The Study of Type D Personality and Cognitive Strategies of Emotion Regulation as Predictors of Happiness and Quality of Life in Women With Breast Cancer

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ABSTRACT

Background: Various personality traits, like A and D, have a lot of stress, anxiety, and negative emotions that make the patients with breast cancer be susceptible to more stress and negative perception of events. Thus, the aim of the present study was to examine the association of type D personality and cognitive strategies of emotion regulation with happiness and quality of life (QOL) in women with breast cancer.

Methods: The present cross-sectional study included 100 women with breast cancer referred to Shiraz medical centers in summer 2015; the population of the study was chosen through purposive sampling method. Information was recorded through filling 4 questionnaires, including type D personality scale, cognitive emotion regulation questionnaire (CERQ), Oxford happiness inventory, and QOL questionnaire.

Results: A significant negative association was observed between type D personality and happiness, and there was a positive association between type D personality and QOL (P < 0.001), between positive cognitive strategies of emotion regulation and QOL(P < 0.001), positive cognitive strategies of emotion regulation and happiness (P < 0.001), but no significant relationship was found between negative cognitive strategies of emotion regulation and happiness (P = 0.08). No significant relationship between negative cognitive strategies of emotion regulation and QOL(P = 0.25) was seen.

Conclusions: These results elucidate the associations between personality and illness perceptions, demonstrating their close interrelatedness. Therefore, we can increase the awareness and understanding of personality traits as well as emotional regulation strategies about the disease in order to enhance happiness and quality of life in such patients.

Introduction

The most common cancer in Iranian women, breast cancer, is among the 3 leading causes of death in Iran.[1] Based on a report of Ministry of Health Center for Disease Management of Iran, the most widespread cancers in women included breast, skin, colon, rectum, stomach, esophagus, hematopoietic system, thyroid, ovary, and uterus.[2] Breast cancer ranks first in women with Age Standardized Incidence Rate (ASR) =28.25, higher than the reported rate of skin cancer.[3]

It is estimated that half of the new cases and 60% of the world's deaths belongs to the developing countries due to adopting western life style and also infections.[4,5]

Quality of life (QOL) is a multidimensional

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notion engaging facets of individuals' physical, psychological, and social well-being.[6] The determinants of QOL in women with breast cancer include psychosocial factors, like coping style as well as socio-demographic and medical factors.[7] Some surveys have concentrated on the impact of psychological factors on cancer.[8] Studies have confirmed the influences of coping styles, optimism, and certain personality traits on cancer,[9] although others have found no association between personality traits and cancer risk.[10]

Described as a tendency to experience a high joint incidence of negative affectivity and social inhibition, type D (distressed) personality has become a significant research subject in the area of medical psychology in recent years.[11] Patients with personality traits D internally experience a large amount of stress and negative emotions; hence, they are at increased risk of cardiovascular disorders.[12] Studies have designated that type D personality disorder enhances the comorbidity and health burden in patients with cancer.[13]

Emotional self-regulation is a structured effort to regulate thoughts, feelings, and actions to achieve specific objectives. Although all goals in life are not the same, the ability to self-regulate creates harmony among objectives. In other words, self-regulation requires sacrificing one goal for other goals. A previously conducted study has shown that positive emotions facilitate self-regulation and negative emotions harm self-regulation.[14]

Cognitive emotion regulation is universal; individual differences exist in the particular thoughts or cognitions through which people regulate their emotions in response to life experiences. Cognitive emotion regulation is, hence, broadly supposed to be an imperative subject regarding mental health.[15] Cognitive emotion regulation is, likewise, correlated with depression and emotional problems that are linked with numerous diseases.[15,16]

Cancer is a crisis with which anyone may confront and it causes many problems for the affected patients, containing complex treatment protocols, long treatment duration, and resistance to treatment that cause great stress and despair.[17] These difficulties are particularly problematic in the case of breast cancer, in which mastectomy may additionally cause psychosocial problems for the affected patients, including occupational and sexual problems.[18] Furthermore, patients suffering from breast cancer have increased the rates of depression and anxiety in the first year after diagnosis.[19]

Therefore, these 2 factors may play a central role in prediction of the individual's happiness that interacts with the quality of life (QOL) in patients with breast cancer. Because of the disagreements, novelty, and significance of this issue, we aimed to investigate the association between type D personality and cognitive strategies of emotion regulation with happiness and quality of life in women with breast cancer.

Methods

Study design

The present cross sectional descriptive study included 100 women with breast cancer who referred to Mottahari Clinic affiliated to Shiraz University of Medical Sciences for chemotherapy during summer 2015; the participants were chosen based on purposive sampling. As a technique generally used in qualitative research, purposeful sampling is utilized for the classification and selection of information-rich cases for the most effective use of limited resources.[20] This involves recognizing and choosing individuals or groups of individuals based on special knowledge about or experience with a phenomenon of interest.[21] We included patients whose diagnosis was made during 1 to 5 years prior to the study and had not underwent mastectomy. Any patient diagnosed more than 5 years prior to the study or had concurrent underlying diseases, comprising physical and psychological comorbidities, like cardiova-scular diseases, diagnosed general anxiety disorder, and bipolar and major depressive disorders was excluded. We excluded incomplete questionnaires from the study. The demographic data of patients were recorded and they were asked to complete the following questionnaires:

1. The questionnaire of quality of life (SF-36), designed by Ware and Sherbourne in 1992,[22] contains 36 items, representing 8 different domains, including general health, physical functioning, limitation in role playing due to physical and emotional reasons, body pain, social function, vitality, and mental health. The scores range from 0 to100 and higher scores show better QOL, internal consistency of scales measured by Cronbach's exceeded 0.80 and validity estimated 0.075. The Persian version of the questionnaire has been previously validated by Montazeri et al.[23] with estimated internal reliability of 77% to 90% in all aspects, except delight (65%). He, likewise, reported Cronbach's alpha coefficients for all subscales in the range of 0.70 to 0.85.[23]

2. Oxford happiness inventory, designed by Argyl, Martin, and Crossland in 1989,[24] contains 29 items in 5 domains, including satisfaction, positive mood, health, efficiency, and self-esteem. Each item has 4 choices, scored from 0 to 3, where never indicates 0, 1 shows few, 2 signifies moderate, and 3 shows very much. The total score ranges from 0 to 78, and scores less than 40 to 42 identify depression and dissatisfaction, while score greater than 42 show happiness. The Persian version of the questionnaire has previously been validated by Hadinezhad and Zareei,[25] reporting a Cronbach's alpha of 90% and test-retest reliability of 78%.

3. Type D personality scale, designed by Denollet,[11] evaluates the parameters of negative

affectivity (NA) and social inhibition (SL). Each domain has 14 items, scored as "never, sometimes, often, and always" and is scored from 0 to 28; scores greater than 10 show positive results and the total score ranges from 0 to 56. Reliability and validity of Persian version of Type D personality Questionnaire (DS14) has previously been evaluated by Fakhari *et al.* in patients with coronary artery disease.[26]

4. Cognitive emotion regulation questionnaire (CERQ), a multi-dimensional questionnaire designed by Garnefski *et al.*[27,28] in 2002, assesses the cognitive emotion regulation after an unpleasant event. These subscales include: 1) Non-acceptance of Emotional Response 2) Difficulties Engaging in Goal-directed Behavior 3) Impulse Control Difficulties 4) Lack of Emotional Awareness 5) Limited Access to Emotion Regulation Strategies 6) Lack of Emotional Clarity. These subscales are designed to assess a persons' behavioral reaction after experiencing a stressful life event. Some items are reverse-scored. Each subscale is scored on a 5-point Likert scale ranging from "Almost Never" to "Almost Always." The total score ranges from 36 to 180. The Persian version of the questionnaire has previously been validated by Hasani,[29] reporting a Cronbach's alpha of 0.76 to 0.92.

The participants completed the questionnaires anonymously and under observation of the researcher who explained any vague item in the questionnaires to them.

Ethical considerations

The protocol of the present study was approved by Shiraz University of Medical Sciences. The design and objectives of the study were explained to all participants and written informed consent was obtained from those who were inclined to take part in the survey; they were informed that they were free not to participate in the study and this would not affect their treatment protocol. The participants were ensured that their information would be kept confidential and anonymous in all stages of the study.

Statistical analysis

Quantitative variables were presented as mean ± standard deviation (SD) and categorical variables as frequency (percentage). The associations between variables were defined by regression models and Pearson's coefficient. For the statistical analysis, the statistical software SPSS version 21.0 for windows (SPSS Inc., Chicago, IL) was used. P-values less than 0.05 were considered statistically significant.

Results

The mean ± SD age of patients was 50.39±1.23 years. Educational status of patients is demonstrated in Table 1. Of all patients, 76% had personality type D, 80% had happiness, 93% used negative strategies and 15% used positive strategies for cognitive emotion regulation, and QOL was low in 53% of patients. In Table 2, mean and standard deviation of Type D personality, happiness, quality of life, and cognitive strategies of emotion regulation are demonstrated.

Table 1. Educational status

	N(%)
Illiterate	9 (7.65%)
Primary	23 (23. 24%)
Medium	21 (22 .27%)
Diploma	29 (31.54%)
Collegiate	18 (15.3%)

Table 2. Mean and standard deviation of main variables

	Mean ± SD
Type D personality trait	27.31 ± 9.71
Happiness	51.5 ± 14.49
Quality of life	49.19 ± 1.35
Positive cognitive strategies of emotion regulation	69.5 ± 13.52
Negative cognitive strategies of emotion regulation	48.5 ± 10.74

As shown in Table 3, happiness showed significant association with type D personality trait and with positive cognitive strategies. There were also significant association between quality of life and type D personality, negative cognitive strategies, and positive cognitive strategies of emotional regulation.

Table 3. The association of type D personality trait, negative and positive cognitive strategies of emotion regulation with happiness and quality of life in the study participants

	Type D personality trait	Negative cognitive strategies of emotion regulation	Positive cognitive strategies of emotion regulation
Happiness	r = -0.63, P = 0.0001	r = 0.11, P = 0.25	r = 0.63, P = 0.0001
Quality of life	r = 0.44, P = 0.0001	r = 0.17, P = 0.08	r = -0.36, P = 0.0001

Discussion

The QOL and happiness in patients suffering from cancer can have an important impact on their prognosis and general health.[30] Moreover, surveys have shown that patients with breast cancer have a worse social well-being than patients with other cancers;[31] consequently, considering the psychological factors in patients suffering from breast cancer is of great importance. The results of the present study signified important negative correlation between type D personality and happiness (r = -0.63, P = 0.0001). Besides, a positive association was found between type D personality and QOL (r = 0.63, P = 0.0001). There was also a significant positive association between positive cognitive strategies of emotion regulation and happiness (r = 0.63, P = 0.0001). Furthermore, a negative association was found between positive cognitive strategies of emotion regulation and QOL (r = -0.36, P = 0.0001), but the association between negative cognitive strategies of emotion regulation and QOL was not significant (r = 0.17, P = 0.08). Several studies have assessed the association between personality type D and diseases, but have seldom focused on patients with cancer. Personality is known as an independent factor in subjective well-being and happiness,[32] which was confirmed by the results of the present study. Individuals with type D personality trait require to be confirmed by others and may, hence, confront problems coping with diseases,[33] specifically diseases that influence their body image, like breast cancer, which may ultimately lead to mastectomy. These difficulties, intensely, affect patients suffering from breast cancer, particularly patients with type D personality trait, who encounter emotional problems and have negative emotions; therefore, type D personality trait is connected with social and emotional complications that predispose the patients to diseases.[11,34]

Considering the association between type D personality and QOL, studies have attained different findings that might be because of the different nature of the diseases studied. Pederson et al. have established a significant negative association between type D personality and impaired QOL in cardiac patients.[35] Similarly, have other researchers proven lower health-related QOL in cardiac patients with type D personality trait.[36-38] The results of the above-mentioned studies are inconsistent with the results of the present study, which might be due to the fact that patients with type D personality have difficulty in social relations and many choose loneliness.[33] Patients with breast cancer have additional problems in social relations;[18] hence, they appear less in the society and are less influenced by the negative responses of the society. Moreover, the majority of patients in the present study had breast cancer for 1 to 5 years, while social problems mainly emerge in early phases of disease after diagnosis[19] that could affect the results of the present study and cause higher QOL in patients with type D personality.

Some studies have also suggested that type D personality trait influences the neuro-endocrine system via stress.[12] Therefore, type D personality trait may not only have psychological effects on patients' health, but it may also induce physiological changes in the body that affect patients' health condition that need additional investigation in the area of breast cancer.

Few studies have considered cancer, but they have also not focused on type D personality in patients with breast cancer. Denollet have previously proposed type D personality and age as independent risk factors for cancer development in men.[39] Carver et al. have also associated optimism and psychological well-being to survival of patients with breast cancer.[9] Similarly, Epping-Jordan et al. have evaluated psychological adjustment in patients suffering from breast cancer at 3 and 6 months' follow-up and have suggested optimism as a vital factor in such patients.[40] As long as pessimism is one of the characteristics of individuals with type D personality, the above-mentioned surveys also approve the results of the present study. Mols et al. have assessed patients with colorectal cancer and have reported that patients with type D personality trait have a significantly higher psychological distress and concern about the disease[41] that generally approves the results of the present study; although the above-mentioned studies have not focused on the variables argued in the present study.

Similar to the results of the present study, Giese-Davis et al. have reported changed emotion regulation strategies in patients with metastatic breast cancer and have proven the efficiency of emotion-focused therapy[42] that is consistent with the results of the present study, showing that positive cognitive strategies of emotion regulation predict patients' happiness. Additionally, emotion regulation strategies have also been associated to different diseases by other researchers. Kinnunen et al. have associated emotion regulation with metabolic syndrome[16] and Karademas et al. have associated emotion regulation strategies to illness-related emotions,[43] suggesting that emotion regulation strategies have physiological impacts on the body that need greater attention, particularly in patients suffering from cancer. Thus, it is proposed that future studies evaluate the psychological and physiological effect of personality traits and emotion regulation strategies on patients suffering from breast cancer.

The strengths of the present study included evaluating this novel issue in patients with breast cancer that is the first most prevalent cancer in Iran and guiding the researchers to focus on the

psychological state of patients suffering from breast cancer. But, it also had some limitations, such as not considering the prognosis of patients, which was not within the objectives of the study. Besides, as the results of the present study suggested, psychological treatment of patients with breast cancer may play a key role in the prognosis of the patients. Therefore, it is proposed that future studies assess the effect of psychotherapy in 2 aspects of personality traits and emotion regulation strategies on the prognosis and treatment of patients suffering from breast cancer.

Nowadays, due to changes in lifestyle, non-communicable diseases including cancers are increasing. Among all kinds of cancers, breast cancer is the most common cancer and the most leading cause of death among women. Patients are severely damaged mentally and emotionally, because breast is a sensitive part of their body and is considered a sign of beauty and charm. Since the treatment of breast cancer in women is accompanied with complications, it may have high cultural and social psychological effects, as their health is closely associated with the health of the family and the community. Therefore, we need to increase our awareness and understanding of personality traits as well as emotional regulation strategies about this disease and develop strategies in order to enhance happiness and quality of life in such patients.

Conflict of Interest

Acknowledgment

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