Effect of Personalized Nursing on Postoperative Rehabilitation and Psychological Status of Breast Cancer Patients

Hongmei Wang, Xiuyan Xie*

Abstract

Objective: The purpose was to study the effect of personalized nursing on postoperative rehabilitation and psychological status of breast cancer patients.

Methods: 100 breast cancer patients treated in our hospital from January 2019 to January 2020 were selected as the study subjects, and randomly divided into test group and control group, with 50 cases in each group. Patients in the control group received conventional clinical nursing after surgery, and patients in the test group received personalized clinical nursing to compare the clinical efficacy of the patients in two groups after nursing intervention.

Results: The SAS and SDS scores of patients in both groups after nursing intervention were significantly better than those before intervention, and the SAS and SDS scores of the test group after intervention were significantly better than those of the control group, with statistically significant differences (p<0.05). The VAS scores of patients in both groups after intervention were significantly better than those before intervention, and the VAS score of the test group after intervention was better than that of the control group, with statistically significant difference (p<0.05). The life quality and PSQI scores of the test group after nursing intervention were significantly better than those of the control group. The clinical nursing satisfaction of the test group (96%) after intervention was significantly better than that of the control group (76%), with statistically significant difference (x2=8.306, P=0.004).

Conclusion: Personalized clinical nursing intervention for breast cancer patients after surgery can effectively improve life quality of patients and promote disease rehabilitation, which is worthy of promotion and application.

Keywords: personalized nursing; after breast cancer surgery; rehabilitation; psychological status; effect

Introduction

In recent years, with the development of economy, the incidence of breast cancer in China has been increasing under the influence of various factors such as social environment and daily diet, endangering women's life and health(Emanuela et al.,2019; Haaset al.,2019; Wayne,2019). At present, surgical resection combined with radiotherapy is the preferred treatment for this disease. Although radiotherapy has obvious clinical effects, it will damage normal human cells while while killing cancer cells, resulting in a series of adverse reactions in patients (Ali et al.,2020; Linda et al.,2019; Benjamin et al.,2018). During the

treatment, patients will undergo significant psychological change and fear of losing their lives, and will have negative emotions such as restlessness, irritability or depression, etc(Laura,2019). Meanwhile, patients have to face the fact that they lose one or both breasts after surgery. For women with poor psychological endurance, they will face greater psychological burden than the general patients after surgery. These negative emotions and psychological stress will affect the treatment effect of tumors. Therefore, during the treatment of patients, medical staff should always observe their psychological changes, strengthen psychological comfort to them and pay attention to personalized clinical nursing, establishing an optimistic life attitude and promoting their disease

Thyroid and Breast Surgery,Zibo Municipal Hospital,Zibo,255400,Shandong Province,China.
Corresponding Author: Xiuyan Xie
Email: 1197552504@qq.com

rehabilitation(ANDREEA et al.,2020). Personalized clinical nursing mode requires nursing staff to always adhere to the "people-oriented" nursing purpose, starting with the actual condition and psychological needs of patients to reduce the psychological burden of patients, improve anxiety, depression and other emotions, and enhance life quality in patients(Michaela,2019). Therefore, in order to further study the effect of individual nursing on postoperative rehabilitation and psychological status of breast cancer patients, 100 breast cancer patients treated in our hospital from January 2019 to January 2020 were selected as the study subjects, and randomly divided into test group and control group, with 50 cases in each group, summarized and reported as follows.

1. Materials and Methods
1.1 General Information

100 breast cancer patients treated in our hospital from January 2019 to January 2020 were selected as the study subjects, and randomly divided into test group and control group, with 50 cases in each group. The study was approved by the hospital ethics committee, and the patients and their families knew the purpose and process of the experimental study, and signed the informed consent.

1.2 Methods

Patients in the control group received conventional clinical nursing after surgery with the specific steps as follows. The postoperative physiological indicators of patients were closely monitored, complication prevention programs were formulated according to patients' physical condition, and control of cancer cells in patients were evaluated. Medical staff should deal with clinical abnormalities in a timely manner to prevent deterioration of the disease.

Based on the nursing mode above, the test group received personalized clinical nursing intervention, with the specific implementation steps as follows. First, the patients and their families were organized to carry out breast cancer knowledge learning, in which attending physicians used the network technology including multimedia to explain the pathogenesis, characteristics, treatment methods, postoperative rehabilitation precautions of breast cancer and other related knowledge, eliminating patients' misunderstandings of the disease, enabling them to have a scientific understanding of breast cancer disease and reducing their anxiety and fear. Second, medical staff communicated with patients or family members, conducted clinical psychological assessment for patients, formulated targeted psychological guidance programs according to patients' personality, and provided psychological comfort and guidance for patients with severe anxiety or depression for many times. They should actively inform patients of successful cases, guide patients to face changes in physical appearance, and state the importance of clinical rehabilitation therapy. The medical staff can also instruct patients to perform limb relaxation training by telling jokes to patients and playing fresh and pleasant music to release patients' negative emotions. The staff mobilized family members to actively communicate with patients in the daily treatment, making use of emotional strength to give patients courage to face their own deficiencies and disease. The staff regularly organized communication activities among patients, and appropriately carried out small recreational activities to enrich the patients' hospitalization life. Finally, the medical staff should do a good job in the postoperative clinical nursing of patients, formulate rehabilitation training plans according to the patients' clinical condition and endurance, and implement them in a planned way. After surgery, the patients could move properly, such as flexing their fingers or clenching their fists, and gradually added activity according to the recovery situation. 1 week after surgery, the healing condition of the skin flaps was checked in patients, and shoulder activities could be carried out appropriately if the healing condition was good.

1.3 Observation Indexes

1.3.1 Self-rating Anxiety Scale (SAS) was used to evaluate the individual anxiety of patients in the two groups before and after clinical nursing intervention, which included 20 items, with a total score of 100 points and a delimited score of 50 points. The higher the score, the more serious the anxiety of patients. The evaluation criteria were detailed in Table 1.

Table 1. **SAS Evaluation Criteria**

Score	Evaluation Criteria
<50 points	Normal
50-59 points	Mild anxiety
60-69 points	Moderate Anxiety
>70 points	Severe anxiety

1.3.2 The self-rating depression scale (SDS) was used to evaluate the individual depression of the patients in two groups before and after clinical nursing intervention. The scale included 20 items, and each item was composed of scores with 7 levels, including 8 items of somatic disorder, 8 items of psychological disorder of depression, 2 items of

neuromotor disorder and 2 items of psycho-emotional symptoms, with a full score of 100 points and a delimited score of 53 points. The higher the score, the more severe the depression of the

patients. The evaluation criteria were detailed in Table 2.

Table 2. **SDS Evaluation Criteria**

Score	Evaluation Criteria
<53 points	Normal
53-63 points	Mild depression
60-69 points	Moderate depression
>73 points	Severe depression

1.3.3 Visual analogue scale (VAS) was used to evaluate the body pain degree of patients in both groups before and after clinical nursing intervention,

with a total score of 10 points. The higher the score, the more severe the body pain of patients. The evaluation criteria were detailed in Table 3.

Table 3. **VAS Evaluation Criteria**

Score	Evaluation Criteria
0	No pain
≤3 points	There was mild pain, which was tolerable.
4-6 points	The pain affected sleep and was tolerable.
7-10 points	There was strong pain, which was unbearable, and affected the appetite and sleep.

1.3.4 Quality of Life Questionnaire-Core 30 (QOL-C30) was used to evaluate the life quality of patients in two groups after clinical nursing intervention, including 4 dimensions of somatic function, material society, social function and mental function, with a total score of 100 points for each dimension. The higher the score, the better the life quality of patients.

1.3.5 Pittsburgh Sleep Quality Index (PSQI) was used to evaluate the sleep quality of the patients in two groups before and after clinical nursing intervention. The index was used to evaluate the sleep quality of the subjects in the last month. It included four items, sleep time, sleep latency, sleep efficiency and sleep quality, with a total score of 5 points for each item. The higher the score, the worse the sleep quality.

1.3.6 A self-made clinical nursing satisfaction questionnaire of our hospital was used to evaluate the satisfaction of patients after nursing intervention. The purpose and specific scoring rules of the survey were explained to the patients and their families 20 minutes before the survey, and the patients were instructed to complete the survey carefully. 100 questionnaires were sent out and all were taken back on the spot. The investigators checked whether the questionnaire was complete and effective. The contents of the questionnaire included four items, nursing attitude, nursing skills, service quality and doctor-patient relationship, with each item of 25 points and a total score of 100 points. Among them, the score over 80 points was very satisfactory, the score of 60-80 points was satisfactory and the score less than 60 points was

unsatisfactory. Total satisfaction rate = very satisfactory rate + satisfactory rate.

1.4 Statistical methods

The experimental data were statistically analyzed and processed by SPSS20.0 software. The count data were tested by X^2, expressed by n (%), and the measurement data were measured by t test, expressed by ($\bar{x}$±s). The difference was statistically significant when $p < 0.05$.

2. Results
2.1 Comparison of Clinical Data Between Two Groups of Patients

By comparing the general clinical data of breast cancer patients in the two groups, it was found that there was no significant difference in age, education, tumor location, marital status and clinical staging between the two groups of patients ($p > 0.05$), which was of significance for in-depth study, as shown in Table 4.

2.2 Comparison of SAS Scores Between Two Groups of Patients Before and After Nursing Intervention

The results showed that the SAS scores of patients in both groups after intervention were significantly higher than those before intervention, and the SAS score of the test group after intervention was significantly better than that of the control group, with statistically significant differences ($p<0.05$), as shown in Figure 5.

Table 4. **Comparison of Clinical Data Between Two Groups of Patients**

| Factors		Test group (n=50)	Control group (n=50)	X²	X²
Age (years old)		43.67±3.56	43.45±3.47	0.313	0.755
Education	High school and below	17	19	0.174	0.677
	Junior college	22	23	0.040	0.841
	Bachelor or above	11	9	0.250	0.617
Tumor location	Left breast	26	27	0.040	0.841
	Right breast	17	14	1.818	0.178
	Both breasts	7	9	0.298	0.585
Clinical staging	Phase Ⅰ	8	10	0.271	0.603
	Phase Ⅱ	31	27	0.657	0.418
	Phase Ⅲ	11	13	0.219	0.640
Type of surgery	Bilateral mastectomy	12	10	0.233	0.629
	Unilateral modified radical mastectomy	16	14	0.191	0.663
	Selective breast duct resection	15	17	0.184	0.668
	Modified radical mastectomy	7	9	0.298	0.585
Marital status	Unmarried	10	8	0.271	0.603
	Married	36	35	0.049	0.826
	Divorced	4	7	0.919	0.338
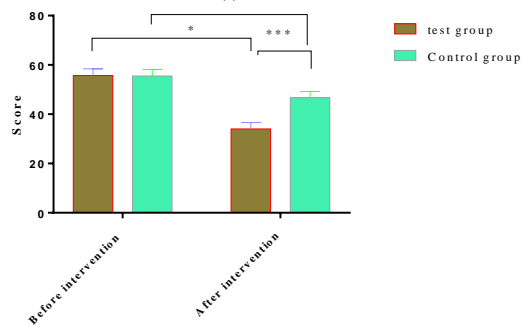
Figure 5. **Comparison of SAS Scores Between Two Groups of Patients Before and After Nursing Intervention**
Note: The abscissa represented before intervention and after intervention, and the ordinate represented score. The SAS scores of the test group and the control group before intervention were (53.79±3.83) and (53.66±3.74) respectively, and the SAS scores after intervention were (32.17±3.67) and (44.86±3.63) respectively. * indicated a difference in SAS score of patients in the test group before and after intervention (t=28.820, p=0.000). ** indicated a difference in SAS score of patients in the control group before and after intervention (t=11.939, p=0.000). *** indicated a difference in SAS score between the two groups of patients after intervention (t=17.383, p=0.000).

2.3 Comparison of SDS Scores Between Two Groups of Patients Before and After Nursing Intervention

The results showed that the SDS scores of patients in both groups after intervention were significantly better than those before intervention, and the SDS score of the test group after intervention was significantly better than that of the control group, with statistically significant differences (p<0.05), as shown in Figure 6.
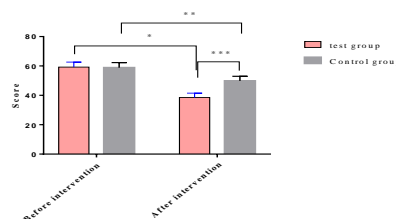

Figure 6. **Comparison of SDS Scores Between Two Groups of Patients Before and After Nursing Intervention**

Note: The abscissa represented before intervention and after intervention, and the ordinate represented score. The SDS scores of the test group and the control group before intervention were (56.77±4.86) and (56.34±4.93) respectively, and the SDS scores after intervention were (36.37±4.27) and (47.64±4.39) respectively. * indicated a difference in SDS score of patients in the test group before and after intervention (t=22.297, p=0.000). ** indicated a difference in SDS score of patients in the control group before and after intervention (t=9.319, p=0.000). *** indicated a difference in SDS score between the two groups of patients after intervention (t=13.013，p=0.000).

2.4 Comparison of VAS Scores Between Two Groups of Patients Before and After Nursing Intervention

The results showed that the VAS scores of patients in both groups after intervention were significantly better than those before intervention, and the VAS score of the test group after intervention was better than that of the control group, with statistically significant differences (p<0.05), as shown in Table 7.

Table 7. **Comparison of VAS Scores Between Two Groups of Patients Before and After Nursing Intervention ((x±s), points)**

Time	Test group (n=50)	Control group (n=50)	T_2	P_2
Before Intervention	7.81±1.32	7.67±1.26	0.542	0.589
After Intervention	1.82±0.25	4.38±0.56	29.517	0.000
T_1	31.527	16.872	/	/
P_1	0.000	0.000	/	/

Note: T_1 and P_1 represented the comparison of VAS scores within the same group of patients before and after intervention while T_2 and P_2 represented the comparison of VAS scores between the two groups of patients before and after intervention.

2.5 Comparison of Life Quality Scores Between Two Groups of Patients After Nursing Intervention

The results showed that the life quality score of the test group after intervention was significantly better than that of the control group, with statistically significant difference (p<0.05), as shown in Figure 8.
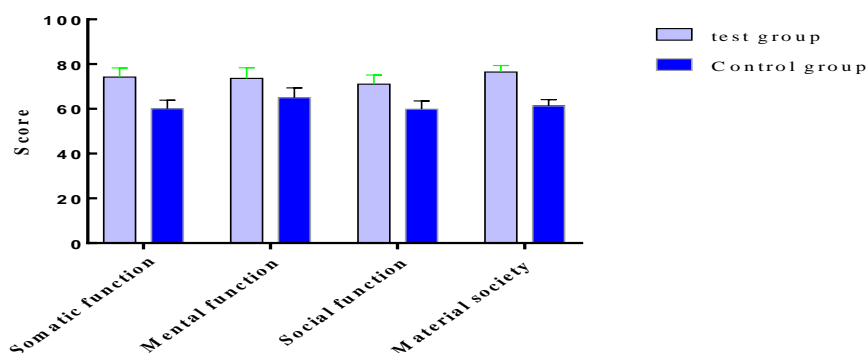

Figure 8. **Comparison of Life Quality Scores Between Two Groups of Patients After Nursing Intervention**

Note: The abscissa represented somatic function, mental function, social function and material society respectively, and the ordinate represented score.
Somatic function. The score was (71.24±5.86) in the test group and (57.38±5.37) in the control group. There was a significant difference in somatic function scores between the two groups of patients (t=12.330, p=0.000).
Mental function. The score was (70.23±6.74) in the test group and (61.87±6.23) in the control group. There was a significant difference in mental function scores between the two groups of patients (t=6.441, p=0.000).
Social function. The score was (68.11±5.82) in the test group and (57.33±5.14) in the control group. There was a significant difference in social function scores between the two groups of patients (t=9.817, p=0.000).
Material society. The score was (74.38±4.11) in the test group and (59.26±4.03) in the control group. There was a significant difference in material society scores between the two groups of patients (t=18.574，p=0.000).

2.6 Comparison of PSQI Scores Between Two Groups of Patients After Intervention

The results showed that the PSQI score of the test group was better than that of the control group after intervention, with statistically significant difference (p< 0.05), as shown in Figure 9.
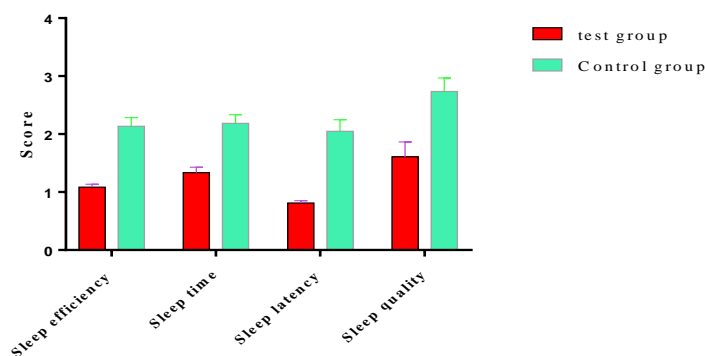

Figure 9. **Comparison of PSQI Scores Between Two Groups of Patients After Intervention**

Note: The abscissa represented sleep efficiency, sleep time, sleep latency, sleep quality, and the ordinate represented score.

Sleep efficiency. The score was (1.05±0.07) in the test group and (2.03±0.21) in the control group. There was a significant difference in sleep efficiency scores between the two groups of patients (t=31.305, p=0.000).

Sleep time. The score was (1.27±0.13) in the test group and (2.08±0.21) in the control group. There was a significant difference in sleep time scores between the two groups of patients (t=23.190, p=0.000).

Sleep latency. The score was (0.78±0.06) in the test group and (1.91±0.28) in the control group. There was a significant difference in sleep latency scores between the two groups of patients (t=27.903，p=0.000).

Sleep quality. The score was (1.43±0.36) in the test group and (2.57±0.33) in the control group. There was a significant difference in sleep quality scores between the two groups of patients (t=16.506, p=0.000).

2.7 Comparison of Clinical Nursing Satisfaction Between Two Groups of Patients

The study results showed that the total satisfaction rate of clinical nursing in the test group was significantly better than that in the control group, with statistically significant difference (p< 0.05), as shown in Table 10.

Table 10. **Comparison of Clinical Nursing Satisfaction Between Two Groups of Patients (cases (%))**

Groups	n	Very satisfactory	Satisfactory	Unsatisfactory	Total satisfaction rate
Test group	50	27（54％）	21（42％）	2（4％）	96％
Control group	50	16（32％）	22（44％）	12（24％）	76％
X^2	/	4.937	0.041	8.306	8.306
p	/	0.026	0.840	0.004	0.004

3. Discussion

In recent years, with the advance of medical level, some substantial progress has been made in the treatment of tumor diseases. However, surgical resection is still used in the treatment of breast cancer, which will make patients suffer from pain, require breast resection, affect the limb function of the affected side, and significantly change the body appearance, thus resulting in postoperative anxiety, depression and other negative emotions, and even suicide cases(Farzana et al.,2020; Howell et al.,2018; Safa et al.,2019). If patients do not receive scientific psychological counseling, negative emotions will run through the whole treatment and rehabilitation process, seriously affecting the treatment effect(Yang et al.,2019). Relevant studies(Voelkel et al.,2019)proposed to study and formulate postoperative rehabilitation programs for cancer patients from the perspective of psychosocial treatment because occurrence of cancer diseases is related to individual psychological, emotional and other factors. Most cancer patients are unable to recover their mood after defining their own disease, and gradually go

into the pain of anxiety, fear and restlessness, resulting from the influence of treatment environment and the fear of losing their lives(Grahamet al.,2018; Ralphet al.,2018).

As a new type of postoperative treatment mode, personalized clinical nursing intervention takes the patients as the center and proposes a series of nursing and rehabilitation programs by comprehensively combining the patient's own situation to eliminate the psychological burden of patients and help them build up the courage to face life [15-18]. In this study, 50 breast cancer patients received personalized nursing intervention after surgery. The SAS and SDS scores of patients after intervention were significantly better than those before treatment and in the control group, aiming to show that personalized clinical nursing intervention can effectively improve the anxiety and depression of patients after surgery and enhance the therapeutic effect. Some studies have pointed out that (Lee et al.,2018) the postoperative negative emotions of patients with tumor disease will seriously affect the sleep quality. Insufficient sleep will lead to fatigue in the daytime and irritability, affecting the effect of postoperative rehabilitation(Szefler et al.,2018). This study found that after the implementation of personalized clinical nursing intervention in the test group, the sleep indexes of the patients were better than those of the patients with conventional clinical nursing intervention. During the personalized clinical nursing intervention, nursing staff gained the trust and recognition of patients, and established a good doctor-patient relationship by actively communicating with them. The staff also mobilized family members to communicate with patients, so that patients could feel the strength from family or love, which was conducive to their emotional catharsis, thereby enhancing their courage and confidence to face reality(Christos et al.,2019;Heather et al.,2019). This study found that the life quality of patients was significantly improved after the implementation of personalized clinical nursing intervention. Many documents pointed out that image is particularly important for women, but female appearance will be seriously affected by breast cancer surgical resection. One-to-one psychological counseling for breast cancer patients after surgical resection can effectively improve their psychological burden to optimistically accept their own defects, which is conducive to female patients in returning to society and restore life confidence after rehabilitation. However, there are also some defects and deficiencies in the personalized clinical nursing intervention mode. Firstly, for patients or family

members with low education level, it is difficult for them to understand the disease knowledge explained by doctors so that they will ignore the the learning of disease-related knowledge. Second, the implementation of specific clinical intervention may be misunderstood and opposed by family members, hindering the implementation of measures to some extent. Finally, a large number of clinical nursing interventions will increase the workload of doctors and nurses.

In conclusion, the introduction of personalized clinical nursing intervention in the rehabilitation process of breast cancer patients after surgery can effectively reduce depression and anxiety of patients, enhance life quality of patients and improve clinical nursing satisfaction, which is beneficial for establishing a harmonious and warm doctor-patient relationship, and promoting disease rehabilitation.

References

[1] ANDREEA M. NEWTSON, ERIC J. DEVOR, JESUS GONZALEZ BOSQUET (2020). Prediction of Epithelial Ovarian Cancer Outcomes with Integration of Genomic Data.*Clinical Obstetrics and Gynecology*,63(1):92-108. DOI:10.1097/GRF.0000000000000493.

[2] Ali Fatehi Hassanabad,Jonathan V.S. Wong(2020).Molecular Determinants of Statin-sensitivity in Cancer.*American Journal of Clinical Oncology*,43(3):160-162. DOI:10.1097/COC.0000000000000655.

[3] Benjamin Powers,Tuya Pal,Christine Laronga(2018).Considerations in Testing for Inherited Breast Cancer Predisposition in the Era of Personalized Medicine.*Surgical oncology clinics of North America*,27(1): 1-22.DOI: 10.1016/j.soc.2017.08.003.

[4] Christos.Voucharas, Christos.Tsagkaris, Dimitrios(2019).Mo.Cognitive rehabilitation in Alzheimer's disease.*Clinical Trials in Degenerative Diseases*,4(4):104-107.

[5] Emanuela Ferraro,Dario Trapani,Eleonora Marrucci(2019).Evaluating triptorelin as a treatment option for breast cancer.*Expert Opinion on Pharmacotherapy*,20(15):1809-1818.DOI:10.1080/14656566.2019.1650020.

[6] Farzana A. Faisal,Tamara L. Lotan(2020).The Genomic and Molecular Pathology of Prostate Cancer: Clinical Implications for Diagnosis, Prognosis, and Therapy.*Advances In Anatomic Pathology*,27(1):11-19.

[7] Graham, Mindy Kim, Park, Ben Ho, Wyhs, Nicolas (2018). Personalized postdoctoral fellowship care.*Nature*

[8] *biotechnology*,36(9):900-902.DOI:10.1038/nbt.4228.

[9] Haas, Jennifer S., Giess, Catherine S.Harris, Kimberly A(2019).Randomized Trial of Personalized Breast Density and Breast Cancer Risk Notification.*Journal of general internal medicine*,34(4):591-597.DOI:10.1007/s11606-018-4622-4.

[10] Heather Batten,Suzanne Kuys,Steven McPhail (2019).Are people with lower limb amputation changing? A seven-year analysis of patient characteristics at admission to inpatient rehabilitation and at discharge. *Disability and Rehabilitation*,41(26):3203-3209. DOI:10.1080/09638288.2018.1492033.

[11] Howell, Sacha J.,Howell, Anthony,Evans, D. Gareth(2018).Personalized prevention in high risk individuals: Managing hormones and beyond.*The Breast* :39:139-147.DOI:10.1016/j.breast.2018.03.009.

[12] Laura Curr Beamer (2019). Hereditary Breast and Hereditary Ovarian Ganger: Implications for the Oncology Nurse.*Seminars in oncology nursing*,35(1):47-57.

[13] Linda Rainey,Anna Jervaeus,Louise S. Donnelly(2019).Women's perceptions of personalized risk-based breast cancer screening and prevention: An international focus group study.*Psycho-Oncology*,28(5):1056-1062. DOI:10.1002/pon.5051.

[14] Lee A. Jennings, Karina D. Ramirez, Ron D. Hays (2018). Personalized Goal Attainment in Dementia Care: Measuring What Persons with Dementia and Their Caregivers Want.*Journal of the American Geriatrics Society*,66(11): 2120-2127.DOI:10.1111/jgs.15541.

[15] Michaela A. Dinan (2019). The Economic Impact of Genomic Testing in Breast Cancer.*Oncology Times*,41(10):12,13,14,23-23. DOI: 10.1097/01.cot.0000559641. 38121.c4

[16] Ralph I. Horwitz,Mary E. Charlson,Burton H. Singer(2018).Medicine based evidence and personalized care of patients.*European Journal of Clinical Investigation*,48(7):n/a-n/a. DOI:10.1111/eci.12945.

[17] Safa Najafi,Shahpar Haghighat,Mahsa Raji Lahiji(2019).Randomized Study of the Effect of Dietary Counseling During Adjuvant Chemotherapy on Chemotherapy Induced Nausea and Vomiting, and Quality of Life in Patients With Breast Cancer.*Nutrition and Cancer*,71(4):575-584. DOI:10.1080/01635581.2018.1527375.

[18] Szefler, Stanley J.,Anderson, William C., III(2018).Controlling the Risk Domain in Pediatric Asthma through Personalized Care.*Seminars in Respiratory and Critical Care Medicine*,39(1):36-44.DOI:10.1055/s-0037-1608707.

[19] Voelkel, Vinzenz, Draeger, Teresa, Groothuis-Oudshoorn, Catharina G. M (2019). Predicting the risk of locoregional recurrence after early breast cancer: an external validation of the Dutch INFLUENCE-nomogram with clinical cancer registry data from Germany.*Journal of Cancer Research and Clinical Oncology*,145(7):1823-1833.

[20] Wayne A Beach (2019). Making Cancer Visible: Unmasking Patients' Subjective Experiences.*Health Communication*,34(14):1683-1696. DOI:10.1080/10410236.2018.1536941.

[21] Yang, Gee Su, Kumar, Sreelakshmy,Dorsey, Susan G(2019).Systematic review of genetic polymorphisms associated with psychoneurological symptoms in breast cancer survivors.*Supportive care in cancer: official journal of the Multinational Association of Supportive Care in Cancer*,27(2):351-371.