Preventive Care in Nursing and Midwifery Journal
2023; 13(2): 50-58

Pain Acceptance and its Related Social Determinants of Health in Patients with Cancer

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Received: 30 Dec 2022 **Accepted**: 13 March 2023

Abstract

Background: One of the main steps for designing a comprehensive palliative care program in patients with cancer is to achieve knowledge about pain acceptance.
Objectives: This study aims to determine the level of pain acceptance and its related social determinants of health in patients with cancer.
Methods: This cross-sectional study conducted on 152 patients with cancer hospitalized in the oncology wards of Valiasr and Ayatollah Mousavi hospitals in Zanjan. Participants were included in the study by convenience sampling from June to September 2021. To collect the data, a three-part questionnaire including demographic factors, social determinants and chronic pain acceptance was utilized. Statistical analysis was performed by t-test and one-way analysis of variance (ANOVA) using SPSS software version 25.
***Results*:** Most of the participants were male (52%), illiterate (56.6%) and in the age group of 61-75 years (40.1%)**.** The mean (SD) of the total pain acceptance score was 53.37 (19.36), which represents a lower than mean pain acceptance among the participants. The mean of pain acceptance according to the two variables of transportation system (P< 0.001) and occupation (P= 0.003) showed a statistically significant difference.
Conclusion: The findings of the study indicate that pain acceptance in the participants is not desirable. It is essential to plan and put into effects programs in order to improve pain acceptance methods. Moreover, considering the relationship between social determinants of health and pain acceptance, it requires to pay more attention to social determinants of health during the development of interventions to improve patients' pain acceptance.

Keywords: pain acceptance, cancer-related pain, social determinants of health

Introduction

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage [1] Pain is one of the most common symptoms of cancer [2] and affects approximately two thirds of patients with cancer. Cancer pain can be due to the cancer by itself, diagnostic and therapeutic procedures, and side effects of cancer treatments. Cancer pain is regarded as a chronic pain. Chronic pain is the pain that lasts unceasingly or intermittently for over three months [3]. The results of a review study on the prevalence of pain in patients with cancer signify that pain among those who are treated; those who receive treatment, and patients with metastatic

cancer or the advanced stage of the disease and the final stages of cancer are 33%, 59% and 64%, respectively [4]. Pain entangles the clinical condition of patients and lessens the quality of life. Studies show that physical, functional and emotional aspects of patients' lives are adversely affected by pain [5] and it brings about suffering, insomnia, fatigue, loss of appetite, reduced physical and social activities, social isolation, emotional and spiritual distress, depression, anxiety, and inability to concentrate and think [4,6,7]. Lack of proper pain control imposes a significant economic burden on health care services. In order that it's inadequate treatment results in an increase in inevitable hospitalizations and overall costs [4].

Acceptance and commitment therapy (ACT) is a supported psychotherapy that offers promise for patients suffering from a wide range of mental and physical condition. Promoting pain acceptance in patients with chronic pain can decrease the level of depression, anxiety owing to pain, physical and mental disability, pain intensity and the possibility of psychological dependence on pain medications and considerably increase psychological flexibility [9,10].

Pain acceptance is not to believe in the removal of pain, but it includes experiencing pain actively and performing actions to advance goals during the time of experiencing the pain [11]. Pain acceptance is a predictor of depression symptoms, hospitalization and amount of painkiller consumption. The study by Gauthier et al. displays that, in patients with advanced cancer, pain is inversely associated with depression symptoms and pain catastrophizing. Several factors including age, sex, duration of pain, multiple locations of pain, duration of receiving painkillers, anxiety and depression affect pain acceptance [12,13]. Moreover, it seems that social determinants also be effective in pain acceptance.

In recent years, studies on the role of social determinants in health are expanding considerably. Since it has been known that many issues in the health care delivery system are fundamentally socio-cultural and economic in nature. Based on this fact, many infectious and non-infectious diseases are affected by these factors [14].Social determinants of health (SDH) signify that the economic, environmental, and social conditions of people's lives along with inequalities in power, money, and resources, differently affect the health outcomes of individuals and groups. However, knowledge about the role of SDH in pain outcomes is increasing [15]. Nevertheless, there is still not adequate information about the role of social determinants in the acceptance of cancer pain, there is a need to do some more studies in this field.

The understanding of pain acceptance and its related factors in patients with cancer can help health workers develop a strategy for the better acceptance and adaptation of pain and provide a better quality of life, psychological well-being and lower painkiller consumption. Therefore, considering the fact that no study has been found on the acceptance of pain and its influencing factors in cancer patients in Iran, and since various cultural and psychological factors can affect the perception, experience and acceptance of pain, the current study was developed to study the acceptance of pain and its influencing factors in cancer patients. The results of the present study can provide the required evidence for impressive interventions in order to improve the level of pain acceptance (with considering effect of social determinants of health) and quality of life in cancer patients.

Methods

This study was a descriptive, cross-sectional that was conducted in 2021. The study population comprised all patients with cancer undergoing chemotherapy referred to training hospitals in Zanjan city. Sampling in this study was non-random and convenience sampling and participants selected from those referring to the study setting and were qualified to enter the study. Therefore, patients who referred to oncology wards of Valiasr and Ayatollah Mousavi Hospital from June 6, 2021 to September 7, 2021 and had inclusion criteria were recruited in the study.

A total of 152 people were included in the study. The specifications for participating in the study were a definite diagnosis of cancer based on the patient's file, being at least 18 years old and older, having at least 5 months history of cancer diagnosis, not suffering from a definite mental illness, not being on any medication and psychoactive substances, not suffering from a physical disease that causes pain (such as

rheumatoid arthritis and surgery) based on the patient's file, being alert and oriented (time, place and person), no history of recent surgery and willing to participate in the study.

To collect the data, a three-part questionnaire including demographic factors, social determinants of health and chronic pain acceptance questionnaire (CPAQ) was utilized.

Demographic information included (age, gender, level of education, marital status, occupation) and social determinants of health (residence, transportation systems, housing status, household head, types of housing, having social security insurance, support from other organizations, income level).

The Chronic Pain Acceptance Questionnaire designed by Geiser in 1992 includes 20 items in two factors of ‘the activity engagement scale” (11 items) and “the pain willingness scale” (9 items). The activity engagement subscale assesses "the person's engagement in life activities despite awareness of pain". Pain willingness subscale also measures "response to pain that cannot be controlled or prevented". The scoring method of the tool is a 7- item Likert scale ranges from 0 (not at all true) to 6 (always true). The total score of the tool is the sum of the scores of the two scales of “activity engagement " and " pain willingness". Thus, the score allocated for “activity engagement” subscale is (0-66), for the pain willingness subscale is (0-54) and for the total scale is (0-120). The instrument lacks a cut-off point, and higher scores demonstrates better acceptance of pain [16]. The validity and reliability of the instrument has been measured and confirmed in different studies, so that in foreign studies such a study (2010) conducted to investigate the acceptance of pain in fibromyalgia, the correlation coefficient was 0.83 and the Cronbach's alpha coefficient was 0.83 [17]. Another study conducted in China (2008), and the correlation coefficient and Cronbach's alpha were reported as 0.79 [18]. The internal consistency of the Cronbach's alpha questionnaire in the German version, was reported as 0.84 and 0.87, respectively [19]. In examining the psychometric properties of the Persian version, the Cronbach's alpha coefficient was 0.89 and the retest coefficient was 0.71 [20] in a Iranian study. Due to the fact that the Persian version has been psychometrically evaluated and its review was not part of the objectives of this study, the questionnaire was evaluated and approved merely in terms of content validity by expert panel. In this way, the questionnaire was provided to 10 professors of the Faculty of Nursing and Midwifery, Zanjan.

Then, after applying the experts' suggestions, the questionnaire was used. The reliability of the instrument was estimated through using Cronbach's alpha coefficient (α=0.85).

To collect data, the researcher attended Valiasr and Mousavi hospitals in Zanjan, while explaining the objectives of the study and the confidentiality of the information, she gave the questionnaires to the participants at the proper time according to the patient's condition and after the participants completed them, they were gathered. Data collection was done in a period of 3 months from June 6, 2021 to September 7, 2021. Because of the normality of the data (calculated with Shapiro test), parametric tests including descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (t-test, one-way analysis of variance (ANOVA)) were used to analyze the data in SPSS software 25.

Results

The mean (SD) age of the participants was 56.98 (14.89) years, and most of them were illiterate (56.60 %), married (81.60 %) and male (52 %), and 48% of the participants included women who were mostly housewives (Table 1).

Table 1: Absolute and Relative Frequency Distribution of Demographic Characteristics of the Participants and the Relationship between Pain Acceptance and Demographic Characteristics of the Participants

Demographic characteristics		Numbers	Percentage	Mean	Standard deviation	Statistics value	p-value
Ages	Less than 30	9	5.9	50.11	22.79	0.748	0.561**
	31-45	26	17.1	58.04	18.96		
	46-60	45	29.6	54.04	17.72		
	61-75	61	40.1	50.90	20.34		
	M0re than 75	11	7.2	56.00	19.32		
Gender	Female	73	48.0	55.73	16.46	1.459	0.147*
	Male	79	52.0	51.20	21.59		
Marital status	Single	12	7.9	59.17	23.17	0.902	0.442**
	Married	124	81.6	53.57	19.62		
	Divorced	2	1.3	42.50	14.85		
	Widowed	14	9.2	48.21	12.84		
Education	Illiterate	86	56.6	50.80	19.98	1.765	0.175**
	Under high school diploma	40	26.3	56.75	16.67		
	High school diploma and university degree	26	17.1	56.69	20.57		
Occupation	Unemployed	43	28.3	45.09	20.79	5.918	0.003**
	Employed	42	27.6	57.55	20.51		
	Housewife	67	44.1	56.07	16.09		

***t-test, ****One Way ANOVA**

Regarding the social determinants of health, results showed that 59.20% were city residents, the majority of them used taxies as their transportation system (49.30%), 86.80% lived in personal houses, 57.20% were household head, 96.10% lived with their families, 73.70% were covered by social security insurance, 62.20% were supported by Mehraneh Charity Center and 11.20% of them could make the two ends meet (Table 2).

Table 2: Absolute and Relative Frequency Distribution of Social Determinants of Health of the Participants and the Relationship between Pain acceptance and Social Determinants of Health

Social determinant factors of health		numbers	percentage	Mean scores	Standard deviation	Statistic value	p-value
Residence	city	90	59.2	54.56	17.22	0.864	0.389*
	village	62	40.8	51.66	22.16		
Transportation system	personal vehicle	65	42.8	59.52	16.33	7.287	< 0.001**
	Taxi	75	49.3	49.96	20.46		
	Bus	12	7.9	41.42	18.03		
Housing status	Private	132	86.8	53.55	19.80	0.287	0.781*
	Rental	20	13.2	52.25	16.62		
household head	No	65	42.8	56.35	18.65	1.648	0.101*
	Yes	87	57.2	51.15	19.70		
living status	Family With	146	96.1	53.51	19.50	0.171	0.843**

	With Friends and colleagues	1	0.6	57.00	0		
	Alone	5	3.3	48.60	18.47		
Social security insurance	No	40	26.3	49.55	20.44	-1.460	0.146*
	Yes	112	73.7	54.74	18.88		
other organizations support	No	93	61.2	53.02	18.21	-0.282	0.779*
	Yes	59	38.8	53.93	21.22		
Income level	not sufficient	80	52.6	49.79	18.88	2.888	0.059**
	fairly sufficient	53	34.9	57.60	20.65		
	sufficient	17	11.2	56.47	16.07		

***t-test, ****One Way ANOVA**

Chronic pain acceptance has two subscales: Activity engagement and pain willingness. According to the findings, the participants obtained a mean (SD) of 33.43 (15.18) in the dimension of activity engagement, and a mean (SD) of 19.94 (9.55) in the pain willingness. In total, the mean (SD) of the total pain acceptance was 53.37 (19.36), and by taking into account the total score of 108, the results show that the participants' pain acceptance is lower than the mean (Table 3).

Table 3: Mean and Standard Deviation of Participants' Chronic Pain Acceptance

Pain acceptance areas	Minimum scores	Maximum scores	Mean and standard deviation	Mean
Activity engagement	3.00	66.00	33.43 ± 15.18	32.50
Pain willingness	0.00	47.00	19.94 ± 9.55	19.00
Pain acceptance total scores	3.00	108.00	53.37 ± 19.36	55.00

In terms of the relationship between the level of pain acceptance and the demographic characteristics of the participants, the results demonstrated that among the demographic variables, there was only a significant relationship between the occupation of the participants and pain acceptance (p=0.003). The use of Tukey's post hoc test indicated that the mean of pain acceptance is significantly lower in the unemployed group compared to the employed and housewives group (p<0.01) (Table 1 and 4).

Table 4: Comparison of Pain Acceptance with Occupational Groups Using Tukey's Post Hoc Test

		Mean	Standard deviation	One-way variance analysis P–value	Confidence interval 95%	
					lower line	upper line
Unemployed	Employed	-12.45	4.07	<0.01	-22.09	-2.81
	Housewife	-10.98	3.66	<0.01	-19.66	-2.29
Employed	Unemployed	12.45	4.07	<0.01	2.81	22.09
	Housewife	1.47	3.69	0.916	-7.27	10.21
Housewife	Unemployed	10.98	3.66	<0.01	2.29	19.66
	Employed	-1.47	3.69	0.916	-10.21	7.27

The results show the relationship between the level of pain acceptance and social determinants. According to the results, there was a significant relationship between the transportation system variable and chronic pain acceptance (p<0.001), so that pain acceptance in participants with personal car was more than the participants without it**.** Also, there is a borderline significance between economic status and pain acceptance level (p=0.059). But no statistically significant relationship was observed between other social determinant factors of health and pain acceptance (table 2 & 5).

Table 5: Comparison of Pain Acceptance with Transport Systems Using Tukey's Post Hoc Test

		Mean	Standard deviation	One –way variance analysis P-value	Confidence interval 95%	
					Lower line	Upper line
Personal vehicle	Taxi	9.56	3.15	<0.01	2.09	17.02
	Bus	18.10	5.84	<0.01	4.26	31.94
Taxi	Personal vehicle	-9.56	3.15	<0.01	-17.02	-2.09
	Bus	8.54	5.78	0.305	-5.15	22.24
Bus	Personal vehicle	-18.10	5.84	<0.01	-31.94	-4.26
	Taxi	-8.54	5.78	0.305	-22.24	5.15

Discussion

The current study aimed to investigate the level of pain acceptance and the role of social determinants of health in pain acceptance. The results of the current study indicated that the level of pain acceptance in participants with cancer hospitalized in Zanjan teaching hospitals is lower than the mean 53.37±19.36 of course, the subscale of pain interference with activity had the mean score, and the score in the subscale of pain willingness was lower than the mean. Despite the results of the present study, the study by Xu et al on 156 cancer patients in China using shortened questionnaire of CPAQ shows a high pain acceptance in participants compared to the results of the present study [13]. Possible causes of this discrepancy can be attributed to the use of a shortened form of the questionnaire and the impact of social-cultural differences on accepting pain [21]. In another study on 116 cancer patients in Cyprus, the subscale of pain interference with activity hit higher than the current study and the score of the subscale of pain tendency was the same as the present study. It seems that the types of cancer and sex are possible causes of this difference, so that in this study 76.7% of the participants were women, while in the current study 48 % were women [22]. Evidence shows that women are more inclined to express pain than men and use wordy rhetoric with more emotional load and longer explanations to describe it [23, 24]. Thus, it is expected that in studies where most of the research samples are comprised of women, the level of acceptance and perception of pain is different from studies where the sex ratio is equal. The study by Ghorbanifar et al., which was conducted on women with breast cancer in Iran, the mean score of 53.05 was allocated for pain acceptance which is almost similar to the present study [25].

Patients with cancer can hardly adjust themselves to normal life and despite the pain, pursue their activities and goals [26]. As to the relationship between demographic variables and pain acceptance, the results indicate that there is a significant relationship between pain acceptance and occupation. So that, the unemployed patient had less pain acceptance than the employed and housewife's groups. Moreover, it seems that having a job brings about a mental deviation from suffering and also creates more adaptation and interaction with cancer-related pain. According to a study conducted by Kim et al. in Korea, unemployed cancer patients had lower health-related quality of life scores [27], which confirms the positive effects of employment to deal with cancer.

Excluding occupation, none of the demographic characteristics were associated with pain acceptance. In another study, age and gender variables have been reported to be unrelated to pain acceptance [12].

Unlike these two studies, the results of a study by Xu et al. in China (2019) indicated that there is a significant relationship between acceptance of cancer pain with age, sex, and marital status. So that, women, younger and married people had less pain acceptance [13]. One of the possible reasons to justify the lack of relationship between pain acceptance and age in the present study can be due to the fact that the participants were homogeneous in terms of age, so that 75% of the participants were in the age group over 45 years.

The results of the research showed that among the social determinants of health, pain acceptance scores were statistically related only to the transportation system used by the participants; So that the owners of personal cars had a higher mean score for pain acceptance. This issue can imply that economic status affects pain acceptance, in such a way that economic power makes us feel that problems (including pain) are controllable. Furthermore, as mentioned above, the positive relationship between employment and pain acceptance indicates that employment affects people's income in a way and promotes pain acceptance.

Also, the borderline and intermediate relationship between pain acceptance and income adequacy status can be the reason for the confirmation of this issue in this study. Despite the fact that, this relationship was not statistically significant, the findings demonstrate that people with lower economic power have a lower pain acceptance mean. The possible reason for non-significant results is limited sample size. On the other hand, only 28.3% of the participants were unemployed people.

Our findings indicate the role of social determinants of health in creating inequality in terms of receiving care in cancer patients, and it requires more studies on the importance of SDH to reduce cancer-related complications and develop strategies to reduce the disease burden. The lack of relationship between pain acceptance and social determinant factors can be in view of the fact that 60% of the clients lived in the city and nearly 87% of them had their own private homes. In addition, 72.7% of the samples were supported and those who were not covered by social security insurance, they were supported by Mehraneh Charity Center. Moreover, the lack of diversity in the samples in terms of residence educational and occupational status can be the reason for the lack of relationship.

There were several limitations governing this study. Firstly, the study was descriptive-cross-sectional, and secondly, it was conducted in a city of Zanjan despite the existence of a very active charity organization (Mehrane). Thirdly, the results cannot be generalized to other cities.

Conclusion

The present study provided knowledge about pain acceptance for patients with cancer. Pain acceptance in Iranian patients with cancer was low compared to some other countries. Occupation and owning a personal vehicle were among the economic factors related to pain acceptance. To reduce the burden of disease in patients with cancer, it is recommended to pay attention to social determinants impressing health in the development of intervention programs to promote pain acceptance. Considering the homogeneity of the population under study and the existence of organizations that support cancer patients in Zanjan city, it is recommended to carry out further studies in other cities. Moreover, to address the problem of inadequate cancer pain acceptance, clinicians must not only investigate about and measure pain intensity, but should also assess and monitor social determinate factors.

Acknowledgments

This article is extracted from master thesis of medical–surgical nursing (code A-11-149-14) and approved by the Ethics Committee of Zanjan University of Medical Sciences (ethics code: IR.ZUMS.REC.1400.067) and all foreseen ethical principles were fulfilled. The researchers would like to appreciate all those who participated in this study.

Conflict of interest

The authors declare no conflict of interest.

Funding:

This study supported by Zanjan University of Medical Sciences.

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