Journal of Palliative Care & Medicine
ISSN: 2165-7386

Sharif, J Palliative Care Med 2012, 2:4
DOI: 10.4172/2165-7386.1000114

Research Article Open Access

The Effect of Pain Management Education on the Intensity of Pain and Quality of Life of Patients with Cancer

Farkhondeh Sharif[1]*, Hamideh Ansari[2], Ahmad Mosalaee[3], Peyman Jafaree[4] and Mohebi Zinat[5]

[1]*Faculty of Nursing, Department of Mental Health &Psychiatric Nursing Department, Community Based Nursing & Midwifery Research Center, Shiraz University of Medical Sciences, Shiraz, Iran*
[2]*Razi Hospital, Shiraz University of Medical Sciences, Shiraz, Iran*
[3]*Faculty of Medicine, Department of Biostatistics, Radiology & Oncology, Shiraz University of Medical Sciences, Shiraz, Iran*
[4]*Faculty of medicine, Department of Biostatistics, Shiraz University of Medical Sciences, Shiraz, Iran*
[5]*Faculty of Nursing, Department of Medical Surgical Nursing, Shiraz University of Medical Sciences, Shiraz, Iran*

Abstract

Context: Pain is the most prevalent symptom experienced by patients with cancer. If left untreated, it can cause complex complications for patients and interfere with their daily life and function, as well as their general quality of life.

Objectives: We aimed to assess the effect of pain management education on pain intensity and the quality of life of patients suffering from cancer.

Method: In this semi-experimental study, 60 patients with cancer pain were randomly selected and divided into two groups. The case group participated in pain management education program. Pain intensity was evaluated before intervention, and 2, 4, and 8 weeks after intervention. Also, the patient's quality of life was evaluated before intervention, and 4 and 8 weeks after intervention.

Results: The case group's mean pain and worst pain indices had a significant decrease four weeks after intervention. Eight weeks after intervention the mean pain, worst pain, and current pain indices were significantly reduced in the case group. However, two weeks after intervention we observed no significant decrease in the pain intensity indices between the two groups.

Four weeks after intervention, there was a significant increase in the mean quality of life, emotional function, physical function, and social function scores in the case group $p<0.05$. Eight weeks after intervention the case group showed a significant increase in all quality of life, as well as all functional scales $p<0.05$.

Conclusion: An organized and consistent pain management education program can effectively reduce pain and enhance the quality of life of patients with cancer.

Keywords: Pain; Pain management; Quality of life; Cancer; Education

Introduction

Pain is the most prevalent symptom experienced by patients with cancer [1] and one of the main concerns of their caregivers and the whole healthcare personnel [2]. The prevalence of cancer-related pain is estimated to be 30-50%, which increases to over 70% in patients with advanced cancer. However, this percentage increases to 65-85% with the advancement of cancer [3]. In the end stage of cancer, pain is most often accompanied by fear of death, lack of hope, and loss of physical control. If the pain is intense and inappeasable, it could lead to the patient's attempt of suicide [4]. Cancer-related pain is a multi-dimensional experience that includes physical, sensual, emotional, cognitive, and behavioral aspects. Therefore, if pain is left untreated it could lead to complex side effects and negative experiences that could interfere with the patient's daily life [2] and consequently affect all aspects of their quality of life [4]. These patients experience high levels of depression, fatigue, anxiety, mood disorder, and a lower quality of life [1].

Since quality of life is a powerful force in the guidance, maintenance, and improvement of people's health in all societies and cultures [5], one of the main goals of treatment is to increase the patient's quality of life as much as possible. Therefore, healthcare givers and researcher must initially obtain sufficient information regarding the influencing factors on quality of life and the methods for increasing it [6]. The relationship between quality of life and cancer-related pain has not been studied thoroughly; although, it could be guessed that pain would have a negative effect on quality of life [7].

One of the main obstacles in the effective management of pain in patients with cancer is the patients lack of knowledge and awareness regarding pain management, and their negative beliefs about cancer-related pain (such as their concerns about the use of opiates, or becoming addicted). Thus, the recent instructions on pain and related review articles confirm that pain management education is a key strategy for reducing wrong beliefs in patients and increasing their control over pain [8].

Several studies have also shown that cancer-related pain management education, which includes education about the nature of pain and its treatment, muscle relief, guided visualization, as well as structured pain management, was effective in reducing the intensity of pain and negative beliefs about use of medication in patients with cancer [8-10].

Since nurses are among the most important members of the treatment team with respect to assessing pain and following treatment

***Corresponding author:** Farkhondeh Sharif, Faculty of Nursing & Midwifery, Department of Mental Health & Psychiatric Nursing, Shiraz University of Medical Sciences, Shiraz, P.O.Box: 713451359, Iran, Tel: (+98) 711-6474255, 6474250; Fax: (+98) 711-6474252; E-mail: fsharif@sums.ac.ir

Received April 02, 2012; **Accepted** April 25, 2012; **Published** April 27, 2012

Citation: Sharif F, Ansari H, Mosalaee A, Jafaree P, Zinat M (2012) The Effect of Pain Management Education on the Intensity of Pain and Quality of Life of Patients with Cancer. J Palliative Care Med 2:114. doi:10.4172/2165-7386.1000114

strategies, they must be present from the beginning and during the evaluation of pain management programs, and can have a key responsibility in managing the patient's pain [11].

Considering the increased prevalence of cancer and its effect on all aspects of the patient's lives, and the lack of sufficient studies targeting the concept of quality of life in the Iranian population, this study was conducted to evaluate the effect of pain management education on the quality of life and pain intensity of patients suffering from cancer.

Methods

This semi-experimental study was done on patients with cancer, referring to Nemazee Hospital, Shiraz, Southern Iran. 60 patients suffering from cancer-related pain, whose pain intensity was higher than four, were included and randomly divided into case and control groups.

Those patients with cancer, who were undergoing radiotherapy or chemotherapy, were ≥18 years of age, literate, and had been diagnosed as having moderate to severe pain (≥4) were included in our study. We excluded those who had previously or currently took part in a pain management program, or had severe mental and physical disorders according to their physician, were excluded from our study.

Approval for the study was obtained from the Ethic Committee of Shiraz University of Medical Sciences before performing the study. Written consent was obtained from the patients. All participants were informed about the purpose of the study and about their right to withdraw at any time, and were assured that all personal information would remain confidential.

Data collection tools

The brief pain inventory: This questionnaire is a standard tool for pain measurement in patients with cancer. This inventory has 11 items and 4 background questions and consists of two main sections (pain measurement and its level of interference with daily life). The section related to pain intensity (sensual aspect) consists of 4 questions, and the section related to the interference of daily life (reaction aspect) consists of 7 questions. The validity and reliability of the questionnaire was evaluated by Vakilzadeh et al. [12]. Chronbach's alpha was 0.87, 0.87, and 0.89 for all items in the questionnaire, pain, and reaction, respectively. Ultimately, this study showed that the Persian version of the brief pain inventory is a valid and reliable tool for measuring pain in patients with cancer [12].

The European organization for research and treatment for cancer quality of life questionnaire, core module (EORTC QLQ-C30)

In order to assess the patients quality of life we used the EORTC QLQ-C30, which is a standard cancer-specific questionnaire consisting of 30 questions. It consists of two general concepts of functional condition and prevalent signs and symptoms of cancer and its treatment. A higher score in the functional aspects indicates a better function, while a higher score in the sings and symptoms section shows a higher intensity in those symptoms. The validity and reliability of the Persian version was assessed by Montazeri et al. [13]. Chronbach's alpha was 0.70 for the whole questionnaire, and 0.51-0.98 for different fields. The European Organization for Research and Treatment for Cancer has also confirmed the validity and reliability of this version [13].

The demographic data and cancer characteristics questionnaire

This questionnaire was used to record the demographic data of the patients including their age, sex, educational level, marital status, occupation, and income. We also recorded data about their illness such as the type of cancer, stage of cancer, duration of illness from the time of diagnosis, and the type of treatment.

Data collection method and intervention

The researcher measured the current pain intensity using the sixth question of the brief pain inventory, and of the intensity was higher that 4, the patient was referred to a related oncologist. The oncologist determined whether the patient's pain resulted from the illness and its progression or from related treatments such as chemotherapy or radiotherapy by considering the clinical and paraclinical findings, the history of pain, and the diagnosis and type of cancer. We included those patients whose pain was related to the illness.

The patients in both case and control groups completed the demographic data, brief pain inventory, and EORTC QLQ-C30 questionnaires. 2, 4, and 8 weeks after the intervention all participants completed the brief pain inventory questionnaire and 4 and 8 weeks after intervention they filled the EORTC QLQ-C30. The control group received routine care and treatment during the study. The case group, however, participated in pain management education programs besides receiving routine treatment. In order to increase the quality of these sessions the patients in the case group were divided into 3 groups of 10 members. They participated in the program for 6 consecutive weeks. Each session lasted for 20-30 minutes and the patients received related educational booklets.

The educational content of the program included education regarding cancer-related pain, obstacles patients and their families face for controlling pain, cancer medications and their side effects, and other types of treatment such as muscular relaxation, guided visualization, etc. Benson's muscle relaxation technique was performed accompanied by group discussions in which the patients talked about their experience of pain and its relief. The educational CD and booklet was given to the participants after the study.

Data analysis

Data were coded and analyzed using SPSS software, version 15. Frequency percentage and confidence interval calculation was used to analyze descriptive data, and Chi-square test was used to compare demographic information between both groups 44.

A P value<0.05 was considered as significant. In order to assess the amount of pain and quality of life before and after intervention using paired sample *t* test. Also, independent sample *t* test was used to compare the amount of pain and quality of life in both groups.

Results

The patients demographic characteristics

We studied 60 patients for five months who were randomly divided into two case (n=30) and control (n=30) groups (using block randomization). None of the patients were excluded from the study. The age range of the participants in the control and case groups were 32-66 years (mean ± SD = 49.7 ± 8.86) and 27-68 years (mean ± SD = 47.97 ± 10.38), respectively. In order to compare both groups we used the independent *t* test, and the results showed that there was no significant relationship between the mean ages of both groups (P>0.05).

Women comprised 70% and 60% of the participants in the control and case groups, respectively. Most of the patients in the control (90%) and case (80%) were married, and 66.7% of the participants (with respect to 56.7% in the case group) had an educational level of under diploma. 53.3% of the patients in the control group were housewives (with respect to 43.3% in the case group). 63.3% and 70% of the patients in the control and case groups had a moderate income, respectively.

There was no significant relationship between the two groups regarding their demographic data, such as sex, marital status, educational level, occupation, and income, using the Chi-square test (P>0.05) (Table 1).

The patients types of disease

Most of the patients had breast cancer in the control (36.7%) and case (43.3%) groups upon initial diagnosis. 66.7% and 60% of the patients in the control and case groups were in stage III of cancer, respectively. About half of the patients in the control (56.7%) and case (46.7) groups only received chemotherapy.

The characteristics of the patient's illness were compared between both groups using the Chi-square test, and no significant difference was found (Table 1).

Pain

As shown in table 2, the mean comparison of pain intensity and pain relief scores, before and 2 weeks after the intervention, using the independent t-test, shows no significant difference between both groups. However, 4 weeks after intervention the mean pain and worst pain scores showed a significant reduction in the case group compared with the control group (P<0.01 and P<0.05, respectively). Moreover, pain relief was significantly higher in the case group. However, the least pain and current pain did not show any significant difference in both groups.

Also, eight weeks after intervention the mean scores of the case group in scales such as mean pain, worst pain, and current pain, showed a significant decrease (P<0.01, P<0.01, and P<0.05, respectively). In the least pain scores no significant difference was observed (P>0.05).

By comparing the mean scores of pain interference with daily chores before and two weeks after intervention, we found no significant

Variable		Control group (Number, %)	Case group (Number, %)	X^2	P Value
Sex	Men	9 (30)	12 (40)	0.65	0.41
	Women	21 (30)	18 (60)		
Marital status	Married	24 (80)	27 (90)	1.17	0.27
	Single	6 (20)	3 (10)		
Education Level	Under diploma	20 (66.7)	17 (56.7)	0.63	0.42
	Diploma & higher	10 (33.3)	13 (43.3)		
Occupation	Unemployed	2 (6.7)	3 (10)	0.91	0.82
	Freelancer	4 (13.3)	6 (20)		
	Employee	8 (26.7)	8 (26.7)		
	Housewife	16 (53.3)	13 (43.3)		
Income level	Bad	8 (26.7)	6 (20)	1.58	0.66
	Moderate	19 (63.3)	21 (70)		
	Good	2 (6.7)	3 (10)		
	Very good	1 (3.3)	0 (0)		
Type of cancer	Breast cancer	11 (36.7)	13 (43.3)	0.69	0.70
	Gastrointestinal cancer	11 (36.7)	8 (26.7)		
	Other types	8 (26.7)	9 (30)		
Stage of disease	III	20 (66.7)	18 (60)	0.28	0.59
	IV	10 (33.3)	12 (40)		
Type of treatment	Chemotherapy	17 (56.7)	14 (46.7)	0.61	0.73
	Radiotherapy	3 (10)	4 (13.3)		
	Both	10 (33.3)	12 (40)		

Table 1: Comparing the demographic characteristics of the patients in both groups.

	Before intervention			2 weeks after intervention			4 weeks after intervention			8 weeks after intervention		
	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P
Worst pain	7.10 ± 1.47	7.17 ± 1.39	0.85	7.20 ± 1.06	7.00 ± 1.14	0.48	7.50 ± 1.22	6.83 ± 1.26	***0.042	7.70 ± 1.26	6.73 ± 1.33	**0.006
Least pain	3.60 ± 1.61	4.03 ± 1.81	0.33	3.73 ± 1.50	3.70 ± 1.29	0.92	3.93 ± 1.20	3.57 ± 1.07	0.217	4.10 ± 1.42	3.47 ± 1.13	0.067
Mean pain	5.47 ± 1.57	5.57 ± 1.45	0.79	5.50 ± 1.43	5.27 ± 1.28	0.50	5.83 ± 1.14	4.80 ± 1.27	**0.002	6.07 ± 1.36	4.73 ± 1.31	*<0.001
Current pain	5.90 ± 1.86	5.97 ± 1.77	0.88	5.97 ± 1.42	5.70 ± 1.51	0.48	6.13 ± 1.13	5.47 ± 1.63	0.072	6.30 ± 1.29	5.43 ± 1.63	0.076
Pain relief	3.67 ± 0.97	3.57 ± 0.93	0.67	3.60 ± 0.77	3.83 ± 0.64	0.20	3.53 ± 0.77	4.07 ± 0.90	***0.017	3.57 ± 0.72	4.70 ± 1.09	***0.011
Interference with daily life	38.73 ± 8.56	38.30 ± 8.52	0.97	39.30 ± 6.71	36.27 ± 7.03	0.09	40.00 ± 5.38	34.10 ± 5.46	*<0.001	40.63 ± 5.89	33.73 ± 5.95	*<0.001

* P-value :< 0.001 or equal
** P-value :< 0.01
*** P-value :< 0.05

Table 2: Comparing the mean ± SD of pain intensity and pain relief before, and 2, 4, 8 weeks after intervention between both groups.

difference between both groups. However, a significant reduction was observed 4 and 8 weeks after intervention in this score in the case group (P<0.001).

Quality of life and its functional scales

As shown in table 3, no significant difference was found between the case and control groups regarding the mean scores of the general quality of life and its functional scales before intervention, using the independent *t* test. However, 4 weeks after intervention the mean scores of general quality of life, emotional function (P<0.001), physical function (P=0.001), and social function (P<0.05) increased in the case group compared with the control group. And there was no significant difference in the cognitive function and role management scales between the two groups (P>0.05).

Moreover, 8 weeks after intervention the mean intervention scores of the case group showed a significant increase in scales such as general quality of life, role management and physical, emotional, social, and cognitive functions.

Symptomatic scales of quality of life

As shown in table 4, there was no significant difference between both groups regarding the symptomatic scales of quality of life using the independent *t* test before the intervention. However, 4 weeks after intervention the mean scores of the case group had a significant reduction for symptoms such as fatigue, pain, sleep disorder, nausea and vomiting, and loss of appetite. Regarding shortness of breath, diarrhea, constipation, and economical problems, no significant difference was observed between both groups.

Moreover, 8 weeks after intervention, the mean scores of symptoms such as fatigue, pain, sleep disorder, nausea and vomiting, loss of appetite, and shortness of breath reduced significantly in the case group compared with the control group. We did not observe any significant difference between both groups regarding diarrhea, constipation, and economical problems.

Discussion

Our findings confirmed that pain management education reduced pain intensity in patients suffering from cancer. Compared with the control group, no significant difference was observed in all aspects of pain in patients participating in 6 sessions of pain management program before, and two weeks after intervention. However, this trend reduced significantly 4 weeks after intervention with respect to mean pain and worst pain in the case group, and 8 weeks after intervention in aspects such as mean pain, worst pain, and current pain. Considering the lack of sufficient knowledge in the Iranian society about non-pharmaceutical techniques for pain treatment, such as the muscle relaxation and guided visualization techniques, the patients need sufficient time and exercise to be able to reduce their pain using these techniques. Moreover, compared with other studies performed in other countries, we should consider cultural differences and beliefs

Scales	Before intervention			4 weeks after intervention			8 weeks after intervention		
	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P
General quality of life	44.44 ± 11.23	46.94 ± 12.27	0.41	43.33 ± 7.38	51.94 ± 7.15	*<0.001	41.39 ± 08.32	51.39 ± 08.21	*<0.001
Physical function	58 ± 14.5	57.33 ± 15.17	0.86	56.22 ± 11.02	65.78 ± 10.01	*<0.001	57.11 ± 11.96	68.22 ± 09.04	*<0.001
Role management	54.44 ± 23.94	51.11 ± 20.02	0.56	53.33 ± 13.41	60.56 ± 17.77	0.081	52.22 ± 12.93	63.89 ± 19.12	**0.008
Emotional function	50.56 ± 16.51	49.72 ± 19.63	0.85	46.39 ± 13.43	63.89 ± 12.44	*<0.001	43.33 ± 11.02	62.78 ± 13.08	*<0.001
Cognitive function	65.56 ± 11.52	62.78 ± 12.13	0.36	63.33 ± 11.90	70.00 ± 14.11	0.053	62.78 ± 12.13	70.56 ± 14.30	***0.027
Social function	43.89 ± 24.16	40.56 ± 22.60	0.58	37.78 ± 16.33	47.78 ± 18.94	***0.033	33.33 ± 14.51	48.89 ± 14.47	*<0.001

* P-value :< 0.001 or equal
** P-value :< 0.01
*** P-value :< 0.05

Table 3: Comparing the mean ± SD of quality of life and its functional scales before, and 2, 4, 8 weeks after intervention between both groups.

Aspects	Before intervention			4 weeks after intervention			8 weeks after intervention		
	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean ± SD)	P	Control group (Mean ± SD)	Case group (Mean±SD)	P
Fatigue	52.22 ± 14.03	50.00 ± 14.80	0.55	56.67 ± 11.79	38.15 ± 12.61	*<0.001	60.00 ± 11.88	35.93 ± 14.20	*<0.001
Nausea and vomiting	17.22 ± 17.22	20.00 ± 19.27	0.55	23.89 ± 13.62	15.00 ± 14.08	***0.016	27.22 ± 11.97	15.56 ± 13.08	*0.001
Pain	63.33 ± 16.02	63.89 ± 16.42	0.89	69.44 ± 12.44	45.00 ± 15.25	*<0.001	73.33 ± 10.35	42.22 ± 16.22	*<0.001
Shortness of breath	35.56 ± 19.44	37.78 ± 16.91	0.63	37.78 ± 19.04	30.00 ± 16.02	0.092	38.89 ± 19.73	27.78 ± 15.37	***0.018
Sleep disorder	56.67 ± 23.40	58.89 ± 22.63	0.71	66.67 ± 19.57	34.44 ± 20.49	*<0.001	64.44 ± 14.99	30.00 ± 16.02	*<0.001
Loss of appetite	40.00 ± 29.55	42.22 ± 26.16	0.75	48.89 ± 24.34	34.44 ± 20.49	***0.016	51.11 ± 22.71	31.11 ± 19.44	*0.001
Constipation	23.33 ± 30.51	25.56 ± 29.92	0.77	26.67 ± 22.14	21.11 ± 22.28	0.33	28.89 ± 22.71	24.44 ± 21.32	0.43
Diarrhea	16.67 ± 19.07	18.89 ± 24.26	0.69	18.89 ± 18.94	13.33 ± 16.60	0.23	17.78 ± 16.91	11.11 ± 15.98	0.12
Financial problems	51.11 ± 25.86	53.33 ± 24.13	0.73	61.11 ± 26.38	64.44 ± 23.05	0.60	68.89 ± 23.05	71.11 ± 19.04	0.685

* P-value :< 0.001 or equal
** P-value :< 0.01
*** P-value :< 0.0

Table 4: Comparing the mean ± SD of symptomatic aspects of quality of life in relation to cancer between both groups.

regarding pain in our society. Also, we should also consider the two-week New Year's holidays in Iran straight after intervention and the possibility that some patients might not be able to do their exercises because of holiday trips and usual visits to their relatives' houses. Our findings are consistent with some previous studies on the effect of pain management educational programs for reducing pain intensity in patients with cancer [8].

Kuzeyli et al. [14] conducted a study on hospital admitted patients suffering from cancer-related pain, and found that after one 30-40 minute pain management session accompanied by educational material, their pain significantly reduced 2, 4, and 8 weeks after intervention in scales such as current pain and least pain, while they did not observe a significant difference in the worst pain scale [14].

Lai et al. [8] found that after 5 days of pain management education for hospital admitted patients with cancer, had a significant reduction in their mean main, current pain, worst pain, and least pain scores in the case group compared to the control group. However, in the control group only the current pain and mean pain scores reduced significantly [8].

Lin et al. [15] concluded that 2 and 4 weeks after one 30-40 minute pain management program accompanied with educational brochures can significantly reduce the mean and worse pain scores in patients [15].

Van der peet et al. [16] performed a randomized clinical trial consisting of three 1-1:30 hour education sessions and found that 4 weeks after intervention the patient's intensity of pain reduced significantly in the case group. However, 8 weeks after intervention no significant difference was seen between both groups [16].

Since treating chronic pain is difficult in patients suffering from cancer and patients in end stages of illness have immense pain and little hope for life, the reduction of pain intensity after pain management education programs is highly beneficial and clinically important for these patients [14].

One of the important indices for evaluating the effect of pain treatment in patients with cancer is their level of satisfaction regarding pain relief [17]. This issue has also been emphasized by the Healthcare Research Organization of the United States of America [18].

Our findings showed that the pain relief score in the case group had a significant increase at 4 and 8 weeks after intervention compared to the control group. No significant difference was observed before and 2 weeks after intervention. The same factors that influenced the lack of pain reduction 2 weeks after intervention could be responsible here as well.

Kuzeyli et al. [14] found that 2, 4, and 8 weeks after intervention the patient's satisfaction of pain relief increased significantly in the case group [14]. Lin et al. [15] found that 2 and 4 weeks after a 30-40 minute pain management education program with educational brochures the patient's satisfaction level increased significantly [15].

Based on the findings of our study, as well as previous studies, we could conclude that performing pain management programs for patients with cancer can indirectly lead to the acceptance of pain in patients as they mentioned in the sessions, or indirectly assist healthcare providers to reduce the patient's pain. It is better to use non-pharmaceutical treatments alongside medication for the better management of pain [8,10,19-21].

One of the other important indices in assessing pain is the amount of its interference with daily life. By comparing the related mean scores between the case and control groups, we found that there was no significant difference between both groups before and two weeks after intervention. However, 4 and 8 weeks after intervention the mean scores of the case group showed a significant reduction compared with the control group. Previously mentioned factors could also justify this issue, and also, since these patients have a high pain intensity score, pain would inevitably interfere with their daily life and thus the related scores would also be higher.

Miaskowski et al. [22] found that just after pain management education programs such as light educational techniques, pain management education, and handing out educational brochures to patients with cancer over a period of 6 weeks by experienced nurses at the patients homes reduced the pain interference scores in the case group [22].

Moreover, Lin et al. [15] found that 2 weeks after intervention, there was no significant difference in the mean pain interference scores between both case and control groups. However, a significant difference was observed 4 weeks after intervention in this group [15].

The findings of this study and other studies show that pain management programs can be very effective in reducing pain interference with daily life if accompanied by techniques such as muscle relaxation.

By comparing the mean quality of life scores between both groups before, 4 and 8 weeks after intervention, the patient's quality of life improved after pain management education programs.

Based on our results 4 and 8 weeks after intervention scores related to quality of life, and physical, emotional and social function increased significantly in the case group, while role management and cognitive function scores did not differ significantly. Also, 4 weeks after intervention the mean scores reduced significantly in scales such as fatigue, pain, sleep disorder, nausea and vomiting, and loss of appetite. Eight weeks after intervention, the mean scores in scales such as fatigue, pain, sleep disorder, nausea and vomiting, loss of appetite, and shortness of breath reduced significantly in the case group compared with the control group.

In this regard, Savinyte et al. [23] performed a study in which they conducted one 20-25 minute educational session on pain management for patients with cancer whose pain score was higher than 4. They concluded that 4 weeks after intervention, the patients quality of life increased significantly in the case group [23].

Van der peet et al. [16] performed a clinical trial including three 1-1:30 hour educational sessions one, three, and six weeks, about pharmaceutical and non-pharmaceutical pain management for patients with cancer. 4 and 8 weeks after intervention the patient's quality of life increased significantly in their study [16].

Park et al. [24] performed a pain management education program for patients with cancer. They found that 2 weeks after intervention the quality of life of those patients whose pain had reduced significantly after intervention, increased significantly. The scores related to fatigue, pain, nausea, and sleep disorder also improved [24].

Our results showed that after pain management programs the quality of life of patients with cancer improves significantly. Although related studies are limited and their results differ from each other, we can conclude that if all aspects of pain and its effect on patients' lives are considered when planning these programs, they could have a crucial impact on the patient's lives.

Conclusion

Our studies showed that practical and theoretical pain management education programs during a period of 6 weeks accompanied by educational CDs and booklets can reduce cancer-specific pain and increase the patient's quality of life. The number of sessions, their quality, and practical education is also important. Since, nurses play an important role in taking care of the patients; they should pay attention to pain management in patients suffering from cancer. The result of this study can help healthcare workers to better organize and enhance the patient's health and quality of life.

Disclosures and Acknowledgment

We would like to thank the Vice-Chancellor for Research, Shiraz University of Medical Sciences for financial support for this research, which was done in partial fulfillment of the requirements for the M.Sc. degree awarded to H.Ansari. The authors thank the patients for their active contribution and participation in this research. We also would like to thank Dr. Nakhaee for providing the BPI scale and his cooperation.

References

1. Vallerand AH, Templin T, Hasenau SM, Riley-Doucet C (2007) Factors that affect functional status in patients with cancer-related pain. Pain 132: 82-90.
2. Keefe FJ, Ahles TA, Sutton L, Dalton J, Baucom D, et al. (2005) Partner-guided cancer pain management at the end of life: a preliminary study. J Pain Symptom Manage 29: 263-272.
3. Payne R (2007) Recognition and diagnosis of breakthrough pain. Pain Med 8: S3-S7.
4. Al-Dgheim R (2005) Pain, coping strategies, and quality of life in advanced prostate cancer. Case Western Reserve University.
5. Heydarnejad MS, Hassanpour DA, Solati DK (2011) Factors affecting quality of life in cancer patients undergoing chemotherapy. Afr Health Sci 11: 266-270.
6. Sandblom G, Carlsson P, Sigsjö P, Varenhorst E (2001) Pain and health-related quality of life in a geographically defined population of men with prostate cancer. Br J Cancer 85: 497-503.
7. Al-Atiyyat NMH (2009) Pain, coping strategies, and quality of life in Arab American cancer patients: Wayne State University.
8. Lai YH, Guo SL, Keefe FJ, Tsai SL, Chien CC, et al. (2004) Effects of brief pain education on hospitalized cancer patients with moderate to severe pain. Support Care Cancer 12: 645-652.
9. Kwekkeboom KL, Hau H, Wanta B, Bumpus M (2008) Patients' perceptions of the effectiveness of guided imagery and progressive muscle relaxation interventions used for cancer pain. Complement Ther Clin Pract 14: 185-194.
10. Aubin M, Vézina L, Parent R, Fillion L, Allard P, et al. (2006) Impact of an educational program on pain management in patients with cancer living at home. Oncol Nurs Forum 33: 1183-1188.
11. Valeberg BT (2009) Pain, coping, and barriers to pain management in outpatients with cancer. The University of Bergen.
12. Nakhaee N, Vakilzadeh P (2007) The Reliability and Validity of the Persian version of brief pain inventory in cancer patients. Journal of Rafsanjan University of Medical Science 5: 253-258.
13. Montazeri A, Harirchi I, Vahdani M, Khaleghi F, Jarvandi S, et al. (1999) The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30): translation and validation study of the Iranian version. Support Care Cancer 7: 400–406.
14. Yildirim YK, Cicek F, Uyar M (2009) Effects of pain education program on pain intensity, pain treatment satisfaction, and barriers in Turkish cancer patients. Pain Manag Nurs 10: 220-228.
15. Lin CC, Chou PL, Wu SL, Chang YC, Lai YL (2006) Long-term effectiveness of a patient and family pain education program on overcoming barriers to management of cancer pain. Pain 122: 271-281.
16. van der Peet EH, van den Beuken-van Everdingen MH, Patijn J, Schouten HC, van Kleef M, et al. (2008) Randomized clinical trial of an intensive nursing-based pain education program for cancer outpatients suffering from pain. Support Care Cancer.
17. Evans CJ, Trudeau E, Mertzanis P, Marquis P, Peña BM, et al. (2004) Development and validation of the Pain Treatment Satisfaction Scale (PTSS): a patient satisfaction questionnaire for use in patients with chronic or acute pain. Pain 112: 254-266.
18. (1994) Agency for Health Care Policy and Research. Management of cancer pain. Clinical practice guideline, AHCPR Publ; No. 94-0592.
19. Wells-Federman C, Arnstein P, Caudill M (2002) Nurse-led pain management program: effect on self-efficacy, pain intensity, pain-related disability, and depressive symptoms in chronic pain patients. Pain Manag Nurs 3: 131-140.
20. Oliver JW, Kravitz RL, Kaplan SH, Meyers FJ. (2001) Individualized patient education and coaching to improve pain control among cancer outpatients. J Clin Oncol 8: 2206-2212.
21. Chang MC, Chang YC, Chiou JF, Tsou TS, Lin CC (2002) Overcoming patient-related barriers to cancer pain management for home care patients. A pilot study. Cancer Nurs 25: 470-476.
22. Miaskowski C, Dodd M, West C, Paul SM, Schumacher K, et al. (2007) The use of a responder analysis to identify differences in patient outcomes following a self-care intervention to improve cancer pain management. Pain 129: 55-63.
23. Savinyte A, Toliusiene J, Skorupskiene D, Sciupokas A (2007) The influence of patients' education about cancer pain management on patients' quality of life and self care. Nursing Program 8155: 453.
24. Park KU (2008) Assessment of change of quality of life in terminally ill patients under cancer pain management using the EORTC Core Quality of Life Questionnaire (QLQ-C30) in a Korean sample. Oncology 74: 7-12.