Iran J Cancer Prev. 2016 October; 9(5):e4618. doi: 10.17795/ijcp-4618.

Published online 2016 September 28. **Research Article**

The Effect of Social Capital Enhancement on Quality of Life, Treatment Compliance and Pain in Patients with Breast Cancer

Sayede Mahboobeh Hosseini,[1] Mir Taher Mousavi,[1] Hassan Rafiee,[1] and Salah Eddin Karimi[1,*]

[1]Department of Social Welfare Management, School of Education and Social Welfare, Social Welfare Management Research Center, University of Social Welfare and Rehabilitation Science, Tehran, IR Iran

[*]*Corresponding author*: Salah Eddin Karimi, Department of Social Welfare Management, School of Education and Social Welfare, Social Welfare Management Research Center, University of Social Welfare and Rehabilitation Science, Tehran, IR Iran. Tel: +98-9180507617, Fax: +98-2122180048, E-mail: salahkarimi2009@gmail.com

Received 2015 November 07; **Revised** 2015 December 21; **Accepted** 2016 September 24.

Abstract

Background: Nowadays, research about quality of life in breast cancer patients is so important, because of progress in treatment procedure in health science. Brest cancer influences quality of life aspects and disrupts social relationships. This creates recluse lifestyle and speeds up disease trend.

Objectives: The aim of this study was to investigate the effect(s) of social capital on quality of life, treatment compliance, and pain in patients with breast cancer.

Materials and Methods: In a clinical trial, 29 patients with breast cancer (who referred to Kashany hospital in Shahrekord during 2010 - 2012) through non-probability (available) sampling were selected and randomly divided into two groups. The intervention group received some interventions to promote social capital and the non-intervention group took routine treatment.

Results: Before the intervention, both groups were similar in terms of the study variables. But after the intervention, in the intervention group social capital, Qol and treatment compliance increased and in the non-intervention group, these variables decreased. Pain in both groups was reduced, but this reduction was more noticeable in the intervention group.

Conclusions: Increasing the social capital results in promoting Qol, health behaviors, treatment compliance and pain relief. Then methods of promoting social capital can be used as a way to improve Qol and treatment compliance and relieve pain.

Keywords: Breast Cancer, Pain, Quality of Life, Social Capital, Treatment Compliance

1. Background

Cancer is one of the death causes all over the world (1). In developed countries, it is considered as the second cause of death after cardio-vascular diseases and as the third cause of death in developing countries (2). Breast cancer which stems from uncontrollable growth and malignant tumor of epithelial cells-lining ducts and lobes of breast tissue in women- is one of the most common cancers among women (3).

Increasing growth in breast cancer and its harmful effects on different physical, spiritual, social and economic dimensions result in more attention to this disease among people and scholarships in this century. So researchers have introduced it as a major health problem (4).

According to Pan American health organization (http://www.paho.org/hq), every year, more than 1.6 million new cases of breast cancer among women are recognized, that is about 10% of new cancer cases and 23% of all cancers in women. It is estimated that currently about 4.4 million of women who lived in the world over the 5 past years had been diagnosed with breast cancer (5).

The age specific incidence of breast cancer in the world is 38.9 per 100,000.This rate is 86.4 in the developed countries and 27.3 in developing countries (6). In Iran, the net incidence rate is 28.25 per 100,000 persons every year. Currently 30 million women live in Iran, so approximately 6000 new cases are diagnosed every year. Therefore, it is estimated that 0.1 women are affected with this type of cancer in this country (6).

Incidence and prevalence of breast cancer in Iranian women are 22 and 120 per 100,000 persons over 30 years old, respectively. The ASR of breast cancer is 28.25/100000 (http://yasalam.tums.ac.ir). According to National cancer registration in 2009, breast cancer in women has the highest rate in all cancers (23.0%). Tehran (43.36), Esfahan (39.67), Yazd (38.52), Markazi (36.63), and Fars (36.17) are in the first to fifth places in ASR, respectively (6). According to researches, patients in Iran are 10 years younger than other countries, so this indicates the importance of the investigation, diagnosis and control of this disease (7).

Traditionally, cancer diagnosis is considered as an early death and functional disability (8). But nowadays, with the modern medicine and facilities, this disease is considered a chronic disease in more than half of the cases (9). This may take a long time; therefore, it needs different treat-

ment in the long run (10).

So the important issue in such disease is treatment compliance, which is defined as a degree of similarity between drugs used by patients and physician orders. Treatment compliance is a complex issue that involves patient, families and care givers (11). This process depends on family's cultural beliefs, their perceptions of the severity of illness and understanding of the benefits of treatment (12).

Observance is on a continuum whose one end is acceptance and the other is refusal. In general, consequence of refusal from the treatment is losing the opportunity to improve the health and losing medicine by health system. In other words, degree of compliance is directly associated with worse clinical outcome (13).

Despite the vast progress in cancer treatment that induces better tumor reaction into treatment and increases longevity, these measures are accompanied with many side effects, such as nausea and vomiting, mouth ulcer, anorexia, fatigue, constipation, diarrhea, infection, hair loss, sexual problems, decrease in blood cells, dysmenorrhea and Pain in chemotherapy site (14).

Pain is one of the most important problems in this disease. Studies have shown that pain and pain related medical treatment for these patients is a major problem as the disease itself. As cancer related pain or measures side effects influence 50 % to 90 % of patients (15). Breast cancer patients suffer from auxiliary pain or pain in breast, chest and shoulder (3).

Pain is a multidimensional phenomenon, so it makes its definition difficult. Because the personal and subjective experiments cannot be investigated through an objective measurement (16).

According to the international association of pain, pain is what the patient says and every time he says it exists. This definition focuses on the subjective nature of pain and its management (17).

This pain can affect Qol. Many studies have shown that these patients suffer from depression, anxiety, helplessness, avoidance behaviors, physical disability and activity limitation (18). The feeling of dependency, loss of confidence, feeling of vulnerability, confusion, pain, physical vulnerability, disorganized thinking and impaired daily functions are their problems.

In addition to these, social activities and peace of mind will be disturbed so much that it inhibits patients from participating in social activities and introduces new roles, and causes patients dependency (19-21). Moreover, prolonged hospitalization, repeated visits to the doctor, and high cost of health care system will reduce the Qol (22).

Qol is a dynamic and subjective structure that compares past life with recent event at all the pros and cons details (23). The subjective nature of Qol deals with the personal perception about their life instead of other reports and according to Ferrans and Powers definition, Qol is originated from the satisfaction or dissatisfaction with areas of life that are important for individuals (24).

WHQOL defines Qol as a person's perception as their situation in life in cultural context and value system; it deals with their goals, expectations and problems, also it includes physical health, psychological status, independency level, social relationship, personal belief and relation with environment dimension. Qol is related to subjective assessment of environmental, social and cultural context (25).

As prior studies concluded, supportive measures are effective in improving public health and Qol during the chemotherapy (26). In other words, during such course, it is possible to empower family supportive network and strength family life through consultative meetings with patients and their families. This will improve the physical, mental and emotional ill person (27).

Therefore developed relationship network and social ties, improves access to socio-economical sources (28). These links can be named as a social capital, in bonding and bridging form that can bridge social elements and facilitate plural actions, which improve Qol (29).

Social capital is source or rent from individual's membership in social network. Interaction in social network produces source and rent, and these outputs of network are considered as a social capital. In a simpler definition, ties between individuals in a social communication network are called social capital (30).

Nan Linn in her social resource theory (1982) suggests : accessing community resource and using them can lead to better economic and social opportunities , therefore in 1998, she introduced concept of social capital as a resource embedded in the social structure that are accessed by meaningful interactions (31).

From Linn's view point, two important elements of social capital are embedded resources and network situation. Results of membership in social network are classified as: implement action and statement action (31). For implement action, three types of economic efficiency (wealth), political (power) and social (reputation) are considered and in statement action, social capital is a tool to consolidate resources and defend against source losing and leads to three types of resources: physical health , mental health and quality of life (28).

Previous studies had recognized respect between social capital and Qol mainly through correlation and experimental studies, investigating the impact of social support, consultative, group therapy etc. on Qol.

However, it remained unclear whether the increased social capital can enhance the Qol or not. In other words,

causality direction was obvious. In addition, relationship between social capital and treatment compliance or pain has not been studied yet.

So we designed an interventional study to survey the effects of social capital (through increased communication, access to resources and enhancing knowledge) on Qol -in four areas of Health /Functioning(H/F) , socio / economical(S/E) , psychological / spiritual(P/S) and family, and Treatment compliance and pain in patient with breast cancer.

2. Materials and Methods

This study was conducted as a clinical trial in patients with breast cancer (who referred to Kashani hospital in Shahrekord during 2010 - 2012) in 2013. For sample size determination, we used the same study method and 14 were assigned in each group.

From this population, 29 patients, based on inclusion criteria (detection of breast cancer in stages 1 and 2, ability of writing and reading, desire and consent to participate in the study, age between 25 to 65 years, history of mastectomy, absence of historical disease, absence of malignancy or metastasis in other organs, and receiving chemotherapy) with non probability sampling (available) were selected and randomly divided in to two groups (intervention and nonintervention groups). Before holding Briefings and intervention, social capital, Qol, treatment compliance and pain in both groups were measured. Tools used in this study included:

1) Demographic questionnaire (including criteria such as age, education, marital status, number of children, employment status and socio-economic status).

2) Ferrans and Powers Qol index for measuring Qol that includes four areas: health and functional, socio /economical, psychological / spiritual and family. The reliability and validity of this questionnaire were tested by Rafiee (24). Content validity, based on the literature review issues related to the Qol and patients' reported Qol, demonstrates high levels of acceptability of this type of validity.

As of constructive validity, there was a strong correlation between the total score of this scale and converse, and Rodgers's and Campbell life satisfaction criteria. Cronbach's alpha was between 63 % to 99 % for overall Qol. In health and function it was 60 % to 94 % , in psychological and spiritual it was 78 % to 96% , in socio-economical was 61 % to 92 %, and in family was 63 % to 92 % in 23 studies (24).

3) For social capital measure, we used the social capital questionnaire which Qassemzade used in his thesis. This questionnaire is composed of two questionnaires. One is bonding social capital designed by Mousavi (30) and bridging social capital called SAAM ranking (32).

Qassemzade composed them and calculated reliability and validity of this questionnaire. Cronbach's alpha in bonding social capital was % 931 and in bridging social capital was % 812, which showed that the scale has high reliability coefficient. Also he used the Kaiser Mayer test and Bartlet for validity and achieved high level of validity (33). Interventions were collected via check list.

4) For Treatment compliance, we used creative check list (proportion of referred chemotherapy meeting as recommended meetings, the degree of adherence to diet, exercise and drug regimen).

5) We used visual analogue scale (VAS) for pain assessment. It is a ruler with 10 cm. Zero represents no pain and 10 represents the most severe pain. Points 1 - 3 indicate mild pain, 4 - 6 moderate pain and 8 -10 represents the pain is severe (17).

After variables measurement, patients were divided into two groups based on random selection. For intervention group beside standard cures, some intervention had been administered. Before the main intervention, 8 sessions in order for patient's justification were holed. In these sessions, method and details of intervention were explained and the aim of this session is to establish rapport between patients and researchers.

After that, in order to start the main intervention, an inventory delivered to every patient to fill in. Every week patients gathered together and spoke about their works and experiences, and delivered their filled check list and took a new one for the next week. The total time of intervention lasted 3 months, 12 sessien. The non-intervention group took a routine treatment during this time. 2 weeks after the intervention ended, variables were measured again and the results were compared. Based on the literature review, it was found that the 3-month intervention is sufficient to observe the effects of the independent variable so interventions after three months ended.

3. Results

To perform statistical tests for hypotheses testing, one should first check data for normality that represent in Table 1.

With respect to the above variables, social capital and Qol had a normal distribution ($P > 0.05$); therefore, parametric tests were used for hypothesis testing. The demographic variables, pain and compliance were not normally distributed ($P \leq 0.05$) and non-parametric tests were used.

Information about demographic characteristics of the sample units is shown in Table 2. According to Table 2, in the intervention group, age mean was 45.85 years old and in non-intervention group was 40.21.

93.3 % of intervention group and 78.6 % of non-intervention group had a higher education than high school. 73.3% of intervention group and 64.3 % of non-intervention group had more than 3 children.

In terms of the socio-economic status, 93.4 % in intervention group and 64.3 % in the non-intervention group were of middle to high income. Both groups were identical in terms of demographic variables ($P > 0.05$) and these variables did not have normal distribution ($P \leq 0.05$). So we used non-parametric test.

After normality calculation, it was determined that social capital and its dimensions followed a normal distribution ($P > 0.05$) so parametric statistical tests were used. As it is shown in Table 3, in the intervention group, mean of social capital in pretest, was 109.6 which was slightly lower than the non-intervention group. Independent T test showed that in pre- test stage, there was not any significant difference between two groups in terms of the social capital ($P > 0.05$).

But in the post test with paired T-test, meaningful statistical changes were seen ($P \leq 0.05$). So in this group social capital and its dimensions increased and in non-intervention group social capital and bridging dimension decreased, but bonding Social capital did not have statistical changes ($P > 0.05$).

Also after calculating the difference between pre- test and post-test in both groups and using the U-Mann-Wietney test, statistical changes were observed ($P \leq 0.05$) that confirmed the effects of intervention on social capital incensement.

According to Table 4, both groups in Qol in pre-test were similar ($P > 0.05$). But in post-test using independent T-test, there were meaningful differences between both groups ($P \leq 0.05$). After paired T-test calculation in each group, we realized that Qol, H/F, (S/E) and (S/P) area were increased in intervention group ($P \leq 0.05$), but family scale did not have statistical changes ($P > 0.05$).

In the non-intervention group, statistical changes were

Table 1. Variables Normality

Variable	Group	Shapiro Wilkie	P Value
Age	Intervention	0.921	0.198
	Non-intervention	0.797	0.005
Job	Intervention	0.606	0.000
	Non-intervention	0.645	0.000
Marriage	Intervention	0.284	0.000
	Non-intervention	0.652	0.000
Education	Intervention	0.896	0.082
	Non-intervention	0.751	0.001
Child number	Intervention	0.874	0.039
	Non-intervention	0.889	0.077
Socio-economic status	Intervention	0.734	0.001
	Non-intervention	0.769	0.002
Social capital	Intervention	0.963	0.746
	Non-intervention	0.921	0.226
Qol	Intervention	0.929	0.265
	Non-intervention	0.953	0.615
Compliance	Intervention	0.840	0.013
	Non-intervention	0.826	0.011
Pain	Intervention	0.851	0.018
	Non-intervention	0.733	0.011

Table 2. Demographic Characteristics of Patients Who Referred to Kashany Hospital

Variable	Intervention	Non-Intervention	P Value[a]
Marriage			0.448
Married	93.3	78.6	
Single	6.7	7.1	
Widow	0	14.3	
Education			0.398
Primary school	20	57.1	
Middle school	33.5	21.4	
High school	33.5	14.3	
Collegiate	13.3	7.1	
Occupation			0.239
Housewife	73.3	64.3	
Employee	20	7.1	
Self-employed	6.7	28.6	
Children			0.007
0	6.7	14.3	
1	6.7	0	
2	6.7	21.4	
3	40	28.6	
4	33.3	7.1	
5	6.7	28.6	
Socioeconomic status			0.074
Low	6.7	35.7	
Medium	66.7	57.1	
Powerful	26.7	7.2	

[a] Exact Fisher test.

Table 3. Comparison of Social Capital in the Pre-test and Post-test in Intervention and Non-intervention Group

Variables	Pretest	Posttest	P Value[a]	P Value[b]
Social capital				0.000
Intervention	109 ± 16.80	144.53 ± 12.18	0.003	
Non-intervention	111 ± 24.26	105 ± 23.09	0.005	
Bonding Social capital				0.000
Intervention	82.4 ± 11.69	106.93 ± 12.53	0.001	
Non-intervention	78.82 ± 17.33	78.42 ± 15.87	0.235	
Bridging Social capital				0.000
Intervention	27.2 ± 8.43	37.6 ± 8.47	0.001	
Non-intervention	28.2 ± 9.24	26.78 ± 9.34	0.001	

[a] Paired T test.
[b] Mann-Whitney U test.

Table 4. The Mean Qol Measures in the Pre-Test and Posttest to Compare Two Groups

Variables	Group	Pretest	Posttest	P Value[a]	P Value[b]
Quality of life	Intervention	15.81 ± 1.75	18.52 ± 1.36	0.761	0.001
	non-intervention	15.62 ± 1.66	15.25 ± 2.23		
Health and function scale	Intervention	15.07 ± 2.12	18.42 ± 1.09	0.187	0.014
	non-intervention	14.04 ± 1.92	15.02 ± 4.46		
Socio-economical scale	Intervention	15.45 ± 2.4	17.79 ± 2.41	0.9	0.001
	non-intervention	15.35 ± 1.99	14.52 ± 2.50		
psychological-spiritual scale	Intervention	15 ± 2.34	19.04 ± 1.86	0.223	0.001
	non-intervention	16 ± 1.96	14.31 ± 1.93		
Family	Intervention	18.98 ± 3.38	19.72 ± 1.87	0.502	0.051
	non-intervention	19.71 ± 2.23	18.26 ± 1.94		

[a] Independent T test in pre-test.
[b] Independent T test in post-test.

observed ($P \leq 0.05$), but these changes were negative .We found that the S/E, P/S and family scales decreased ($P \leq 0.05$), but there was not any meaningful changes in the H/F scale and Qol overall ($P > 0.05$).

So after difference calculation between pretest and posttest in each group and using independent T-test, we found meaningful differences between both groups in post-test stage ($P \leq 0.05$), that emphasizes the effects of intervention on Qol and its scales.

According to Table 5, in pre-test, through comparing two groups in term of Treatment compliance and pain, these variable were identical ($P > 0.05$), but in post-test through Wilcoxon test, we found meaningful differences between pre-test and post-test in terms of treatment compliance variable in intervention group ($P \leq 0.05$).

The treatment compliance in intervention group increased and this change was not seen in the non-intervention group. After differences between group in pre-test and post-test and use of U-Mann-Wietney test, we inferred meaningful differences between two groups in post-test ($P \leq 0.05$).

According to Table 5, after intervention in both groups meaningful difference were seen in terms of pain variable. Pain decreased in both groups ($P \leq 0.05$) but the reduce was more noticeable in the intervention group. After differences calculation between two groups in pre -test and post-test and use of U - Mann - wietney test, we inferred meaningful differences between two groups in post-test .($P \leq 0.05$).

For more definite conclusion about the effect of social

Table 5. Treatment Compliance and Pain Comparison in Intervention and Non-intervention Group in Pretest and Posttest

Variables	Group	Pre-Test	Post-Test	P Value[a]	P Value[b]
Treatment compliance	Intervention	11.6 ± 2.41	14.13 ± 0.99	0.005	0.008
	Non-Intervention	11.1 ± 1.91	11.64 ± 1.73	0.161	
Pain	Intervention	7.6 ± 2.6	2.53 ± 1.6	0.0010	0.000
	Non-Intervention	8.2 ± 2.4	6.36 ± 2.24	0.003	

[a]Wilcoxon-test.
[b]U Mann-Whitney test.

capital to improve Qol, compliance and relief pain and calculation of dose response association, correlation between these variables were calculated and represented in Table 6. According to this table, the correlation between social capital and Qol and social capital and compliance were direct, positive, and meaningful ($P \leq 0.05$), and its amount was high and at an acceptable level. Increase in social capital in two dimensions induced Qol improvement by 4 scales, as well as increased treatment behaviors and treatment compliance.

However, the relationship between social capital and pain was negative and there was a meaningful correlation ($P \leq 0.05$). High levels of social capital are associated with lower levels of pain. So Qol and compliance had direct, positive and meaningful correlation ($P \leq 0.05$) but these variables had negative correlation with pain.

4. Discussion

Several theories exist about the impact of social capital on Qol which have been documented in many studies - often through cross-correlation methods. But the big problem of these studies is lack of direction of causality. For this reason, in this study we sought to design an intervention to enhance social capital and investigate its effect on Qol.

This arrangement as pre-test and post-test intervention study with a non-intervention group of 29 women with breast cancer. The results of this study indicated that interventions caused social capital enhancement in a successful first step in the intervention group which in turn leads to enhanced Qol, compliance and reduced pain.

Nevertheless, in non-intervention group these variables declined and this shows regardless of measures to help these patients, their Qol will deteriorate and so they did not follow their treatment as ordered.

Two groups were matched in terms of demographic variables at pre-test and this means that differences in demographic variables cannot explain the differences in average social capital between two groups. Among demographic variables, only socio-economic status has a significant relationship with social capital and other variables did not relate to it.

Nategh Pour found that age, education, marital status, employment and income to the elements of knowledge, attention to public affairs, formal, and informal participation are directly related to the social capital (34). Mohammadi pointed out that gender, native status and place of birth, income, and education are correlated with social capital (35). Andishmand realized the positive impact of education and residence area on social capital (36).

Sharbatian asserted that variables such as gender, marital status, place of residence and place of birth are not associated with the enjoyment of social capital. However, social class, family relationships, personal resources, educational status, and social interactions on campus and in the community are the most important predictors of social capital (37). These findings have not been established in our study.

Evaluation of Qol showed that In H/F , S/E ,P/S and family was 48/4 % , 51/6 % , 44/8 % , 69 % of subjects had moderate levels , respectively. 48/3 % of these patients followed up their treatment at a moderate level and 27/6 % at an acceptable level. 69 % of patients reported their pain as severe and 20/7% as moderate and 10/3 % as low level. In other words, the majority of patients have medium or poor Qol and very few people have a high level of Qol.

Several studies had highlighted the negative effects of cancer on Qol (27, 38, 39). Nematollahy concluded that the majority of patients (%66) had a moderate level of Qol (40), that is consistent with the result of the present study, but Moshtagh reported Qol in these patients as low (41). Nurthous showed a relatively high Qol for African-American women. They were generally optimistic, had effective family function, and symptom of stress generally were low in them (42).

Ferrell pointed out the majority of women had moderate mental and psychological status and this was clue to medical issue (43). However, Sammarco reported good Qol (26).

These differences may be due to differences in the cul-

Table 6. Correlation between Social Capital and Quality of Life, Treatment Compliance and Pain

Variable	Social Capital	Bonding Social Capital	Bridging Social Capital
Quality of life			
Correlation coefficient	0.811	0.826	0.626
P value	0.001	0.001	0.001
Health and functional scale			
Correlation coefficient	0.586	0.604	0.440
P value	0.001	0.001	0.008
Socio economical scale			
Correlation coefficient	0.769	0.814	0.533
P value	0.001	0.001	0.001
Psychological spiritual scale			
Correlation coefficient	0.816	0.806	0.677
P value	0.001	0.001	0.001
Family scale			
Correlation coefficient	0.491	0.476	0.427
P value	0.003	0.005	0.011
Treatment compliance			
Correlation coefficient	0.693	0.753	0.476
P value	0.005	0.001	0.001
Pain			
Correlation coefficient	-0.509	-0.468	-0.472
P value	0.002	0.004	0.005

tural background, age of subjects, data collection instruments, and patients' heterogeneity in terms of cancer level and type of treatment.

Based on the findings of this study, age was not significantly associated with any of the dimensions of Qol. Marriage and the number of child had a negative correlation with health and functional dimension that can be explained with decrease in energy, hopelessness, worry about future, lack of opportunities for expectant future, and awful disadvantages which can lead to decreased Qol.

Education and employment had positive and meaningful correlation with Qol generally with H/F and S/E scales. This may be due to mind engagement and deviance from disease to other issues, finance independency, social relationships, more information and better access to supportive and informative sources.

These findings have been supported in several studies such as Safaei (23), Lehto in Finland (20) and Pandey in India (22). Socio / economic status had meaningful relationship with family scale, probably due to high levels of livelihood and ability to continue treatment.

Northouse in Michigan, in his study on Qol in African American women with breast cancer, did not observe any meaningful relationship between demographic variables with Qol (42). Furthermore, in the Schultz and Winstead Analytical-discretional study there was not any relationship between age and education with Qol and its scales (21).

Treatment compliance generally had positive correlation with Qol and its scales. High level of treatment compliance may be accompanied with higher level of Qol. This finding has been confirmed by Malekpour (44). Pain obviously had a negative correlation with Qol.

According to the results, change in social capital, Qol, compliance and pain in breast cancer patients during intervention and after that indicated positive effects of the intervention on these variables.

Social capital, Qol, and treatment compliance in the intervention group increased and in the non-intervention group decreased or remained stable. Pain decreased in both groups but this was significantly higher in intervention group.

Differences between two groups in posttest were meaningful, and this emphasizes on intervention usefulness. Correlation between social capital with Qol and compliance was positive and with pain was negative.

4.1. Limitation

An intrinsic limitation of this study was as follows: parts of the results obtained were due to chemotherapy and should not be attributed entirely to this intervention (both groups received chemotherapy and this research was done in that period). Perhaps, if chemotherapy treatment was not successful, the present results could have changed and would not relieve in pain so much lack of patient's cooperation.

This study was conducted in patients with cancer and may not have that effect on other patients or can be more effective in healthy individuals. Because cancer is a chronic disease and these results achieved should not be attributed to the other people.

Over the period of intervention, an expectance effect has been declined and we have come to the conclusion that 12 sessions were boring for patients. The recommended number of sessions is limited to 6 - 8 sessions.

However, this study represents the first clinical study on how to enhance social capital and the form of a protocol has been prepared. Also the impact of social capital on pain and compliance is tested for the first time that had noticeable finding and this protocol has been registered in IRCT.

Therefore, it is suggested that the study will be done in a spring or summer when patients do not have restrictions and it is better to study in larger sample.

until more definite conclusions can be obtainedabout the impact of social capital on pain relief and perform this intervention in other chronic, painful, deadly and threatening the self-concept of the individual disease.

4.2. Conclusion

Based on results of this study, patients need social and emotional support more than anything to survive diagnosis and treatment process with less stress. It seems that participation in cooperative groups , team works , spending more time with friends and family members through increasing in social capital cause spiritual improvement, compatibility with circumstance, stress refraction, enjoying social support and thus acquired more information about this disease that can help to improve Qol and treatment compliance.

So it is suggested to use methods that enhance social capital for improving Qol and survival in patients through increasing knowledge , emotional and information support about adherence benefits and increasing in spirit and happiness for continuing the treatment.

Acknowledgments

None declared.

Footnotes

Authors' Contribution: None declared.

Financial Disclosure: None declared.

Funding/Support: None declared.

References

1. Kruk J, Aboul-Enein HY. Psychological stress and the risk of breast cancer: a case-control study. *Cancer Detect Prev.* 2004;**28**(6):399–408. doi: 10.1016/j.cdp.2004.07.009. [PubMed: 15582263].
2. Chen CC, David AS, Nunnerley H, Michell M, Dawson JL, Berry H, et al. Adverse life events and breast cancer: case-control study. *BMJ.* 1995;**311**(7019):1527–30. [PubMed: 8520393].
3. Suzanne C. Brunner & Suddarth's Textbook of Medical-surgical Nursing. 1. Philadelphia, US: Lippincott Williams & Wilkins.; 2010. p. 1375.
4. Mardani Hamule M, Shahraki Vahed A. Relationship between mental health and quality of life in cancer patients. *SSU_J.* 2010;**18**(2):111–7.
5. The newest knowledge about breast cancer, American cancer society (Hosseini N, Mousavy Nasab MH, Rahman Pour H): (Pan American Health Organization ; http://www.paho.org). Tehran: Andishmand press; 2008. p. 25.
6. National Cancer Registry Report, Ministry of Health and Medical Education, Center for Management of Non-Communicable Diseases. Tehran: Department of Cancer Bureau; 2009.
7. Harirchi I, Ebrahimi M, Zamani N, Jarvandi S, Montazeri A. Breast cancer in Iran: a review of 903 case records. *Public Health.* 2000;**114**(2):143–5. doi: 10.1038/sj.ph.1900623. [PubMed: 10800155].
8. Galvao DA, Newton RU. Review of exercise intervention studies in cancer patients. *J Clin Oncol.* 2005;**23**(4):899–909. doi: 10.1200/JCO.2005.06.085. [PubMed: 15681536].
9. Farrokh Nia M, Fath Abady J, Zahidy Z. The effects of cognitive interventions in reducing pain intensity and changes in heart rate and blood oxygen levels. *J Breast Dis.* 2011;**27**(3):9–34.
10. Payne JK. The trajectory of fatigue in adult patients with breast and ovarian cancer receiving chemotherapy. *Oncol Nurs Forum.* 2002;**29**(9):1334–40. doi: 10.1188/02.ONF.1334-1340. [PubMed: 12370703].
11. Billan N, Ghaffary SH. Education and Prevention role in adherence with inhalation corton in children with Asthema. *j Tabriz univ.* 2008;**30**(4):17–20.

12. Masoudnia E, Forouzan nia SKH, Montazeri M. examining the relationship between perceived social support and adherence to medical recommendations in coronary heart disease after CABG surgery. *J Yazd Univ Med Sci.* 2011;**19**(6):798–806.
13. Kim Y, Evangelista LS. Relationship between illness perceptions, treatment adherence, and clinical outcomes in patients on maintenance hemodialysis. *Nephrol Nurs J.* 2010;**37**(3):271–80. [PubMed: 20629465].
14. Kaviani A, Ebrahimi M. Journey with breast cancer in the hope. Tehran: Tehran publishing; 2015.
15. Asghari Moghaddam M, Karim Zadeh M, Amarlu P. The role of pain-related beliefs & coping with cancer. *J Beh Res Scholar Shahed Univ.* 2005;**12**(13).
16. Turk DC, Sist TC, Okifuji A, Miner MF, Florio G, Harrison P, et al. Adaptation to metastatic cancer pain, regional/local cancer pain and non-cancer pain: role of psychological and behavioral factors. *Pain.* 1998;**74**(2-3):247–56. [PubMed: 9520239].
17. Cleeland C, Syrjala KL. How to Assess Cancer Pain. In: DC Turk R , Melzak R, editors. Hand book of Pain Assessment. New York: The Guilford press; 1992. .
18. Shell G. A. , Kirs CH. Psychosocial issues outcomes and quality of life. In: Otto SE, editor. Oncology Nursing. 4 ed. US: St Louis: Mosby an aharcourt health sciences company; 2001. pp. 948–97.
19. Agha Barary M, Ahmady F, Mohamady I, Hajizade E, Varvany Farahany A. psychological, physical and social aspects of quality of life in women with breast cancer undergoing chemotherapy. *Nursing res.* 2007;**1**(3):55–65.
20. Lehto US, Ojanen M, Kellokumpu-Lehtinen P. Predictors of quality of life in newly diagnosed melanoma and breast cancer patients. *Ann Oncol.* 2005;**16**(5):805–16. doi: 10.1093/annonc/mdi146. [PubMed: 15817599].
21. Schultz AA, Winstead-Fry P. Predictors of quality of life in rural patients with cancer. *Cancer Nurs.* 2001;**24**(1):12–9. [PubMed: 11219418].
22. Pandey M, Thomas BC, SreeRekha P, Ramdas K, Ratheesan K, Parameswaran S, et al. Quality of life determinants in women with breast cancer undergoing treatment with curative intent. *World J Surg Oncol.* 2005;**3**:63. doi: 10.1186/1477-7819-3-63. [PubMed: 16188030].
23. Safaei A, Zeighamy B. Quality of life determinants in women with breast cancer undergoing treatment with chemotherapy. *J epidemiol in Iran.* 2008;**3**(4):61–6.
24. Rafie N. quality of life index reliability and validity, Msc thesis. Tehran: Social walfare and Rehabilitation science university; 2011.
25. Wan C, Fang J, Jiang R, Shen J, Jiang D, Tu X, et al. Development and validation of a quality of life instrument for patients with drug dependence: comparisons with SF-36 and WHOQOL-100. *Int J Nurs Stud.* 2011;**48**(9):1080–95. doi: 10.1016/j.ijnurstu.2011.02.012. [PubMed: 21397228].
26. Sammarco A. Perceived Social support, uncertainly and quality of life of younger breast cancer survivors. *Cancer Nurs.* 2001 Jun;**24**(3):212–9. [PubMed: 11409065].
27. Helgeson VS, Cohen S, Schulz R, Yasko J. Group support interventions for women with breast cancer: who benefits from what?. *Health Psychol.* 2000;**19**(2):107–14. [PubMed: 10762094].
28. Tavassoli G, Mousavi M. The concept of capital in the classical and new theories with emphasis on theories of social capital. *Social sci.* 2005;**26**(26).
29. Zahedi Asl MJ, Shiyany M, Alipour P. social capital and social welfare relation. *J Social Welfare.* 2009;**9**(105):32.
30. Mousavi M. Measuring social capital in Iran, Research project. Tehran: Social Welfare and Rehabilitation Sciences University; 2007.
31. Lin N. Social capital A theory of social structure and action. Cambridge: Cambridge University Press; 2001.
32. Adibi Sedeh M, Yazdkhasty B, Rabani Khorasgany A, Lotfizade A. Bonding social capital measure (Saam Ranking). *Social walfare.* 2010;**10**(38):193–220.
33. Quassemzade D. Relationship between social capital and happiness in Tehran, Msc thesis. Tehran: Social walfare and Rehabilitation science university; 2011.
34. Nategh Pour M, Firouz Abady A. Social Capitaland effective factors on its formation in Tehran. *jame e shenasie Iran.* 2005;**4**.
35. Mohammady J. Estimation of Social Capital in Mashhad area and measures to promote it. *Modiriate Shahry.* 2010.
36. Andishmand V. Social Capital element in university for presenting model topromot it, Rahbary and Modiriate amuzeshi. *Azad university , Garmsar unit.* 2009;**2**(2).
37. Sharbatian MH, Aminian A. Social Capital measurement in Payam nor student in Southern Khorasan and its effective factors. *Jame e shenakhtie javanan.* 2013;**3**(9):93–114.
38. Grant MM, Rivera LM. Evaluation of Quality of Life in Oncology Nursing. Quality of Life from Nursing and Patient Perspective Theory, Research Practice. 1 ed. Philadelphia: Jones and Bartlett Publishers Sudbury Massachusetts; 1998. pp. 37–53.
39. Chan CW, Hon HC, Chien WT, Lopez V. Social support and coping in Chinese patients undergoing cancer surgery. *Cancer Nurs.* 2004;**27**(3):230–6. [PubMed: 15238811].
40. Nematollahy A. quality of life in women with breast cancer in Tehran hospitals, Msc thesis. Tehran: Shhid Beheshty University; 2004.
41. Moshtagh M. quality of life in women with breast cancer based on Holistic view point, Msc thesis. Mashhad: Mashhad University; 2007.
42. Northouse LL, Caffey M, Deichelbohrer L, Schmidt L, Guziatek-Trojniak L, West S, et al. The quality of life of African American women with breast cancer. *Res in Nursing and Health.* 1999;**22**(6):449–60. doi: 10.1002/1098-240x(199912)22:6<449::aid-nur3>3.0.co;2-a.
43. Ferrell BR, Grant M, Funk B, Otis-Green S, Garcia N. Quality of life in breast cancer. Part I: Physical and social well-being. *Cancer Nurs.* 1997;**20**(6):398–408. [PubMed: 9409061].
44. Malekpour A. the impact of collaborator groups on quality of life and compliance in women with breast cancer Available from: www.IRCT.ir:2010.