Chapter 4
Psychiatric and Psychosocial Aspects of Breast Cancer Diagnoses and Treatments

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Abstract This chapter explains some aspects of breast cancer. The main emphases are on some common psychiatric disorders like depression and psychosocial problems and their psychiatric treatments and psychological supports. Additionally, we have tried to take note of most psychosocial problems that a patient with breast cancer and her family are facing. We asserted that psychiatrists should take more active roles in their treatment plans as a member of the team treating patients with breast cancer. The main emphasis has been on the role of a consultation-liaison psychiatrist and some other members of the mental health providers to help patients better, and to present an integrative medical service with success. Depression is the most common psychiatric problem that breast cancer patients are affected by. Depression and other psychiatric disorders in cancer patients, especially in patients with breast cancer, are less diagnosed than the real rate. We also noted the anxiety disorder and sleep disorder at a glance. A psychiatrist accompanied by other treating physicians from other specialties and other departments help together in properly detecting and managing the psychiatric and psychosocial problems in cancer patients. The use of psychiatric medication in most patients is necessary. Psychiatric drug treatments in patients with breast cancer and their interactions with other medications and hormones used in breast cancer patients are explained briefly. Non pharmacological treatments especially Cognitive Behavioral Therapy (CBT), which have been effective in clinical trials for cancer patients are mentioned in this chapter and available by the mental health providers in most centers. Also noted, are the surgical treatments of the breast cancer. Varieties of surgical procedures have been described with simple words for clearer understanding. Patients and physicians can find most answers to their questions about the appropriate type of surgery and its potential complications in this chapter, followed by a brief note on breast cancer surgery in Iran.

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Abbreviations

ALND	Axillary lymph node dissection
BCQ	Breast cancer chemotherapy questionnaire
BCS	Breast-conserving surgery
BCT	Breast conserving therapy
CBT	Cognitive behavioral therapy
CT	Cognitive therapy
CRH	Corticotrophin-releasing hormone
DSM	Diagnostic statistical manual
DLPFC	Dorsolateral prefrontal cortex
ECA	Early childhood adversity
EORTC QLQ-BR 23	European organization for research and treatment of cancer breast cancer quality of life questionnaire
FCIT-B	Functional assessment of chronic illness therapy-breast
HRT	Hormonal replacement therapy
HADS	Hospital anxiety and depression scale
HPA axis	Hypothalamic–pituitary–adrenal axis
MDD	Major depressive disorder
MT	Mastectomy
QOL	Quality of life
QLQ-BR	Quality of life questionnaire breast cancer
RSCL	Rotterdam symptom checklist
SLDS-BC	Satisfaction with life domains scale for breast cancer
SLNB	Sentinel lymph node biopsy
5-TTLPR	Short allele serotonin transporter genotype
SEGT	Supportive expression group therapy

4.1 Introduction

Cancer among patients and in all societies is still a disease of fear. Cancer often suddenly appears in the body and jumps to various organs; and the macroscopic stage of the cancer usually progresses rapidly, and without treatment in most cases, the disease will be virulent. Despite medical advances in the twenty-first century, the frightening face of cancer still pervades the people and is known as one of the incurable diseases. Avicenna, the most famous ancient Iranian physician who lived about a thousand years ago, knew of some of the types of cancer and considered them as an incurable disease. However, Avicenna emphasized a general principle in Iranian traditional medicine; that treatments should be reviewed and updated based

on the circumstances of time, place and climate. Therefore today, Iranian traditional medicines, along with modern evidence based medicine, have numerous remedies and treatment plans, that help the cancer patients to improve their lives. Nowadays, psychiatric drugs with minimal side effects and abundant clinical benefits are available in the market and their efficacy has been proven in clinical trials (Derakhshan et al. 2008a). Because of evidence based clinical trials, most physicians are eager to prescribe medications to treat disorders or to reduce adverse effects of other therapeutic measures (Derakhshan et al. 2008b).

A woman who is diagnosed with breast cancer, due to the risk of imminent death, may give up her hope and feel despair. Her life expectancy is somewhat lost. Family and relatives at first cannot believe that their loved one is suffering from a difficult to cure sickness.

After hearing this bad news, the patient and her family are faced with serious mental stress and become shocked. The following examples are of recently diagnosed Iranian women with breast cancer:

> Something is behind the door, something which can make everything worse. I'm always waiting, but unfortunately not for a good thing.

> This is an intolerable feeling that you are always expecting unknown tragic events. You sleep with fear, wake up with fear, look at yourself with fear, touch yourself with fear and finally leave with fear. Constant fear is your life background.

Usually this state of shock does not last long and the patient and their family realizes that they must take action. At this stage, the patient needs calmness and support in order to prevent a feeling of loneliness. A psychiatrist should support the patient and her family and give them the opportunity to gradually progress from the stage of shock. The first paths of the patient and her family, if not with the help and supervision of a psychiatrist, may not be targeted at all. Thus the patient and those around her may be entering a phase of denial. They are often unconsciously busy with chores or even going on a vacation together. Sometimes the denial phase takes too long so the patient loses some opportunities and remedial measures that should be done within a certain time. A psychiatrist with reciprocal understanding and confidence with the patient can organize her thoughts and assist her in managing this crisis that has occurred. A psychiatrist helps the patient to manage her thoughts and feelings in order to make rational decisions and to demonstrate appropriate behaviors. Some people may quickly pass the first and second stages, and with a realistic approach, seek help from her physicians to manage their current situation. At this stage, the psychiatrist helps the patient feel a belonging to the large population of other breast cancer patients, acknowledging that she is not the only cancer patient and anyone may get cancer. Having cancer is a likely coincidence in medicine and does not relate to one's character or to her life history. Just like any disease in medicine, it depends on environmental and especially genetic factors in some persons.

Following this stage, some patients enter the acceptance stage. With the help of mental health providers and psychiatric services, these patients can cope with their disease. Based on the clinical evidence, these patients live longer and have a better

quality of life ahead of them. Some groups of patients who have a poor coping strategy may show aggressive behaviors after the denial phase. These patients fight with others and are accused to have childish behaviors. At this time the patient feels alone and believes that no one can understand them and she is a perishing victim.

A young Iranian woman explained her emotional dizziness with these words:

> I'm confused. I don't know their compassion is because of my illness or they really love me for myself. I don't like their pity. I can't understand their emotions.

Another woman with breast cancer said:

> My husband shows different emotions. He comes home so late but he also tries to show me compassion. I can't believe that he is really impacted by my suffering, rather I think he wants to flee and is looking for a proper opportunity.

She may refuse to accept help from any one. She may look for a culprit and quarrel with her family and friends. Sometimes a patient will demonstrate this anger toward herself thus hurting herself. In most studies the incidence rate of suicide in cancer patients and especially patients with breast cancer has been reported more than in the general population (Hjerl et al. 2002). At this stage, a consultation-liaison psychiatrist, who is the head of mental health service team, on the reciprocal trust and the therapeutic alliance with the patient, permits her to share problems with therapists. In this stage and other stages, the psychiatrist welcomes the contribution of family members, understanding their needs and patiently answering their questions, making decisions as an honest advisor, accompanying the patient and her family in all diagnostic and therapeutic stages.

In many cancers, including breast cancer, surgery is one of the requirements for treatment in the early stages. A trained and experienced surgeon, after necessary examination and testing, shares the diagnosis of breast cancer with the patient in a calm and intimate atmosphere. Optionally, every one of her family members can participate in this session and become involved later in the treatment steps. The treating physician should understand the initial reaction of the patient. Assure her, in a supportive and professional manner, that the disease has an appropriate treatment. The physician indicates that for cancer at any stage there are many appropriate and effective treatments available. The physician explains that the treatment of cancer is accomplished by teamwork and that mental health professionals are also important components of the team.

The head of the team is a psychiatrist who preferably is trained in the psychosomatic department as a consultation-liaison psychiatrist to manage an integrative mental health service with a dynamic interaction with physician of other departments in a general hospital. The attendance of a consultation-liaison psychiatrist provides an easy path to give patients an integrative medical service in a general hospital. A consultation-liaison psychiatrist has the role of supervision, along with the treating physician, in a comprehensive plan for the treatment and rehabilitation, especially psychosocial support for patients and families. Psychiatrists have been alongside with patients and families on the path to obtain their health blessedly. In every step, psychiatrists, in this manner, collaborate with other members of the

treatment team and also members of the mental health providers group that may be of clinical benefit for a comprehensive medical service. Some other members of mental health providers are as followings: clinical psychologists, occupational therapists and social workers. A clinical psychologist is trained to offer psychological support, psycho-education and psychotherapy. Occupational therapists and social workers help patients and families to manage the vocational and socioeconomic problems.

Almost all medical and psychiatric disorders can affect the cognitive function of the patients and therefore, some of their behaviors. Some disorders may have fewer effects on cognition and behavior, whereas, some other disease may have more influence on each. It depends on the nature of disorders and their consequences on the brain, cognitive function and behavior. (Derakhshan et al. 2011). The goal in the treatment of breast cancer is to manage progression of the disease; most patients desire a cancer-free outcome. In pursuit of these goals, many patients engage in multiple treatment modalities including surgery, chemotherapy, and radiation, each of which can have devastating physical, emotional, and spiritual effects, on the patients and their families. If the patient is a candidate for surgery, the surgeon is at the disposal on one or more occasions with the patient and her family, prior to the surgery, to answer their questions and to explain to them some probable complications. He will ensure them that the treatment team will utilize the utmost care for helping them and treatment of the disease. Before surgery, the patient may also need to have sessions with psychiatrist to have a talk about her worries and fears before the surgery and the consequences post-surgery, particularly regarding a mastectomy, the main surgical treatment of breast cancer, which has been worrisome for womenfolk. A mastectomy is a serious change in the body for a woman and could hurt her womanly character. Mastectomy could stir up a storm in her mind because of the damage to her femininity. To be expected most of patients need psychological assistance to cope with this phase. Psychiatrists, with accompaniment of other members of the mental health team, arrange one or more sessions in order to prevent less mental harm to patients and families. The aim is that she adapts well to the new circumstances as soon as possible and returns to her normal life. The patient naturally has various roles in her family and in her society; the role of being a good wife, a successful mother, a valuable person in the community. Psychiatrists, with accompaniment of other members of the mental health team try to help patients and families return to the individual and social roles as in the past or even better.

4.2 Epidemiology of Breast Cancer

Breast cancer is the most common malignancy in women worldwide, with 178,480 new cases in the United States each year (American Cancer Society 2007, 2009). About one in eight U.S. women (about 12%) will develop invasive breast cancer over the course of her lifetime. In 2017, an estimated 252,710 new cases of invasive breast cancer are expected to be diagnosed in women in the U.S., along with 63,410

new cases of non-invasive (in situ) breast cancer. About 2470 new cases of invasive breast cancer are expected to be diagnosed in men in 2017. A man's lifetime risk of breast cancer is about 1 in 1000 (American Cancer Society 2017).

Breast cancer accounts for 15% of deaths from cancer in women (Jemal et al. 2008). In the 1970s, the likelihood that a woman could be affected with breast cancer in the United States of America was one in thirteen people and this ratio in 1980 rose to one in eleven; and in 2004 rose to one in eight woman. Documents show that the incidence of new cases of breast cancer from the mid-1940s have gradually increased (Clarke et al. 2006) and it is estimated that 1.2 million new cases will be diagnosed annually worldwide (Jemal et al. 2008). As we mentioned, breast cancer incidence rates in the U.S. began decreasing in the year 2000, after increasing for the previous two decades. They dropped by 7% from 2002 to 2003 alone. One theory is that this decrease was partially due to the reduced use of hormone replacement therapy (HRT) by women after the results of a large study called the Women's Health Initiative were published in 2002. These results suggested a connection between HRT and increased breast cancer risk. About 40,610 women in the U.S. are expected to die in 2017 from breast cancer, though death rates have been decreasing since 1989. Women under 50 have experienced larger decreases. These decreases are thought to be the result of treatment advances, earlier detection through screening, and increased awareness. For women in the U.S., breast cancer death rates are higher than those for any other cancer, besides lung cancer.

Besides skin cancer, breast cancer is the most commonly diagnosed cancer among American women. In 2017, it's estimated that about 30% of newly diagnosed cancers in women will be breast cancer. In women under 45, breast cancer is more common in African-American women than white women. Overall, African-American women are more likely to die of breast cancer. For Asian, Hispanic, and Native-American women, the risk of developing and dying from breast cancer is lower. As of March 2017, there are more than 3.1 million women with a history of breast cancer in the U.S. This includes women currently being treated and women who have finished treatment (American Cancer Society 2017).

A woman's risk of breast cancer nearly doubles if she has a first-degree relative (mother, sister, or daughter) who has been diagnosed with breast cancer. Less than 15% of women who get breast cancer have a family member diagnosed with it.

About 5–10% of breast cancers can be linked to gene mutations (abnormal changes) inherited from one's mother or father. Mutations of the *BRCA1* and *BRCA2* genes are the most common. On average, women with a *BRCA1* mutation have a 55–65% lifetime risk of developing breast cancer. For women with a *BRCA2* mutation, the risk is 45%. Breast cancer that is positive for the *BRCA1* or *BRCA2* mutations tends to develop more often in younger women. An increased ovarian cancer risk is also associated with these genetic mutations.

In men, *BRCA2* mutations are associated with a lifetime breast cancer risk of about 6.8%; *BRCA1* mutations are a less frequent cause of breast cancer in men. About 85% of breast cancers occur in women who have no family history of breast cancer. These occur due to genetic mutations that happen as a result of the aging process and life in general, rather than inherited mutations.

The most significant risk factors for breast cancer are gender (being a woman) and age (growing older).

In Europe, breast cancer incidence has increased from 76 per 100,000 inhabitants in 1995 to 88 per 100,000 inhabitants in 2008. Mortality, however, decreased from 27.3 per 100,000 inhabitants in 1995 to 24.3 per 100,000 inhabitants in 2008 (Bray et al. 2002; Ferlay et al. 2010); resulting in a growing group of breast cancer survivors every year.

The prevalence of the disease in Western countries and North America is 8–10% and in Asian countries about one percent (Parkin et al. 2002). The highest rate of breast cancer is seen in the USA, Australia, New Zealand, South America, Eastern and Western Europe (Radice and Redaell 2003), the incidence is also rising in many developing countries. For example, breast cancer is the second leading cause of cancer and the leading cause of death for 35- to 59-year-old Taiwanese women (Chen et al. 2002). In Iran based on statistics, 6.7% per one thousand women are diagnosed with breast cancer (Hadi et al. 2002). About 21.4% of all cancers among women in Iran is breast cancer (Harirchi et al. 2004).

Although Iran has less incidence rates than other Asian countries, during the last four decades, increasing incidence rates has made breast cancer one of the most prevalent malignancies among Iranian women, which constitutes 25% of all cancers among Iranian women, with the highest rate occurring in those aged between 35 and 44 years according to the latest report of Iranian Cancer Institute in 2003 (Mohaghaghi et al. 2007).

4.3 Psychiatric Disorders in Cancer Patients

Psychiatric disorders such as depression and anxiety disorders are highly prevalent in the general population especially in the patients who have severe medical illness (Lecrubier 2001). Other medical illnesses like physical or mental trauma due to accidents or even after natural disasters also can increase psychological problems (Derakhshan et al. 2008c). A meta-analysis showed a prevalence of clinical depression of 16.3% and a prevalence of all types of depression in 20.7% of oncologic and hematologic patients (Lotje Van Esch et al. 2012). Anxiety prevalence was 10.3% (Mitchell et al. 2011). In this meta-analysis only studies that used a clinical interview to assess depression and anxiety were included.

In patients with breast cancer, depression is more prevalent from other psychiatric disorders and leads to worse health related quality of life and survival outcomes (Fann et al. 2008; Ng et al. 2010; Satin et al. 2009; Giese-Davis et al. 2011). The reported prevalence of depression in patient with breast cancer ranges from 4.5 to 37%. It is different in range because of socioeconomic and geographic and ethnical factors. According to some great studies the rate of depression in breast cancer all over was about 10 to 20%. Many studies estimate the rate of depression in patients with breast cancer based on screening instruments were from 15 to 30%, are generally higher in comparison with study estimates based on a structured

interviews range from 5 to 15% (Fann et al. 2008). Because of early detection and more appropriate and improved treatment, the five year survival rates of the patients with breast cancer have increased in the last two decades up to 89% after diagnosis the illness (Ganz et al. 1998; Spiegel 1996). One of the most important areas of psychological distress for women with breast cancer are related to fear of death, body image concerns, feeling the physically and emotionally side effects of treatment, and integration of new medical demands in the context of women's prior image of self and family.

Another major research line has revealed the correlation between coping skills and medical outcomes. The results shown that, patients with less ability to cope reported more severe physical symptoms, experienced more distress, and felt worse about their prognosis (KenneSarenmalm et al. 2007) each of these contributed to a decreased quality of life.

Understanding the normal processes of human coping and adaptation, and identifying those patients at risk because of poor internal (personality, cognitive style) or external (social) resources will assist the health providers to recognize what is going on with the cancer patients and how to best help them.

The 2015 Commission on Cancer Distress announced vulnerability factors for depression, anxiety and psychological distress among patients with breast cancer. Obviously the ability to identify patients who are prone to comorbid psychiatric symptoms at the beginning of their cancer diagnosis and during treatment helps to anticipate and deliver more appropriate and personalized cancer care for them (McFarland 2016).

The practitioner of medical and psychiatric settings focus toward maximizing quality of life (QOL) among survivors who often experienced persisting aversive symptoms such as fatigue, cognitive problems and menopausal symptoms (Ganz et al. 1998; Spiegel 1996).

4.3.1 Pathophysiology of Depression in Cancer Patients, How Important to Treat?

The experience of early childhood adversity (ECA), younger than 13 years of age, primes patients to be more vulnerable to depression later in their adult life by causing more reactivity to stress (Bower et al. 2014; Green et al. 2010; McLaughlin et al. 2010). ECA has been linked to neuronal dysregulation in the development of coronary artery disease, (Loucks et al. 2011), cancer related fatigue (Bower et al. 2011) and sleep difficulties even with mild stressors (Hanson and Chen 2010). Depressive symptoms that were found in conjunction with the homozygous short allele serotonin transporter genotype in parents (5-TTLPR) have also been associated with ECA (Taylor et al. 2006). Furthermore, the early family environment and ECA correlate with immune dysregulation (Danese and McEwen 2011), specifically in the breast cancer setting.

Therefore, ECA and neglect are associated with multiple psychological symptoms but most specifically depression in the setting of breast cancer. ECA contributes to psychological burden as a vulnerability factor that may help to explain individual patient trajectories and influence the provision of patient centered care for psychiatric symptoms in patients with breast cancer (McFarland 2016).

In the last decades, the increased prevalence of depression in cancer patients has been conceptualized as an emotional response to severe stress, including emotional loss, physical pain, and often social isolation. Investigations of cancer patients suffering from major depression revealed that neuroendocrine perturbations of these individuals (i.e. HPA axis hyperactivity) are likely due to CRH hyper secretion associated with depression and/or the potent stimulation of pro-inflammatory cytokines in response to infection, tumor progression, or anti-neoplastic interventions. During the past two decades, characterization of cytokine-induced mood/anxiety and neuro-vegetative sickness behavior symptoms in humans has preceded an increasing understanding of the associated alterations of immune-inflammatory pathways and monoamine neurotransmitters. According to some evidence (Dantzer et al. 2008) in individuals receiving immune-therapies, certain cytokine-induced symptoms, such as mood and anxiety symptoms, improve with antidepressant treatments.

One of the primary and the most important concerns faced by medical practitioners and psychiatric care givers and also their patients is the psychological "stigma". This problem comes with a diagnosis of cancer and other distress that many patients and their families are faced with after being confronted with this serious illness.

The aim for mental health care providers is identifying clinically significant levels of distress in patients with cancer, and once identified how to determine whether these symptoms indicate a need for further evaluation and psychiatric intervention.

Many researchers focus on how coping with this illness affects survival rates and quality of life in patients with breast cancer. Some major instruments that measure disease specific quality of life that proved to be valid and reliable in measuring how quality of life can affect patient outcomes include the European Organization for Research and Treatment of Cancer Breast Cancer Quality of Life Questionnaire (EORTC QLQ-BR 23), the Functional Assessment of Chronic Illness Therapy-Breast (FCIT-B), Breast Cancer Chemotherapy Questionnaire (BCQ), and the Satisfaction with Life Domains Scale for Breast Cancer (SLDS-BC) (Montazeri 2008).

Obviously symptoms of distress such as pain, fatigue, insomnia, and anxiety elicited in quality of life screenings are also symptoms that may indicate an underlying depression. The rate of diagnosis of depression in breast cancer is third after the prevalence of depression in pancreatic and or pharyngeal cancers (Massei 2004; Mcdaniel 1995).

This high rate of depression in patients with breast cancer highlights why it is important to identify it and then to provide appropriate resources and treatment.

The mechanisms, by which depression affects adherence to anti-cancer clinical interventions, can be explained within the three fields. Depression can interfere with the three categories of factors—cognitive, motivational and resource related—that are essential for adherence. Some important findings proven in clinical trials are listed below (Roth et al. 1998):

Subjects by which depression affects cancer treatments
• Inability to integrate cancer diagnosis and treatment information
• Reduced motivation towards self-care
• Difficulty planning
• Negative health beliefs and pessimism about treatment
• Avoidance of health-promoting behaviors
• Social isolation and withdrawal
• Reduced use of community resources
• Greater difficulty tolerating treatment side effects
• Lack of desire and difficulty cooperating with plans for treatment

4.3.2 Psychiatric Disorders in Cancer Patients, Dianosis and Treatments

First, to assist patients, they should be instructed to follow these three major components of adherence: information, motivation and strategy. Second, non-adherence should be viewed as a potential clinical marker for depression. Physicians need to be aware of the strong relationship between non-adherence and depression. Third, providers should foster a strong clinician-patient relationship, effective communication, and partnership. Building the therapeutic relationship will help providers to diagnose and effectively manage both depression and adherence (DiMatteo et al. 1994).

Depression is likely under diagnosed in many cancer patients (Maguire et al. 1978). Studies found that treating clinicians and health care professionals failed to identify patients with depression in those patients after undergoing mastectomy. They also learned that affected patients tended not to disclose psychological symptoms. Whether this failure to disclose was caused by shame, psychiatric stigma, or lack of confidence in the treatment team member's ability to assist them effectively, was unclear. Earlier consideration and diagnosis of psychological problems from clinicians and especially mental health providers in all departments may help patients get integrative medical service (Derakhshan et al. 2008c). Screening and referrals for treatment of depressive symptoms, even at subclinical levels, is important early in treatment. Nowadays, integrative medicine, a system that services the patient as a concentrated and coordinated service by the health care providers, suggests that one of the most important members of the team of cancer

treatment should be a psychiatrist. Especially those who are trained in the field of Consultant- Liaison Psychiatry, in psychosomatic medicine departments.

The diagnosis of major depressive disorder (MDD) by DSM-V criteria includes physical symptoms that may be indistinguishable from the symptoms that occur with the cancer itself or the symptoms that occur usually as side effects of treatments and medications. Symptoms such as, insomnia, loss of appetite, poor energy, and impaired concentration maybe act as confounding factors in the assessment of individual patients for depression. One of the best solutions to this problem is the elimination of somatic symptoms from measures of depression in patients with cancer in favor of an emphasis on psychological symptoms of distress. Therefore, important diagnostic symptoms in cancer patients include suicidal thoughts, guilt, helplessness, and hopelessness (Ibbotson et al. 1994).

Two individual studies examined this approach when they compared the Hospital Anxiety and Depression Scale (HADS), which was designed for general physical illness, with the Rotterdam Symptom Checklist (RSCL), which looks specifically at cancer. Both of these measures had high positive predictive values for accurately identifying symptoms of depression and anxiety in patients with advanced cancer (Ibbotson et al. 1994; Hopwood et al. 1991).

Factors can predispose patients with cancer to a higher risk of depression
• Previous history of psychiatric illness
• Strong family history of psychiatric illness and specifically mood disorders
• Poor social support
• Higher self-reported levels of distress related to the cancer diagnosis and issues surrounding treatment

There is also a growing evidence that some psychiatric disorders especially depression, anxiety and insomnia when they occur concomitantly with breast cancer are recognizable and treatable (Weinberger et al. 2010).

Demoralization, as a persistent inability to cope, together with feelings of helplessness, hopelessness, meaninglessness, subjective incompetence and diminished self-esteem, may be a precursor or even co-exist with depression.

Although several possible diagnostic criteria have been proposed for demoralization, it has not yet been defined in the DSM. De Figueiredo (2007) highlighted that, in a multi-axial system, demoralization includes symptoms of anxiety and depressive disorders (axis I), is affected by personality traits (axis II), is clearly to be associated with physical health problems (axis III) and demoralization could replace stressful life events in axis IV, and is related to the level of functioning (axis V). This confusion occurs because our current diagnostic systems fail to recognize four perspectives of every person: his/her disease, behavior, illness and life story. Demoralization is intimately related to a person's life story.

In the first year after diagnosis of breast cancer, patients are at highest risk for depression (Rowland et al. 1999) particularly among younger patients (Compas et al. 1999). Many clinicians believe that it is critical to initiate treatment of

depression during this year, when many of the most aggressive therapies are implemented. Many women treated for breast cancer report depressive symptoms that are serious but below the threshold for a diagnosis of Major Depressive Disorder (MDD) (Mitchell et al. 2011). It is valuable to know whether differences across the subclinical depressive symptom continuum influence health outcomes. All depressive symptoms should be considered carefully by health providers.

Patients who received chemotherapy compared to patients who do not receive adjuvant therapy have higher levels of depression (Fisch et al. 2003; Rihmer et al. 2005; Musselman et al. 2006). The effects of chemotherapy on fertility, sexuality and menopause associated health problems such as osteoporosis and cardiovascular disease can lead to high levels of distress (Thompson et al. 2000). The selective estrogen receptor modulator (SERM) tamoxifen has also been shown in some studies to affect mood, with some women needing to discontinue tamoxifen secondary to depression (Thompson et al. 1995; Cathcart et al. 1993; Duffy et al. 1997; Lee et al. 2007), although other data mostly from prevention studies have not found an association between tamoxifen and depression (Roth et al. 1998; Roscoe et al. 2005; Mathias et al. 2006; Kimmick et al. 2006).

More than one in four women, who later received a diagnosis breast cancer, had elevated levels of both state anxiety and depressive symptoms (CADS) just before diagnosis. This factor was also a major predictor of Quality Of Life, state anxiety, depressive symptoms, and fatigue 12 and 24 months after surgery. This implies that women with a higher score on both state anxiety and depressive symptoms should be identified as soon as possible in the process of diagnosis and treatment of breast cancer using validated questionnaires or screening instruments. Only by identifying this group of patients, tailored psychiatric care can be accomplished (Lotje Van Esch et al. 2012).

Breast cancer is the cancer most studied in terms of psychosocial effects. One of the larger studies (Christensen et al. 2009), examined 3321 early stage Danish breast cancer patients, found a 13.7% prevalence of major depression 12–16 weeks after surgery (17.9% in 18–35 year olds and 11.2% in 60–69 year olds).

Some other important results of that large study are the following:

Independent risk factors for the development of depression in patients with breast cancer
• Younger age
• Social status
• Ethnicity
• Comorbidity
• Psychiatric history
• Physical functioning
• Smoking
• Alcohol use
• Body mass index (BMI)

Another study (Kissane et al. 1999), found that in 303 early stage and 200 metastatic breast cancer patients, prevalence rates of major depression of 9.6 and 6.5% respectively. Fatigue, a past history of depression, and cognitive attitudes of helplessness, hopelessness or resignation were significantly associated with depression in both groups. Some research groups have assessed the duration of psychological distress in breast cancer patients. In a prospective study of 160 women awaiting breast surgery, they found a 22% prevalence of depression in women who had a mastectomy for breast cancer (Morris et al. 1977). This prevalence persisted for two years, compared to an 8% prevalence of depression in those with benign disease. One five-year observational cohort study of 222 early stage breast cancer patients (Burgess et al. 2005) revealed prevalence rates for depression and anxiety of 33% at diagnosis, 15% after one year and 45% after a recurrence was diagnosed.

Few researchers have correlated patients' history of depression with current depression and/or functioning. In a study of 303 relatively young (mean age 46) women with early (Stage I or II) breast cancer at 3 months after breast surgery, using a structured diagnostic interview, (Kissane et al. 1998), found that a past history of depression was associated with current depression.

Yet, another study, (Pasacreta et al. 1997), reported findings on a homogenous sample of 79 women evaluated with the Diagnostic Interview Schedule and the Center for Epidemiological Studies Depression Scale, three–seven months after their diagnosis of breast cancer. Women with elevated depressive symptoms had more physical symptom distress and more impaired functioning than subjects without depression.

4.3.3 Depression in Advanced Cancer and Palliative Care

Chronic diseases even physical or especially mental disorders which became advanced may influence some actions and behaviors of patients, like the executive function (Derakhshan et al. 2013). Executive function is a series of high performances of the brain that are extremely important for high level human actions. Conceptualization, abstraction and cognitive flexibility are important components of the executive function. Some parts of the brain may become injured because of chronic and advanced diseases. Dorsolateral-prefrontal cortex (DLPFC) is found in chronic mental disorders like schizophrenia and possibly chronic bipolar mood disorders as the area of damage tends to decrease the level of executive function in comparison with the general population (Weingerger et al. 1986). In patients with advanced cancer, depressive disorder is a common problem (Minagawa et al. 1996), which may affect different aspects of their lives.

Patients with advanced cancer often remain under diagnosed and undertreated (Breitbart et al. 1995). One of the barriers is the common misconception that it is normal for patients with advanced cancer to be sad. Although, despite such barriers, we must not forget the fact that depression is an independent predictor of poor survival in advanced cancer (Lloyd-Williams et al. 2009). Furthermore, it reduces quality of life and prolongs hospitalization (Pelletier et al. 2002). Most importantly, depression in advanced cancer is treatable, and validated assessment tools have been developed to facilitate diagnosis.

4.3.4 Psychosocial Aspects of Breast Cancer

Women with breast cancer encounter many psychosocial stresses as well as physical problems. This disease oftentimes challenges a woman's identity, self-esteem, body image and relationships. They have to change their lifestyle following a long period of treatment, and this may well influence their quality of life. Their everyday life is full of stress and worry about their family/sexual roles in addition to the feeling of uncertainty about their future life in terms of their general functionality status. Protective factors for distress include supportive care networks, such as family and support groups and professional resources provided by clinical staff, such as timely referrals to specialized services.

The concept of body image can be found as a focus of breast cancer literature which describes the level of investment women put into their body in order to help them determine their wellbeing. This disruption to body image in breast cancer is attributed to hair loss, as well as changes in the breast and weight. Studies show younger women do seek normality in their breasts following mastectomy, and seek breast reconstruction more often than older women.

Among what is known, younger women with breast cancer are at a heightened risk of anxiety and depression in comparison to older women and younger women experience more worries about their careers and finances than older women. There is also evidence that young women perceive their quality of life to be lower than older women as a result of breast cancer. This may be attributed to poorer emotional wellbeing, specific cancer-related concerns, depression and intrusive thoughts for this younger age group. On the other hand, older women with breast cancer experience more health problems than younger women in survival, independent of receiving chemotherapy. In general, older breast cancer survivors experience overall better quality of life and mental health than their younger counterparts, but they tend to have poorer physical health and health-related quality of life due to comorbid conditions (Campbell and Woodgare 2015).

As cancer treatment can increase premature menopause, fertility and pregnancy after breast cancer are important issues for many women. It is important that women

are made aware of the potential impact on their fertility and given information regarding their options after treatment to achieve a pregnancy. Decisions to conceive are challenging as women are weighing up their desire for children against fears of recurrence and potential ability to detect future cancers (Peate et al. 2017).

The spouse's reaction to the physical deficits caused by breast cancer may negatively affect women's self-esteem and confidence. These psycho-emotional problems can subsequently increase the physical problems. In contrast, when a spouse is knowledgeable and understanding, the situation goes toward improvement for both the woman and the family. Literature shows family relationships are improved for both younger and older breast cancer survivors. However, the intimate relationships of younger women are more likely to be strained in comparison to the intimate relationships of older women in the context of breast cancer survival. Additionally, younger adults with cancer experience increased loneliness and a greater sense of isolation from peers and support networks than older adults perhaps because they perceive themselves to be different from their peers as a result of cancer (Campbell and Woodgare 2015). These psychosocial problems of women with breast cancer across the lifespan, requires an urgent need for more consideration by health providers and research to facilitate a greater understanding of the psychosocial needs of these women.

Exploring the problems that women with breast cancer encounter is a realistic corner stone for planning and implementing medical and nursing interventions to help them live with their optimum level of functioning.

Education could be one of the most important modalities to help patients be more understood and managed. Sessions need to deliberate over the psychological, emotional and social distress experienced by the patients with an aim from living a longer life to living a better and more fulfilled life. In one recent study in India, they had favorable results with educational sessions. Their emphasis was educational (with recent updates on the surgical, medical and radiation therapy aspects of breast cancer treatment), practical (emphasized important issues like side-effects of treatment, patient advocacy, complementary therapies, spirituality, lifestyle changes, etc.), and entertainment (De Souza et al. 2017).

Breast cancer-related issues, both in the world and in Iran, have been mainly studied using quantitative approaches. These are not simply answering the complex questions regarding human nature, but exploring deep layers of human feelings needs a more holistic approach (Holloway and Wheeler 2009).

Qualitative research allows researchers to get to the inner experience of the participants to determine how meanings are formed through and in culture and to discover rather than simply test variables (Corbin and Strauss 2008).

A review study (Rustoen and Begnum 2000) shows that the research regarding quality of life in breast cancer has been mainly descriptive, through the use of standardized questionnaires, and there have been difficulties in implementing the results in cancer care. One reason for this could be that these quantitative tools have difficulties in capturing what is unique in patients' experiences and therefore, risk omitting important issues that patients may have expressed in a study with a qualitative approach (Luoma and Hakamies-Blomqvist 2004).

A qualitative research (Taleghani et al. 2006) in Iran found how women cope with breast cancer. The main themes emerging in their study that could demonstrate the process of coping with the disease included a religious approach (accepting the disease as God's will and spiritual fighting); thinking about the disease (positive thinking, positive suggestions, hope, international forgetfulness, negative thinking, hopelessness, fear and impaired body image); accepting the fact of the disease (active acceptance and passive acceptance); social and cultural factors; and finally finding support from significant others.

This could also be the voice of Muslim women with breast cancer worldwide and present their internal challenges with the issue, while their spiritual beliefs can help them as a supportive source despite of all negative aspects of the illness.

Because most Iranian breast cancer patients are less than 50 years old and the age of incidence in Iran is less than world's average, breast cancer should be considered more, and nurses should encourage women to attend in screening tests.

Promoting the patient-to-patient relationship and sharing the illness experiences is another way for softening what can be a terrible experience. This can be supported by nurses to suggest those women share with other women's challenges (Joulaee et al. 2012).

After treatment for breast cancer, most women receive an annual surveillance mammography to look for subsequent breast cancers. A supplemental breast MRI is sometimes used in addition to mammography despite the lack of clinical evidence for it.

A recent study found that many women experienced discomfort during breast imaging and anxiety related to the examination, primarily because they feared subsequent cancer detection (Brandzel et al. 2017). Furthermore, women reported trust in their providers and relied on providers for imaging decision-making. However, women wanted more information about the treatment surveillance transition to improve their care. Certainly there is significant opportunity in breast cancer survival care to improve women's understanding about breast cancer surveillance imaging by their treating physician or their psychiatrist in sessions of education; and to provide enhanced support to them at the time when their initial treatment ends and at the time of surveillance examinations and for a long time after that.

4.3.5 Sleep Problems in Patients with Breast Cancer

Insomnia as a symptom encompasses difficulty with initiating or maintaining sleep, early morning awakenings, or poor quality of sleep. In addition, reporting a symptom of insomnia carries an expectation of daytime impairment.

Patients with cancer commonly report sleep-related problems, such as insomnia, daytime sleepiness, and fatigue (Stepanski et al. 2007).

Poor sleep in patients with cancer was shown to predict decreased quality of life (Stepanski et al. 2007; Fortner et al. 2002). Patients with breast cancer frequently report dissatisfaction with their sleep and complain of symptoms of insomnia (Knobf et al. 1986). They experience frequent awakenings when undergoing radiation therapy or chemotherapy (Berger et al. 1999) and their insomnia may persist for many years after cancer therapy. Up to 44% of patients with breast cancer reported symptoms of insomnia 2–6 years after their diagnosis, (Kurtz et al. 1993; Couzi 1995) which indirectly implies that symptoms of insomnia may persist for years, even after successful management of breast cancer. As usual, insomnia in patients with cancer was viewed as a secondary condition, believed to be caused by, or associated with, pain, anxiety, depression, chemotherapy, or some other aspect of cancer; thus, treatment of the underlying causes would alleviate the insomnia. Current concepts suggest that the insomnia that accompanies any medical or psychiatric illness is a comorbid disorder. For example, a patient may develop insomnia at the time of diagnosis with cancer, so the insomnia may require independent management.

In addition to some medicines that may need to treat insomnia in the patient with breast cancer, by psychiatrists, much research suggests effective psychotherapeutic modalities such as cognitive behavioral therapy (CBT). Psychotherapy is effective for both primary and comorbid insomnia.

Below are some cognitive behavioral techniques to help breast cancer patients who have sleep problems (Yang et al. 2006; Morgenthaler et al. 2006).

Psychotherapy for sleep disorders
• Sleep hygiene education
• Sleep restriction therapy
• Cognitive therapy
• Stimulus-control therapy
• Relaxation therapy
• Paradoxical intention

Many studies have shown the benefits of antidepressant medication in patients with a diagnosis of breast cancer, excluding other malignancies. Reasons to evaluate this population independently of patients with other malignancies include the unique effect of this illness and its cancer treatments on body image, as well as the potential effect of hormonal therapy and chemotherapy on mood. Breast cancer affects women almost exclusively, and as women have twice the baseline rate of depression as men, (Rihmer et al. 2005) this might result in a higher rate of depression in patients with breast cancer compared with patients with other cancers.

4.3.6 Hormonal Therapy and Chemotherapy in Breast Cancer

There are several drugs or hormones available to prevent breast cancer. The following are those approved by the Food and Drug Administration (FDA) in the US.

Drugs approved to prevent breast cancer
• Evista (Raloxifene Hydrochloride)
• Keoxifene (Raloxifene Hydrochloride)
• Nolvadex (Tamoxifen Citrate)
• Raloxifene Hydrochloride
• Tamoxifen Citrate

There are many drugs that are approved for the treatment of breast cancer by the Food and Drug Administration (FDA) in the US.

Drugs approved to treat breast cancer		
• Abitrexate (Methotrexate)	• Abraxane (Paclitaxel Albumin-stabilized Nanoparticle Formulation)	• Ado-TrastuzumabEmtansine
• Afinitor (Everolimus)	• Anastrozole	• Aredia (Pamidronate Disodium)
• Arimidex (Anastrozole)	• Aromasin (Exemestane)	• Capecitabine
• Clafen (Cyclophosphamide)	• Cyclophosphamide	• Cytoxan (Cyclophosphamide)
• Docetaxel	• Doxorubicin Hydrochloride	• Ellence (Epirubicin Hydrochloride)
• Epirubicin Hydrochloride	• EribulinMesylate	• Everolimus
• Exemestane	• 5-FU (Fluorouracil Injection)	• Fareston (Toremifene)
• Faslodex (Fulvestrant)	• Femara (Letrozole)	• Fluorouracil Injection
• Folex (Methotrexate)	• Folex PFS (Methotrexate)	• Fulvestrant
• Gemcitabine	• Gemzar (Gemcitabine Hydrochloride)	• Goserelin Acetate
• Halaven (EribulinMesylate)	• Herceptin (Trastuzumab)	• Ibrance (Palbociclib)
• Ixabepilone	• Ixempra (Ixabepilone)	• Kadcyla (Ado-TrastuzumabEmtansine)
• Kisqali (Ribociclib)	• LapatinibDitosylate	• Letrozole
• Megestrol Acetate	• Methotrexate	• Methotrexate LPF (Methotrexate)
• Mexate (Methotrexate)	• Mexate-AQ (Methotrexate)	• Neosar (Cyclophosphamide)
• Nolvadex (Tamoxifen Citrate)	• Paclitaxel	• Paclitaxel Albumin-stabilized Nanoparticle Formulation
• Palbociclib	• Pamidronate Disodium	• Perjeta (Pertuzumab)
• Pertuzumab	• Ribociclib	• Tamoxifen Citrate
• Taxol (Paclitaxel)	• Taxotere (Docetaxel)	• Thiotepa

(continued)

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Drugs approved to treat breast cancer		
• Toremifene	• Trastuzumab	• Tykerb (LapatinibDitosylate)
• Velban (Vinblastine Sulfate)	• Velsar (Vinblastine Sulfate)	• Vinblastine Sulfate
• Xeloda (Capecitabine)	• Zoladex (Goserelin Acetate)	

4.3.7 The Effect of Hormonal Therapy or Chemotherapy on Mood

Breast cancer treatments may potentially increase the risk of some psychiatric disorders such as depression. Increased levels of depression are found in peri-menopausal patients, and in women taking antiestrogen treatments, such as tamoxifen, raloxifen, and letrozole. The antiestrogens may induce a menopausal state and may potentially contribute to increased levels of depression (Navari et al. 2008).

Breast cancer patients undergoing chemotherapy also report higher rates of depression (Thompson et al. 2000). Estrogen has been associated with increased serotonergic and noradrenergic activity and may therefore have antidepressant properties. The antiestrogen properties of tamoxifen may counteract the antide-pressant effects of estrogen and could produce depressive symptoms (Thompson et al. 1999). In one study, symptoms of acute estrogen deficiency correlated with the severity of psychiatric symptoms reported by 44% of 222 patients with breast cancer (Couzi 1995).

Tamoxifen may also cause subtle psychiatric symptoms that do not meet the criteria for a full major depressive episode (Thompson et al. 1999).

4.3.8 Pharmacological Treatments of Psychiatric Symptoms in Patients with Breast Cancer

Many different medications have been studied and found to be effective to treat psychiatric disorders in context of breast cancer. Some measures include depressive symptoms, quality of life, and compliance with oncological treatment has been improved in several studies in this population (Navari et al. 2008; Thompson et al. 2000; Roscoe et al. 2005).

Many medications have been shown to be effective in treating psychiatric dis-orders. Fluoxetine, Paroxetine, Sertraline, Citalopram, Bupropion, Venlafaxine, Mirtazapine, Amitriptyline and several other medicines have been studied and proved their effectiveness.

Another potential issue in concurrent treatment with antidepressants and tamoxifen is the potential for drug interactions. Tamoxifen is essentially a prodrug, and is converted to its more potent metabolite, endoxifen, by the cytochrome p450 enzyme CYP2D6. Therefore, medications that are inhibitors of CYP2D6 could potentially decrease the potency of tamoxifen and adversely affect breast cancer outcomes.

Women treated with tamoxifen were found to have low serum concentrations of endoxifen when concurrently treated with the strong 2D6 inhibitors, such as Fluoxetine or Paroxetine, and intermediate concentrations of endoxifen when concurrently treated with weak 2D6 inhibitors, such as Sertraline and Citalopram. Venlafaxine, which does not inhibit CYP2D6, had little effect on endoxifen concentrations (Henry et al. 2008).

4.4 Psychological Interventions

In a large multicenter trial, women with metastatic breast cancer were randomized to Supportive Expression Group Therapy (SEGT) or to a control group. Women assigned to the therapy group reported significantly less sadness, anxiety, anger, and confusion than women in the control group, and had significantly less worsening of pain than women in the control group (Goodwin et al. 2001). In another study, SEGT improved quality of life in women with metastatic breast cancer, helped treat depression, and prevented new onset of depressive symptoms. In both studies, survival time was not affected by the intervention (Goodwin et al. 2001; Kissane et al. 2007).

A major modality of psychotherapeutic intervention in these decacades is Cognitive Behavioral Therapy (CBT). Researchers also examined the effectiveness of CBT. In a randomized controlled trial with patients with any form of cancer (not exclusively breast cancer) , patients were randomized to a CBT group or a control group.

Techniques for CBT group therapy in cancer patients
• Identifying negative automatic thoughts and challenging them
• Using role playing to cope with anticipated stressful events
• Encouraging activities that fostered a sense of accomplishment and pleasure
• Identifying personal strengths and encouraging open communication
• Teaching progressive muscle relaxation to manage severe anxiety

The treatment group demonstrated improvement over the control group for several parameters, including anxiety, depression, and distress (Greer et al. 1992).

In another trial where women with metastatic breast cancer were randomized to individual cognitive therapy (CT) or wait-list control, the women in the CT group had significantly fewer depressive symptoms than the control group.

Psychological intervention and improvement in mood and anxiety symptoms did not have a significant effect on parameters of immunological function (Savard et al. 2006). In a meta-analysis of psychosocial interventions for patients with cancer (not exclusively breast cancer), different treatment modalities were separated into categories, including cognitive behavioral interventions, informational and educational treatments, non-behavioral psychotherapy, social support by nonprofessionals, and unusual treatments that combined different treatment approaches. No significant differences in efficacy were noted between the different treatment approaches (Sheard et al. 1999).

In a phenomenological approach study to explore the meaning of living with breast cancer for Iranian women (Joulaee et al. 2012), these experiences of participants indicated that they also could find a new kind of peace and comfort by the living with breast cancer through bowing to God's will. This was seen in previously religious and non-religious women. In a study of older women (Overcash 2004), it was found that believing in God was of paramount importance for these women, which could help them in not giving up. Other researchers also suggest that the religious beliefs can be a supportive resource for people with cancer or other incurable diseases (Taleghani et al. 2006, 2008), but in Muslims, this is more pronounced. Muslims believe that everything that happens in their life has come to them according to the God's discretion, and they should stoop to God's will. Relying on women's religious/spiritual beliefs might be an opportunity to help them in coping with their health problem. This is an increasingly important issue worldwide, so this opportunity could be used as a worthwhile source for raising women's coping mechanisms (Joulaee et al. 2012).

4.5 Surgery for Breast Cancer

Most women with breast cancer have some type of surgery as part of their treatment. Depending on the situation, surgery may be done for different reasons. For example, surgery may be done to:

- Remove as much of the cancer as possible (breast-conserving surgery or mastectomy)
- Find out whether the cancer has spread to the lymph nodes under the arm (sentinel lymph node biopsy or axillary lymph node dissection)
- Restore the breast's shape after the cancer is removed (breast reconstruction)
- Relieve symptoms of advanced cancer1

4.5.1 Surgery to Remove Breast Cancer

There are two main types of surgery to remove breast cancer:

4.5.1.1 Breast-Conserving Surgery (lumpectomy)

Breast-conserving surgery is sometimes called lumpectomy, quadrantectomy, partial mastectomy, or segmental mastectomy. In this surgery, only the part of the breast containing the cancer is removed. The goal is to remove the cancer as well as some surrounding normal tissue. How much of the breast is removed depends on the size and location of the tumor and other factors.

Who can get breast-conserving surgery?

Breast-conserving surgery (BCS) is a good option for many women with early-stage cancers. The main advantage is that a woman keeps most of her breast. However, she will in most cases also need radiation therapy. Women who have their entire breast removed (mastectomy) for early-stage cancers are less likely to need radiation, but they may be referred to a doctor who specializes in radiation, called a radiation oncologist, for evaluation because each patient's cancer is unique.

Most women and their doctors prefer BCS and radiation therapy when it's a reasonable option. BCS might be a good option if you:

- Are very concerned about losing your breast
- Are willing to have radiation therapy and able to get to the appointments
- Have not already had the breast treated with radiation therapy or BCS
- Have only one area of cancer on the breast, or multiple areas that are close enough together to be removed without changing the look of the breast too much
- Have a small tumor (5 cm [2 inches] or smaller), and a tumor that is small relative to your breast size
- Are not pregnant or, if pregnant, will not need radiation therapy immediately (to avoid risking harm to the fetus)
- Do not have a genetic factor such as a BRCA mutation, which might increase your chance of a second cancer
- Do not have certain serious connective tissue diseases such as scleroderma or lupus, which may make you especially sensitive to the side effects of radiation therapy
- Do not have inflammatory breast cancer

Some women might be worried that having a less extensive surgery might raise their risk of the cancer coming back. But the fact is that in most cases, mastectomy does not give you any better chance of long-term survival or a better outcome from treatment. Studies following thousands of women for more than 20 years show that when BCS can be done, having mastectomy instead does not provide any better chance of survival.

4.5.1.2 Mastectomy

Mastectomy is surgery to remove the entire breast. All of the breast tissue is removed, sometimes along with other nearby tissues.

Types of mastectomies

There are several different types of mastectomies, based on how the surgery is done and how much additional tissue is removed.

4.5.1.3 Simple (or total) Mastectomy

Simple mastectomy is the most common type of mastectomy used to treat breast cancer. In this procedure, the surgeon removes the entire breast, including the nipple, but does not remove underarm lymph nodes or muscle tissue from beneath the breast. (Sometimes lymph nodes are removed in a different procedure during the same surgery.) Most women, if they are hospitalized, can go home the next day.

4.5.1.4 Double Mastectomy

If a mastectomy is done on both breasts, it is called a double (or bilateral) mastectomy. When this is done, it is often as preventive surgery for women at very high risk for getting cancer in the other breast, such as those with a BRCA gene mutation.

4.5.1.5 Skin-Sparing Mastectomy

For some women considering immediate reconstruction, a skin-sparing mastectomy can be done. In this procedure, most of the skin over the breast (other than the nipple and areola) is left intact. This can work as well as a simple mastectomy. The amount of breast tissue removed is the same as with a simple mastectomy.

Implants or tissue from other parts of the body are used to reconstruct the breast.

Skin-sparing mastectomy may not be suitable for larger tumors or those that are close to the surface of the skin. This approach has not been used for as long as the more standard type of mastectomy, but many women prefer it because it offers the advantage of less scar tissue and a reconstructed breast that seems more natural.

4.5.1.6 Modified Radical Mastectomy

A modified radical mastectomy combines a simple mastectomy with the removal of the lymph nodes under the arm (called an axillary lymph node dissection).

4.5.1.7 Nipple-Sparing Mastectomy

Nipple-sparing mastectomy is a variation of the skin-sparing mastectomy. It is more often an option for women who have a small, early-stage cancer near the outer part of the breast, with no signs of cancer in the skin or near the nipple. (Cancer cells are more likely to be hidden in the nipple if the breast tumor is larger or close to the nipple, which means there is a higher risk the cancer will come back if the nipple is not removed.)

In this procedure, the breast tissue is removed, but the breast skin and nipple are left in place. This is followed by breast reconstruction. The surgeon often removes the breast tissue beneath the nipple (and areola) during the procedure to check for cancer cells. If cancer is found in this tissue, the nipple must be removed. Even when no cancer is found under the nipple, some doctors give the nipple tissue a dose of radiation during or after the surgery to try to reduce the risk of the cancer coming back.

There are still some problems with nipple-sparing surgeries. Afterward, the nipple does not have a good blood supply, so sometimes it can wither away or become deformed. Because the nerves are also cut, there is little or no feeling left in the nipple. For women with larger breasts, the nipple may look out of place after the breast is reconstructed. As a result, many doctors feel that this surgery is best done in women with small to medium sized breasts. This procedure leaves less visible scars, but if it isn't done properly, it can leave behind more breast tissue than other forms of mastectomy. This could result in a higher risk of cancer developing than for a skin-sparing or simple mastectomy. This was more of a problem in the past, but improvements in technique have helped make this surgery safer. Still, many experts do not yet consider nipple-sparing procedures a standard treatment for breast cancer.

4.5.1.8 Radical mastectomy

In this extensive operation, the surgeon removes the entire breast, axillary (underarm) lymph nodes, and the pectoral (chest wall) muscles under the breast. This surgery was once very common, but less extensive surgery (such as modified radical mastectomy) has been found to be just as effective and with fewer side effects, so this surgery is rarely done now. This operation may still be done for large tumors that are growing into the pectoral muscles.

Who should get a mastectomy?

Many women with early-stage cancers can choose between breast-conserving surgery (BCS) and mastectomy. You may have an initial gut preference for mastectomy as a way to "take it all out as quickly as possible." But the fact is that in most cases, mastectomy does not give you any better chance of long-term survival or a better outcome from treatment. Studies following thousands of women for more than 20 years show that when BCS can be done, doing mastectomy instead does not provide any better chance of survival (American Cancer Society 2016).

Although most women and their doctors prefer BCS (with radiation therapy) when it's a reasonable option, there are cases where mastectomy is likely to be the best choice. For example, mastectomy might be recommended if you:

- Are unable to have radiation therapy, or would prefer a more extensive surgery to having radiation therapy
- Have already had the breast treated with radiation therapy
- Have already had BCS along with re-excision(s) that have not completely removed the cancer
- Have two or more areas of cancer in the same breast that are not close enough together to be removed without changing the look of the breast too much
- Have a larger tumor (greater than 5 cm [2 inches] across), or a tumor that is large relative to your breast size
- Are pregnant and would need radiation therapy while still pregnant (risking harm to the fetus)
- Have a genetic factor such as a BRCA mutation, which might increase your chance of a second cancer
- Have certain serious connective tissue diseases such as scleroderma or lupus, which may make you especially sensitive to the side effects of radiation therapy
- Have inflammatory breast cancer

For women who are worried about breast cancer recurrence, it is important to understand that having a mastectomy instead of breast-conserving surgery plus radiation only lowers your risk of developing a second breast cancer in the same breast. It does not lower the chance of the cancer coming back in other parts of the body.

4.5.2 Lymph Node Surgery for Breast Cancer

If you have been diagnosed with breast cancer, it’s important to find out how far the cancer has spread. To help find out if the cancer has spread beyond the breast, one or more of the lymph nodes under the arm (axillary lymph nodes) are removed and checked under a microscope. This is an important part of staging. When the lymph nodes contain cancer cells, there is a higher chance that cancer cells have also spread to other parts of the body. Treatment decisions will often depend on whether cancer is found in the lymph nodes.

Lymph node removal can be done in different ways, depending on whether any lymph nodes are enlarged, how big the breast tumor is, and other factors.

4.5.2.1 Biopsy of an Enlarged Lymph Node

If any of the lymph nodes under the arm or around the collar bone are swollen, they may be checked for cancer spread directly with a needle biopsy (either a fine needle aspiration biopsy or a core needle biopsy). Less often, the enlarged node is removed with surgery. If cancer is found in the lymph node, more nodes will need to be removed during an axillary lymph node dissection (described below).

4.5.2.2 Types of Lymph Node Surgery

Even if the nearby lymph nodes are not enlarged, they will still need to be checked for cancer. This can be done in two different ways. Sentinel lymph node biopsy is the most common and least invasive way, but in some cases a more extensive axillary lymph node dissection might be needed.

4.5.2.3 Sentinel Lymph Node Biopsy (SLNB)

In a sentinel lymph node biopsy (SLNB), the surgeon finds and removes the first lymph node(s) to which a tumor is likely to spread (called the *sentinel nodes*). To do this, the surgeon injects a radioactive substance and/or a blue dye into the tumor, the area around it, or the area around the nipple. Lymphatic vessels will carry these substances along the same path that the cancer would be likely to take. The first lymph node(s) the dye or radioactive substance travels to will be the sentinel node (s).

After the substance has been injected, the sentinel node(s) can be found either by using a special device to detect radioactivity in the nodes that the radioactive substance flows into, or by looking for lymph nodes that have turned blue. To double check, both methods are often used. The surgeon cuts the skin over the area and removes the node(s) containing the dye or radiation.

The removed lymph nodes (often 2 or 3 nodes) are then checked closely for cancer cells by a doctor called a *pathologist*. This is sometimes done during the surgery. This way, if cancer is found in the sentinel lymph node(s), the surgeon may do a full axillary lymph node dissection (ALND) to remove more lymph nodes. If no cancer cells are seen in the node(s) at the time of the surgery, or if the sentinel node(s) are not checked by a pathologist at the time of the surgery, they will be examined more closely over the next several days.

If cancer is found in the sentinel node(s) later, the surgeon may recommend a full ALND at a later time to check more nodes for cancer. Recently, however, studies have shown that in some cases it may be just as safe to leave the rest of the lymph nodes behind. This is based on certain factors, such as the size of the breast tumor, what type of surgery is used to remove the tumor, and what treatment is planned after surgery. Based on the studies that have looked at this, skipping the ALND may be an option for women with tumors 5 cm (2 inches) or smaller who are having

breast-conserving surgery followed by radiation. Because this hasn't been studied well in women who have had mastectomy, it isn't clear that skipping the ALND would be safe for them.

If there is no cancer in the sentinel node(s), it's very unlikely that the cancer has spread to other lymph nodes, so no further lymph node surgery is needed. Although SLNB has become a common procedure, it requires a great deal of skill. It should be done only by a surgeon who has experience with this technique. If you are thinking about having this type of biopsy, ask your health care team if they do them regularly.

4.5.2.4 Axillary Lymph Node Dissection (ALND)

In this procedure, anywhere from about 10 to 40 (though usually less than 20) lymph nodes are removed from the area under the arm (axilla) and checked for cancer spread. ALND is usually done at the same time as a mastectomy or breast-conserving surgery(BCS), but it can be done in a second operation. This was once the most common way to check to see if breast cancer had spread to nearby lymph nodes and it is still sometimes needed. For example, an ALND may be done if a previous biopsy has shown one or more of the underarm lymph nodes have cancer cells.

Breast cancer treatment has evolved significantly over the past decades. Several randomized trials with long term follow-up provided evidence for equivalence of breast conserving therapy (BCT) and mastectomy (MT) in terms of overall survival.1–3

BCT is now considered the standard of care for early stage breast cancer. Additionally following conserving the breast, patients reported higher shorthand Long-term quality of life (QOL) at least in some subscales.

Several years after introduction of BCT mastectomy was still the treatment of choice in many countries with substantial geographical variations in the rates of performing BCT. This has led to 6-8mandating the surgeons to explain treatment options for all patients who could benefit from BCT in 20 states of the United States.

Various studies were conducted to assess the factors that might affect both surgeons' and patients' decisions in preferring mastectomy over BCT. The results elucidated that lack of experience of surgeons in BCT; patients' concerns about the survival after BCT, and socioeconomic status of patients were the main predictors of BCT underutilization in different countries. One of the important influential factors on patients' choice of surgery is the surgeons 'recommendation.

4.5.3 Reconstruction

4.5.3.1 Types of Breast Reconstruction Procedures

There are several types of reconstructive surgery available, and the reconstruction process sometimes means more than one operation. Give yourself plenty of time to make the best decision for you. You should make your decision about breast reconstruction only after you are fully informed.

Two main types of operations can be done to reconstruct the shape of your breast or breasts:

- Breast implants (using silicone or saline inserts)
- Tissue flap procedures (using your own body tissues)

Sometimes a combination of an implant and flap procedure is used to get the best result.

In addition, nipple and areola reconstruction procedures can be done to help make the reconstructed breast look more like the original breast.

4.5.4 Surgical Aspects of Breast Cancer in Iran

A cross-sectional study (Najafi et al. 2015) conducted among Iranian surgeons demonstrated that only 19 % of surgeons considered BCT as their preferred method of treatment for breast cancer. According to some reports, breast cancer awareness has increased recently in Iran due to improved general socioeconomic status and relevant educational programs in the media. Accordingly, a decreasing trend in breast cancer tumor size and down staging has been detected in the last few years. Thus, it is expected that surgeons' attitude and practice has also improved during the preceding years.Major medical universities in Iran have initiated surgical oncology fellowship programs in the past eight years which include breast cancer surgery as part of the curriculum. Two breast cancer fellowship programs are also initiated in the last 2 years. All of the above mentioned educational programs have contributed to the dramatic increase in the frequency of surgeons performing BCT for patients who could benefit from this less invasive surgical approach. Other studies have also mentioned surgeon's sub specialization as a factor contributing to increased use of BCT.

4.6 Conclusion

Today cancer patients need to be more concerned about the psychiatric and psychological aspects of disease. Increasing cooperation between different departments and between treating physicians with consultation-liaison psychiatrists could provide a better integrating medical service to the patients in all steps including diagnosis, treatments and rehabilitation phases.

Early diagnosis of psychiatric disorders in patients with all stages of breast cancer and its pharmacological and psychotherapeutic treatments improves quality of life, makes patients more compliant with other modalities of treatment and increases the chances of survival.

4.7 Summary

In this chapter, we have tried to take note of the most important psychosocial problems that a patient with breast cancer and her family are facing. Depression is the most common psychiatric problem that breast cancer patients are affected by. Depression and other psychiatric disorders in cancer patients, especially in patients with breast cancer, are less diagnosed than the real rate. Depression can interfere with the three categories of factors—cognitive, motivational and resource related—that are essential for adherence to treatment in cancer patients. Women of a younger age, social status and psychiatric history accompanied by smoking and alcohol usage are some independent risk factors for the development of depression in patients with breast cancer.

A woman who has received a diagnosis of breast cancer, facing the risk of imminent death, may feel despair. She may experience many stages a phase of shock at first, followed by denial, aggressiveness, haggling and acceptance. A psychiatrist with reciprocal understanding and confidence with the patient can organize her thoughts and assist her in managing this crisis that has occurred. He or she helps the patient and her family to manage their thoughts and feelings in order to make rational decisions and to demonstrate appropriate behaviors. In every step, psychiatrists, in this manner, collaborate with other members of the treatment team and also members of the mental health providers group that may be of clinical benefit for a comprehensive medical service.

Psychiatrists should take more active roles, as we mentioned, as a member of the team treating patients with breast cancer. The main emphasis has been on the role of a consultation-liaison psychiatrist and some other members of the mental health providers like a clinical psychologist, occupational therapist and a social worker, to help patients better and to present an integrative medical service with success.

Pharmacological treatments for psychiatric disorders such as depressive disorder sleep problems, and drugs to prevent and treat breast cancer as much as hormonal treatments and their possible interactions have been discussed appropriately. We

also have noted to psychotherapeutic interventions, especially cognitive behavioral therapy (CBT) in most disorders.

We have also explained surgical treatments of breast cancer in simple words.

Most women with breast cancer need some type of surgery as an important measure of their treatment. Depending on the patient's condition, surgery may be done to remove as much of the cancer as possible (breast-conserving surgery or mastectomy), to find out whether the cancer has spread to the lymph nodes under the arm (sentinel lymph node biopsy or axillary lymph node dissection), to restore the breast's shape after the cancer is removed (breast reconstruction) or to relieve symptoms of advanced cancer.

The physician indicates that for cancer at any stage, there are many appropriate and effective treatments available. Successful treatment of cancer is accomplished by teamwork and which of; mental health professionals are also important components of the team.

Psychiatrists, with accompaniment of other members of the mental health team, arrange many sessions in order to prevent less mental harm to patients and families. The aim is that she adapts well to the new circumstances as soon as possible and returns to her normal new life.

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