

Effect of Continuous Care Model on Body Image Among Breast Cancer Patients Undergoing Chemotherapy: A Clinical Trial

Nasrin Elahi,¹ Mahsa Imanian,^{2,*} Kouros Zarea,³ Ahmad Ahmadzadeh,⁴ and Mahdi Karimyar

Jahromi⁵

¹Assistance Professor, Nursing Care Research Center in Chronic Diseases, Nursing and Midwifery School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran

²Msc of Medical Surgical Nursing, Nursing and Midwifery School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran

³Associate professor, Nursing Care Research Center in Chronic Diseases, Nursing and Midwifery School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran

⁴MD, Health Research Institute, Thalassemia and Hemoglobinopathy Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran

⁵Msc of Critical Care Nursing, Faculty Member of Nursing and Paramedical School, Jahrom University of Medical Sciences, Jahrom, IR Iran

*Corresponding author: Mahsa Imanian, Msc of Medical Surgical Nursing, Nursing and Midwifery School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran. Tel: +98-917928006, E-mail: mahsa.imanian@gmail.com

Received 2017 February 01; Revised 2017 April 15; Accepted 2017 July 03.

Abstract

Background: Body image disturbance is a common complication after chemotherapy. The present study aimed to investigate the effect of continuous care model on body image among breast cancer patients undergoing chemotherapy.

Methods: This clinical trial was conducted on 78 breast cancer patients undergoing chemotherapy in Ahvaz, Iran in 2013. Firstly, paired subjects were selected among identical subjects, and were randomly assigned to study and control groups. In the study group, continuous care model was administrated, and body image evaluation questionnaire was adopted to evaluate cancer patients' body image. Body image was assessed in two time points (once before the intervention on day four of chemotherapy and once again two months after the intervention). Data were analyzed by independent t-test and chi-square test using SPSS16.

Results: Mean score of body image was significantly higher before intervention compared to after in the study group (17.8 ± 5.5 VS 8.5 ± 5) ($P = 0.0001$). There was no significant difference between mean scores of body image before the intervention in the study and control group ($P = 0.744$), and before and after the intervention in the control group ($P = 0.5$).

Conclusions: With regard to results, nurses are suggested to administrate continuous care model to improve patients' body image as an available and cost effective method.

Keywords: Continuous Care Model, Body Image, Chemotherapy, Breast Cancer, Iran

1. Background

Breast cancer is the most common malignancy and mortality cause among women all over the world (1). Prevalence of breast cancer, as the most prevalent cancer among Iranian women, is 22.6% (2). Despite the fact that about 80% of the cases of this disease are detected in western countries, due to poor screening in Iran, 65% of such patients are detected in stage two or three of the disease resulting in problems in patients' absolute therapy (3).

Meanwhile, surgery, chemotherapy, hormone therapy and radiotherapy are adopted to treat such patients (4). About 81% of the surgeries to treat such patients is mastectomy, which affects patients' physical, mental and social dimensions and drives the patients to pain, fatigue, a body image change, stress, depression and reduction of self confidence (2). After mastectomy and surgery, the patient feels she has lost everything (3) and starts complaining of the imbalance in her body that is an important factor in physical attractiveness (2). Body image is individuals' mental

imagination of their body and is influenced by different aspects such as expression of emotions, role modeling, identity, beauty and social factors (5). Women's breast is a part of their ideal body image and the symbol of their motherhood through breastfeeding (6).

There are evidences of the relationship between body image disturbance and marital satisfaction so that women who care about their appearance more and are more sensitive to their breasts possibly have more sexual problems (3). The aforementioned problems, relevant to the patients undergone mastectomy, reveal the necessity of efficient intervention to improve body image among these patients.

Meanwhile, evaluation of various methods to give services to such patients and selection of the most efficient and cost effective method is followed in research missions to improve the quality of the care given to such patients (7). As nursing theories and models direct educational, clinical and research activities in nursing, adaptation of nursing models is one of the major and basic steps to achieve such a goal (8). Continuous care model was initially designed

and evaluated by Ahmadi et al. (2001) for chronic coronary diseases (9).

It provides the clients with continuous efficient care in the trend of their health. Continuous or constant care is a regular process to make efficient interactive and constant communication between the client and the nurse, as the health care provider. It is adopted to recognize the patients' needs and problems, to sensitize the patients to accept continuous care model and healthy behaviors, and to help them preserve their recovery and promote their health, which is thoroughly in accordance with chronic diseases features and the dynamicity of the problems (8). In addition, it is administrated in order for detection and consideration of new care problems (hospitalization, and constant learned behaviors), preservation of interactive and reciprocal communication (face- to - face or through phone calls), and constant counseling (10). Therefore, the aim of this study was to apply continuous care model and to investigate its effect on breast cancer patients' body image not only to measure its power and application level but to adopt that as a practical strategy to reduce the complications resulted from chemotherapy in the patients as well, if proved to be effective.

2. Methods

This study was a two- group before- after randomized controlled trial to evaluate the effects of implementing continuous care model on body image in breast cancer patients undergoing chemotherapy. The study was consent by the ethics council of Ahvaz University of Medical Science. In this study, patients with Breast cancer who referred to the chemotherapy clinic of Ahvaz University of Medical Sciences in 2013, and complied the entry criteria were selected. They were ages 25 - 65 years old, a desire to take part in the study, ability to fill in the study questionnaire, no history of psychiatric disorders or amnesia, Persian as their first language, involvement in stages 2 - 4 of breast cancer, and attending at least one and at most 5 chemotherapy sessions. Patients who had been hospitalized or did not wish to continue the study were excluded. Patients having the entry criteria entered the study after complementing the informed consent form. Sample size was calculated after conducting a pilot study on 20 patients ($\alpha = 0.05$ and $\beta = 0.2$) as 78 subjects. Subjects were selected in pairs among identical subjects concerning age, type of surgery and education level, and then, they were assigned to the study and control groups through random allocation (a coin toss).

Data was collected via questionnaires before and 2 months after the intervention. The first questionnaire was about demographic information (like age, education level

and marriage status), job, smoking status, history of other diseases and history of cancer in the family. The second instrument was Hupwood et al. body image scale (BIS) (2001) (1). This checklist, distributed among 276 English patients with cancer, showed an appropriate validity among cancer patients ($\alpha = 0.93$) (11).

It contains 10 items in cognitive, affective and behavior domains, which are scored 0 - 3 (normal, slight problem, moderate problem and acute problem) with total score of 0 - 30.

Higher scores show more body image disturbance. Scores between 0 - 10 show minor body image disturbance, 11 - 20 show moderate and 21 - 30 show severe body image disturbance. Split half method was adopted for BIS reliability so that the questionnaire was completed by 20 breast cancer patients undergoing chemotherapy in two time points with a week interval and Pearson correlation coefficient of $r = 68\%$ was obtained.

Then, four days after chemotherapy session, the subjects were given BIS. Next, the educational program with help of continuous care model was designed. This model was conducted for two months.

In the control group, the usual cares were applied. The continuous care model was performed in 4 stages.

1. Orientation: The first step of this model was acquaintance with the goal of the relationships with the client, enticing her cooperation to participate in the research, and motivating the exigency of continuous care in the client.

2. Sensitization: the second step was sensitization simultaneously with orientation; concentrate on client to embrace her health accountability. In this step, all of the patients' educational demand was evaluated and the needful descriptions about breast cancer, chemotherapy and their complications, the necessity of continuous care, and the importance of body image reclaiming were stated in 45 - 60 minutes sessions. Also the team of researchers prepared an educational pamphlet for easily understandable facts about chemotherapy, its complications and self-care programs such as regular exercising, nutritional diet and relaxation training. The 1st and 2st steps were accomplished by importing the patient and one of her family member to encourage and take part in body image improving. These steps were accomplished at the first 2 weeks of the total period of model performing (8 weeks).

3. Control: This step contains the scrutiny and strength of care that took place. Six weeks were assigned to this step during which the individual and group consultation (in the form of three ten- and one nine-person groups), speech and question - answer sessions (about the kind and feature of patient/family needs and problems) were done at Ahvaz Shafa hospital clinic. The number of sessions based on the level of awareness, intensity and the number of problems

for any subject. On average 2 - 3 meetings of 1 - 2 hours long were held for every group. Then continuous care advisement was done daily and weekly, according the need types. The researcher phone number was given to patients for their probable questions.

4. Evaluation: this 4th (final) step of continues care model was considered from the onset of all steps. Its aim was the evaluation of care process and it ascertains and supervises the patient's behavior while being followed by the researcher.

The accumulated data were analyzed by SPSS (version 16.0), using T-test and chi-square. In this study, the significance level was considered at 0.05.

Ethics committee of Ahvaz University of Science approved the study (ajums.REC.1392,36). Moreover, the Iranian registry of clinical trials approved and registered this study (the registration number was IRCT2013070613802N2).

3. Results

Seventy-eight patients were recruited in the present study and were assigned to study and control groups (n = 39, n = 39). Comparison of demographic data, chemotherapy and type of surgery in two groups are presented in [Table 1](#). There was no significant difference in subjects' mean age between study and control group (43.9 ± 10.1 VS 48.2 ± 10) ($P = 0.7$).

[Table 2](#) represents the comparison of body image mean scores before and after the intervention in the study and control groups. Independent t-test showed no significant difference in mean scores of body image between groups before the intervention ($P = 0.2$).

Mean score of body image reduced by 9.2 after administration of continuous care model in the study group, but it increased by 0.6 in the control group. Independent t-test showed a significant difference in body image scores between two groups ($P = 0.0001$)

4. Discussion

The obtained results showed that administration of continuous care model by nurses was effective in improvement of patients' body image. The changes, resulted from breast cancer treatment, include alopecia disturbed body image, which is a major factor in assessment of quality of life. Therefore, patients' disturbed body image should be improved as much as possible (11), as the patients who have better feelings about their body have stronger belief in their ability to cope with the disease and its treatment (12).

Table 1. Comparison of Demographic Data, Chemotherapy and Type of Surgery in Two Groups Through Chi-Square Test^a

Variable	Group		P Value
	Control	Intervention	
Type of surgery			0.2
Unilateral mastectomy	26 (66.6)	31 (81.8)	
Breast conserving surgery	13 (33.3)	8 (18.9)	
Education			0.3
Primary school	20 (51.2)	12 (29.73)	
Middle and high school	16 (41.02)	24 (64.8)	
University	3 (7.6)	3 (5.4)	
Marital status			0.1
Married	27 (69.2)	32 (86.4)	
Single	2 (2.7)	6 (15.3)	
Divorced or Widowed	6 (15.3)	5 (10.8)	
Chemotherapy sessions number			0.3
1 - 3	18 (46.1)	23 (59.4)	
4 - 5	21 (53.8)	16 (4.5)	

^aValues are expressed as No. (%).

Research shows that mastectomy leads to a clear change in individuals' appearance and loss of synchronization in their body that results in emotional and practical challenges among women. The women who undergo mastectomy have more dissatisfaction with their appearance, body image and sexual function (10). A study (2010) showed that different treatments of breast cancer have specific effects on body image, menopause, and finally sexual problems. They reported that cancer patients had lower scores in all body image scales except for their weight, compared to healthy individuals (13). Meanwhile, Haravi et al. (2006) showed that group counseling led to a better body image among the breast cancer patients undergoing chemotherapy (14). Other studies on continuous care model, administrated by nurses, reported that it led to better sleep quality (10), quality of life (15, 16), and reduction of stress, anxiety and depression (17) among patients. Rosenberg et al. (2012) showed that patients' mean score of body image was significantly better in patients undergoing lumpectomy, compared to mastectomy (13, 18). Women, involved in breast cancer, undergo severely invasive procedures including radical mastectomy, and consequently, invasive radiotherapy and chemotherapy (19). Women who have a better concept from their body image can adapt with cancer and treatment process better (20). So, a comprehensive care plan in accordance with clients'

Table 2. Comparison of Body Image Mean Scores Before and After the Intervention in the Study and Control Groups^a

Body image	Group		Independent T-Test	
	Before Intervention	After Intervention	t	P Value
Study	17.8 (5.5)	8.5 (5)	0.0001	0.0001
Control	13.7 (6)	14.3 (6.3)	0.5	0.5

^aValues are expressed as mean (SD).

learning needs can reduce health care costs and enhance patients' independency and adaptation (21). Meanwhile, nurses, as members of the treatment team, play a pivotal role in caring of cancer patients.

Emotional and social support of patients, provided by nurses, result in lowering some of their mental pressure caused by cancer diagnosis and treatment process (22).

Nurses can lower complications of chemotherapy through administration of continuous care model and playing their role in preservation of patients' physical and mental health. Continuous care model seems to be effective on patients' interactions and quality of life through provision of personal, group and family education (23). Achievement to continuous care model goals and supervision of continuation and trend of care are of great importance. It is no doubt that even the best programs are forgotten through time, if not controlled and followed up, or may have inappropriate effect. Therefore, regular and efficient follow up and physical attendance during administration and continuation of weekly care counseling sessions through phone contacts and face-to-face meeting, relevant to patients' care needs, are among the basic conditions of achievement to appropriate outcomes of this model (24).

The researchers suggested that this model be used in different patients and more population, for further assessment.

Cultural factors, patients' psychological status at the time of questionnaire completion, and subjects' familial, personal and social problems were among limitations of the present study that were out of researcher's control.

Conclusion: Based on the findings, it can be concluded that administration of continuous care model can be effective in improvement of patients' body image. Further studies are needed to detect long-term effects of continuous care model on reduction of complications.

Acknowledgments

Researchers greatly appreciate Jondishahpour University of Medical Sciences that sponsored the present study and the personnel in Shafa and Golestan hospitals who

kindly cooperated with the research team and made such a study possible to be conducted. We wish them health. It should be noted that the present study was a part of the Master's degree dissertation of the corresponding author.

Footnotes

Authors' Contribution: None declared.

Conflict of Interest: Authors have no conflict of interest.

Financial Disclosure: None declared.

References

- Keihanian S, Ghaffari F, Fotokian Z, Shoormig R, Saravi M. Risk factors of breast cancer in Ramsar and Tonekabon. *J Qazvin Univ Med Sci.* 2010;**14**(2):12-9.
- Fouladi N, Pourfarzi F, Ali-Mohammadi H, Masumi A, Agamohammadi M, Mazaheri E. Process of coping with mastectomy: a qualitative study in Iran. *Asian Pac J Cancer Prev.* 2013;**14**(3):2079-84. [PubMed: 23679322].
- Eltahir Y, Werners LL, Dreise MM, van Emmichoven IA, Jansen L, Werker PM, et al. Quality-of-life outcomes between mastectomy alone and breast reconstruction: comparison of patient-reported BREAST-Q and other health-related quality-of-life measures. *Plast Reconstr Surg.* 2013;**132**(2):201e-9e. doi: 10.1097/PRS.0b013e31829586a7. [PubMed: 23897347].
- Wronska I, Stepien R, Dobrowolska B. Satisfaction of women after mastectomy for nursing care. *Adv Med Sci.* 2007;**52**.
- Paterson CL, Lengacher CA, Donovan KA, Kip KE, Tofthagen CS. Body Image in Younger Breast Cancer Survivors: A Systematic Review. *Cancer Nurs.* 2016;**39**(1):E39-58. doi: 10.1097/NCC.0000000000000251. [PubMed: 25881807].
- Lindwall L, Bergbom I. The altered body after breast cancer surgery. *Int J Qual Stud Health Well-Being.* 2009;**4**(4) doi: 10.3402/qhw.v4i4.5023.
- Ghavam-Nasiri MR, Heshmati Nabavi F, Anvari K, Habashi Zadeh A, Moradi M, Neghabi GR, et al. The effect of individual and group self-care education on quality of life in patients receiving chemotherapy: A randomized clinical Trial. *Iran J Med Educ.* 2012;**11**(8):874-84.
- Sadeghi Sherme M, Razmjooei N, Ebadi A, Najafi Mehri S, Asadi-Lari M, Bozorgzad P. Effect of applying continuous care model on quality of life of patients after coronary artery bypass graft. *J Crit Care Nurs.* 2009;**2**(1):1-6.
- Ahmadi F. Design and evaluation of a continuous care model in the management of patients with chronic coronary artery disease. Tehran: Tarbiat Modarres University; 2002.
- Sadeghi H, Azizzadeh Foruzi M, Haghdoost AA, Alizade M. Effect of implementing continuous care model on sleep quality of hemodialysis patients. *J Crit Care Nurs.* 2010;**3**(1):5-6.

11. Hopwood P, Fletcher I, Lee A, Al Ghazal S. A body image scale for use with cancer patients. *Eur J Cancer*. 2001;**37**(2):189-97. [PubMed: [11166145](#)].
12. Pikler V, Winterowd C. Racial and body image differences in coping for women diagnosed with breast cancer. *Health Psychol*. 2003;**22**(6):632-7. doi: [10.1037/0278-6133.22.6.632](#). [PubMed: [14640861](#)].
13. Bakht S, Najafi S. Body image and sexual dysfunctions: comparison between breast cancer patients and healthy women. *Proc Soc Behav Sci*. 2010;**5**:1493-7. doi: [10.1016/j.sbspro.2010.07.314](#).
14. Heravi MPM, Faghihzadeh S, Montazeri A. The effect of group counseling program on functional measures of quality of life in breast cancer patients treated with chemotherapy. *Daneshvar*. 2007;**13**(62):69-78.
15. Ghavami H, Ahmadi F, Entezami H, Meamarian R. The effect of continuous care model on diabetic patients' blood pressure. *Iran J Med Educ*. 2001;**6**(2):87-95.
16. Poorgholami F, Jahromi MK, Kalani N, Parniyan R. The Influence of Educational Interventions based on the Continuous Care Model on the Quality of Life of Hemodialysis Patients. *Biosci Biotechnol Res Asia*. 2016;**13**(1):441-8.
17. Rahimi A, Ahmadi F, Gholyaf M. The effects of Continuous Care Model on depression, anxiety, and stress in patients on hemodialysis. *Nephrol Nurs J*. 2008;**35**(1):39-43. [PubMed: [18372762](#)].
18. Rosenberg SM, Tamimi RM, Gelber S, Ruddy KJ, Kereakoglow S, Borges VF, et al. Body image in recently diagnosed young women with early breast cancer. *Psychooncology*. 2013;**22**(8):1849-55. doi: [10.1002/pon.3221](#). [PubMed: [23132765](#)].
19. Johnson RH, Chien FL, Bleyer A. Incidence of breast cancer with distant involvement among women in the United States, 1976 to 2009. *JAMA*. 2013;**309**(8):800-5. doi: [10.1001/jama.2013.776](#). [PubMed: [23443443](#)].
20. Han J, Grothuesmann D, Neises M, Hille U, Hillemanns P. Quality of life and satisfaction after breast cancer operation. *Arch Gynecol Obstet*. 2010;**282**(1):75-82. doi: [10.1007/s00404-009-1302-y](#). [PubMed: [19960349](#)].
21. Miller SM, Hudson SV, Hui SK, Diefenbach MA, Fleisher L, Raivitch S, et al. Development and preliminary testing of PROGRESS: a Web-based education program for prostate cancer survivors transitioning from active treatment. *J Cancer Surviv*. 2015;**9**(3):541-53. doi: [10.1007/s11764-015-0431-5](#). [PubMed: [25697335](#)].
22. Christophe V, Duprez C, Congard A, Antoine P, Lesur A, Fournier E, et al. The subjective experience of young women with non-metastatic breast cancer: the Young Women with Breast Cancer Inventory. *Health Qual Life Outcomes*. 2015;**13**:73. doi: [10.1186/s12955-015-0273-x](#). [PubMed: [26036192](#)].
23. Ottaghi M, Bastami M, Borji M, Tayebi A, Azami M. The Effect of Continuous Care Model on the Sleep Quality of Hemodialysis Patients. *Nephrourol Mon*. 2016;**8**(3):e35467. doi: [10.5812/numonthly35467](#). [PubMed: [27570752](#)].
24. Sahebzamani M, Farahani H, Tabatabaee Jamarani M, Faezi ST, Moradi K, Paragomi P. Effects of a Continuous Care Model on Patients' Knowledge and Health-Related Quality of Life in Systemic Lupus Erythematosus. *Rehabil Nurs*. 2016.