(18.85)
Primary school and below	46(37.70)	Lower limbs	48(39.34)
Junior high	33(27.05)	Bone and joint	18(14.75)
High School/Technical Secondary School	8(6.56)	**Level of pain**	
College degree or above	35(28.69)	Most severe degree	5.37±2.03
Pre-occupation		Minimal degree of pain	1.82±1.64
Farmers	42(34.43)	Average pain degree was	3.57±1.62
Worker	17(13.93)	**Current pain intensity**	
Teacher or civil servant	21(17.21)	No pain (0)	19(15.57)
Medical staff	17(13.93)	Mild pain (1-3)	60(49.18)
Soldiers	7(5.74)	Moderate pain (4-6)	35(28.69)
Others	18(14.75)	Severe pain (7-10)	8(6.56)
Medical insurance type		**Effects of pain on daily life**	
Urban employee medical insurance	26(21.31)	Sleep	4.48±2.55
Medical insurance for urban residents	41(33.61)	General Activity	4.41±2.26
New Rural Cooperative Medical Insurance	48(39.34)	Normal work (housework)	4.33±2.22
At one's own expense	7(5.74)	Mood	4.03±2.27
Religious beliefs		Walking ability	3.46±2.39
Have	25(20.49)	Enjoyment of life	3.44±2.12
None	97(79.51)	Relations with other people	3.17±2.33

A total of 122 elderly people were surveyed, including 50 men (40.98%) , 72 women (59.02%) ; age (68.33±8.33) years; 97 (79.51%) suffered from chronic diseases; 62 people had 2 or more pain

sites, with a maximum of 5 sites counted, and the most common sites of pain were the lower limbs (39.34%), waist and back (32.79%), and neck (31.97%). At present, there were 60 cases of mild pain (49.18%) , 35 cases of moderate pain (28.69%) and 8 cases of severe pain (6.56%) , chronic pain had the greatest effect on sleep (4.48 ± 2.55) and the least effect on enjoyment of life (3.17 ± 2.33) . The general information of the elderly and the effect of pain are shown in Table 1.

3.2 Coping strategies of chronic pain for the elderly in nursing homes

The coping strategies for chronic pain among elderly in care facilities, ranked from highest to lowest score, are as follows: distraction, coping self-statements, ignoring pain sensations, distancing from pain, praying, and catastrophizing, as shown in Table 2.

Table 2: Chronic pain coping strategies scores of elderly people in nursing homes (n = 122, $\bar{x} \pm S$).

Dimension	Total score	Items are equally divided
Distraction (5 items)	17.41 ±4.56	3.48 ±0.91
Coping self-statements (4 items)	13.52 ±3.06	3.38 ±0.76
Ignoring pain sensations (5 items)	14.70 ±3.65	2.94 ±0.73
Distancing from pain (4 items)	11.23 ±2.68	2.81 ±0.67
Praying (3 items)	8.24 ±2.62	2.75 ±0.87
Catastrophizing (6 items)	15.98 ±5.11	2.66 ±0.85

3.3 Influencing factors of negative coping of chronic pain in elderly in nursing homes

Univariate analysis of the 2 influences on negative coping styles, praying and catastrophizing, showed that the differences in praying scores when comparing between different marital statuses and religiosity were statistically significant (t=-2.222, t=-2.720, P<0.05) and that the difference in catastrophizing scores was statistically significant when comparing different marital statuses, chronic disease statuses, and levels of current pain (t=4.044, F=3.595, F=2.422, P<0.05). Multiple stepwise linear regression analyses were performed with the catastrophizing and praying score as dependent variables, respectively, and the general information variables that differed in the univariate analyses as independent variables, with dummy variables assigned to the categorical variables (marital status and religiosity). The results showed that marital status and current pain level were the main factors influencing catastrophizing coping styles, with a coefficient of determination R^2 of 0.166, and these 2 factors together explained 16.6% of the variance in the mode of ergonomic response adopted by older adults (Table 3). Religion was the main factor influencing praying coping styles, with a coefficient of determination R^2 of 0.097, explaining 9.7% of the variance in praying coping styles adopted by older adults (Table 4).

Table 3: Multiple stepwise regression analysis of catastrophizing.

Variable	Regression coefficient	Standardization coefficient	t	P
Constant term	17.088		14.461	<0.001
Having spouse	-3.464	-0.29	-3.351	0.001
Current pain level	0.536	0.223	2.575	0.011

Note: R^2 = 0.166, F = 11.876, P < 0.001

Table 4: Multiple stepwise regression analysis of praying.

Variable	Regression coefficient	Standardization coefficient	*t*	*P*
Constant term	7.825		30.798	<0.001
Have religious beliefs	2.015	0.311	3.591	<0.001

Note: R^2 = 0.097, F = 12.892, P < 0.001

4. Discussion

4.1 The situation of chronic pain among the elderly in nursing home is concerning

The results of this survey showed that the chronic pain elderly people in nursing homes with pain sites ≥ 2 accounted for 50.82%, with the lower limbs, waist and back, and neck more common, which is related to the chronic pain of the elderly mainly includes muscle soft tissue pain, osteoarticular pain, and neuropathic pain in three categories, consistent with the domestic and foreign on the site of chronic pain in the elderly [11-12]. In the past week, most elderly patients with chronic pain have experienced moderate to severe pain, with an average pain level close to moderate pain. More than one-third of them are currently experiencing moderate to severe pain. This indicates that the severity of chronic pain among the elderly in nursing homes is significant and should be a cause for concern for the managers and caregivers in nursing homes. Studies have shown that lack of awareness and lack of competence in pain management among healthcare workers in nursing facilities is a barrier to standardized pain management [13] and that pain training and education a key drivers of standardized pain management and can promote improved pain management behaviors among health care workers [14]. Therefore, nursing homes should improve the pain knowledge and attitudes of nursing home caregivers through targeted pain management education and training, so that chronic pain conditions in older adults can be recognized promptly and the negative effects of pain can be effectively reduced.

4.2 The impact of chronic pain on the elderly in nursing homes is multifaceted, and comprehensive pain management should be carried out

The impact of chronic pain on older adults in nursing facilities covers a wide range of somatic, psychological, social, and spiritual aspects, showing a moderate impact on sleep, daily activities, daily work (housework), and mood, and a relatively somewhat lower impact on the ability to walk, enjoyment of life, and interpersonal relationships. The overall impact was higher than that of chronic pain in community-dwelling older adults [15] and lower than that of pain distress in outpatient chronic pain patients [16]. Relevant studies have confirmed that persistent pain can lead to sleep disturbances, limitation of physical activity, social changes, depression, anxiety, and fatigue in older adults, and that these factors are intertwined and interact with each other, which in turn will lead to further deterioration of physical functioning, psychological status, and emotional well-being in older adults [17]. Currently, the management of chronic pain in the elderly in China is mostly based on passive analgesic medication and non-pharmacological treatments such as massage and hot packs [18]. Holloway et al [19] pointed out that this biomedical model of pain management did not address the complex nature of chronic pain faced by older adults in nursing facilities, and that multiple strategies need to be made part of the care plan based on a biopsychosocial medical model that takes into account the medical history, coexisting conditions, medication use, mood, and quality of life of older adults in nursing facilities. Comprehensive physical and pain assessment (including pain perception, pain location, and where it radiates to, etc.) should be performed using

verbal or nonverbal assessment tools, and pain management strategies should be centered on the older adult using pharmacological and nonpharmacological treatments, and a combination of passive and active strategies that integrate multiple dimensions of physical, psychological, emotional, and spiritual support for intervention. This comprehensive management model for chronic pain also sets higher standards for nursing homes and their medical staff. A meta-analysis on the awareness and management experience of chronic pain in nursing homes also suggests that medical personnel need to receive adequate training to adopt a person-centered approach to assessing and managing pain, taking into account all factors related to pain [20].

4.3 The elderly in nursing homes mainly respond positively to chronic pain, which is influenced by marital status, current pain level and religious beliefs

Evaluating what coping strategies older adults use and whether they are effective helps with pain management decisions and the development of more useful coping strategies. Coping strategies for chronic pain can be categorized as positive and negative; positive coping reduces the intensity of pain and decreases the level of disability and is considered adaptive; conversely, negative coping is associated with negative effects and is considered maladaptive [21]. The coping strategies of chronic pain among older adults in nursing facilities in this survey were dominated by positive coping of distraction and coping self-statements, with lower scores for praying and catastrophizing. This is similar to the findings of Guo et al [22] on the predominance of positive coping in coping strategies for chronic pain among community-dwelling older adults, but in this study, the score of coping self-statements was lower and the scores of catastrophizing and praying were higher. This may be related to the fact that elderly people in nursing homes need to adapt to unfamiliar environments and have less companionship and support from their families. Related studies have found that older adults with chronic pain who rely on social support as a coping mechanism have better-coping outcomes under the influence of broader and more satisfying social relationships [17].

An analysis of the factors influencing the catastrophizing and praying coping strategies found that older adults without spouse and in more severe pain were more likely to use the catastrophizing coping strategies. A catastrophizing was defined as an exaggerated negative psychological fixation on experiencing actual or anticipated pain experiences. Lack of emotional attachment and support from the spouse in spouse-less older adults may produce an exaggeration of pain, leading to pessimism and negative thoughts of helplessness, and a study by Perrot et al [23] showed that spouses play an important role in positive coping in patients with osteoarthritis pain in the hip and knee. In addition, feelings of doom are associated with a heightened experience of pain, and a study by Mun et al [24] showed that pain severity was positively correlated with feelings of doom. Religious older adults are more likely to use praying as a coping method, which may be related to the important influence of the coping meaning expressed by religion on patients' ability to cope with chronic pain. When praying is used as a means of relinquishing control and responsibility for resolving pain, it can have a negative impact on older adults' levels of self-control and disability [25]. It is suggested that nursing facilities should actively guide and support elderly patients with chronic pain to adopt positive coping styles, and pay more attention to the pain coping styles of older adults without spouses, with higher levels of pain, and with religious beliefs.

5. Conclusions

This study investigated the impact of chronic pain and cognitive coping strategies among the elderly in a nursing home. The results showed that the most common parts of chronic pain of the elderly in old-age care institutions were lower limbs, waist and back and neck. The impact of chronic pain on the elderly involved physical, psychological, social and spiritual aspects, and the

degree of impact was greater than that of the elderly in the community. The coping styles of chronic pain of the elderly are mainly positive coping, which is distraction and coping self-statements, while negative coping is influenced by marital status, current pain level and religious beliefs. Elderly care institutions and their nursing staff should improve their cognition and management level of chronic pain in the elderly, conduct standardized pain assessment for the elderly, guide and support the elderly patients with chronic pain to adopt positive coping styles, and comprehensively manage them from physiological, psychological, emotional and spiritual support.

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