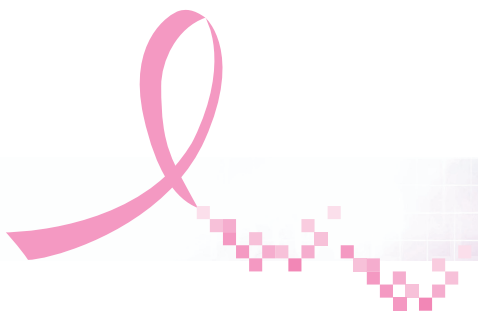# CHAPTER 3

PHYSICAL AND PSYCHOSOCIAL IMPACT OF BREAST CANCER AND ITS TREATMENT

CHAPTER 3
PHYSICAL AND PSYCHOSOCIAL IMPACT OF BREAST CANCER AND ITS TREATMENT

I. Introduction

3.1 Being diagnosed with breast cancer can be overwhelming for a woman. During treatment or recovery, women often experience emotional turmoil as a result of physical, psychological and social changes. This chapter analyses the physical and psychosocial impact of breast cancer and its treatment on the 17,874 patients in the three cohorts. The mean time at which the patients did the survey was two years after initial cancer diagnosis.

Key findings

The patients registered with the HKBCR, according to their year of cancer diagnosis, were divided into three cohorts (2006-2010, 2011-2015 and 2016-current). This report compares the cohorts to highlight the changes over the past decade in breast cancer status, diagnosis and management.

Physical and mental impact of treatments

► Overall, the majority of patients experienced no or minimal discomfort after undergoing surgery (65.2%-74.2%), radiotherapy (65.5%-74.0%), endocrine therapy (78.8%-83.3%) and targeted therapy (79.9%-85.5%). Compared to the previous cohorts, the level of discomfort also decreased. However, more than half (40.5%-53.8%) of them reported severe discomfort after having chemotherapy.

► Patients overall symptoms related scores were low, signifying a lower ("better") level of symptoms including arm and breast symptoms, as well as the symptoms resulted from systemic therapy side effects. They also perceived a high level of functions associated with body image and sexual life.

► Younger patients perceived a higher level of both breast symptoms and systemic therapy side effects. They also had more negative ratings on body image, sexual function, sexual enjoyment and future perspective.

► Both the physical and mental quality of life of patients were above average.

Psychosocial impact and adjustments after diagnosis and treatment

► Compared to the previous cohorts, more patients (from 54.1% to 61.2%) had negative feelings such as "life was not fair" after breast cancer treatments. In line with it, the proportion of patients reported negative change in outlook on life; and in self-image increased (from 6.5% to 8.5% and 8.8% to 10.6%, respectively).

► The majority of patients had no mood disorders. Only 15.2% and 7.0% of them were likely to have clinical anxiety and depression, respectively. Younger age was associated with more anxiety and depression.

► In face of adversity, the majority of our patients demonstrated low (46.0%) and medium (43.8%) resilient coping; only 10.3% of them handled their problems with high resilience.

II. Physical and mental impact of treatments

A. Overall physical discomfort after treatment

3.2 Overall, the majority of patients experienced no or minimal discomfort after undergoing surgery (65.2%-74.2%), radiotherapy (65.5%-74.0%), endocrine therapy (78.8%-83.3%) and targeted therapy (79.9%-85.5%). However, more than half (40.5%-53.8%) of them reported severe discomfort after having chemotherapy. Figures 3.1-3.5 set out findings in the three cohorts.

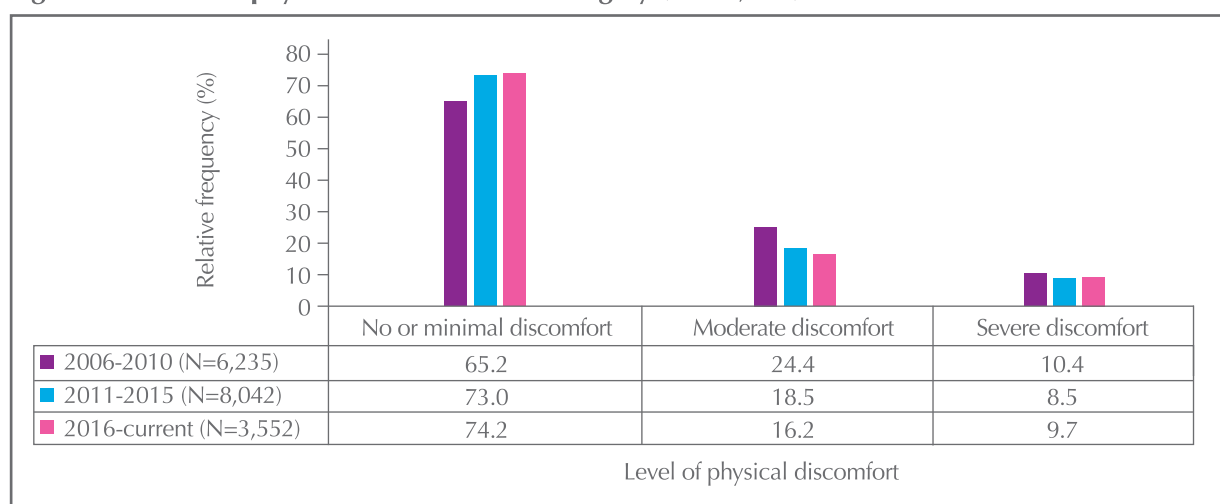**Figure 3.1: Level of physical discomfort after surgery (N=17,829)**

	No or minimal discomfort	Moderate discomfort	Severe discomfort
2006-2010 (N=6,235)	65.2	24.4	10.4
2011-2015 (N=8,042)	73.0	18.5	8.5
2016-current (N=3,552)	74.2	16.2	9.7

Level of physical discomfort

Figure 3.2: Level of physical discomfort after radiotherapy (N=10,490)

	No or minimal discomfort	Moderate discomfort	Severe discomfort
2006-2010 (N=3,774)	65.5	22.9	11.6
2011-2015 (N=4,811)	69.2	16.6	14.2
2016-current (N=1,905)	74.0	13.1	12.9

Level of physical discomfort
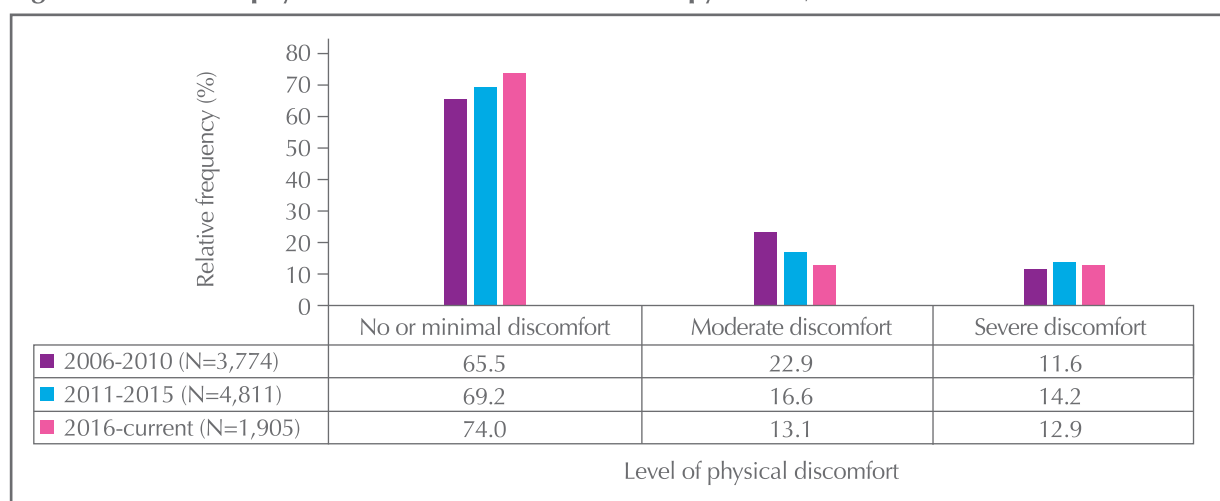
Figure 3.3: Level of physical discomfort after chemotherapy (N=9,149)

	No or minimal discomfort	Moderate discomfort	Severe discomfort
■ 2006-2010 (N=3,718)	19.4	26.8	53.8
■ 2011-2015 (N=4,098)	24.1	26.1	49.8
■ 2016-current (N=1,333)	34.6	24.9	40.5

Level of physical discomfort
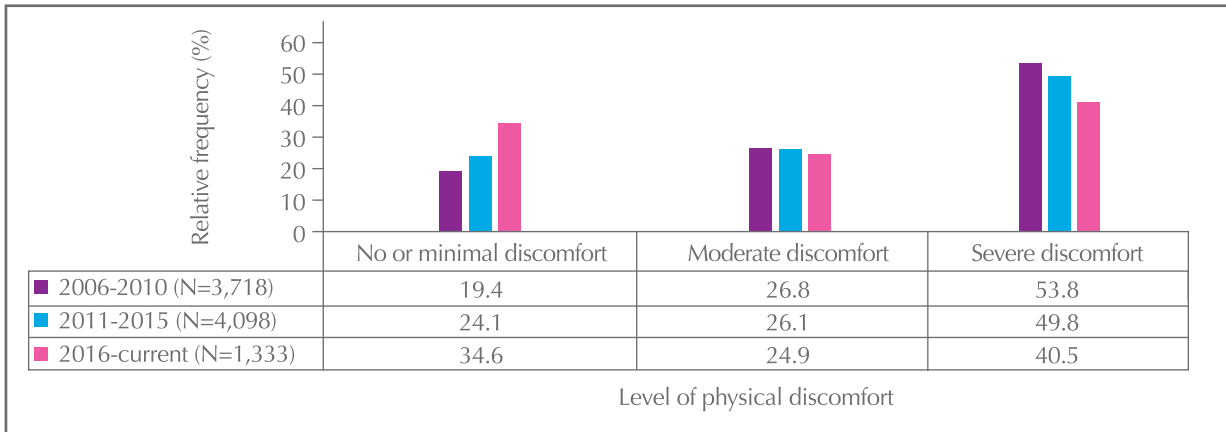
Figure 3.4: Level of physical discomfort after endocrine therapy (N=11,300)

	No or minimal discomfort	Moderate discomfort	Severe discomfort
■ 2006-2010 (N=3,953)	78.8	12.9	8.3
■ 2011-2015 (N=5,243)	81.4	10.1	8.5
■ 2016-current (N=2,104)	83.3	7.0	9.7

Level of physical discomfort
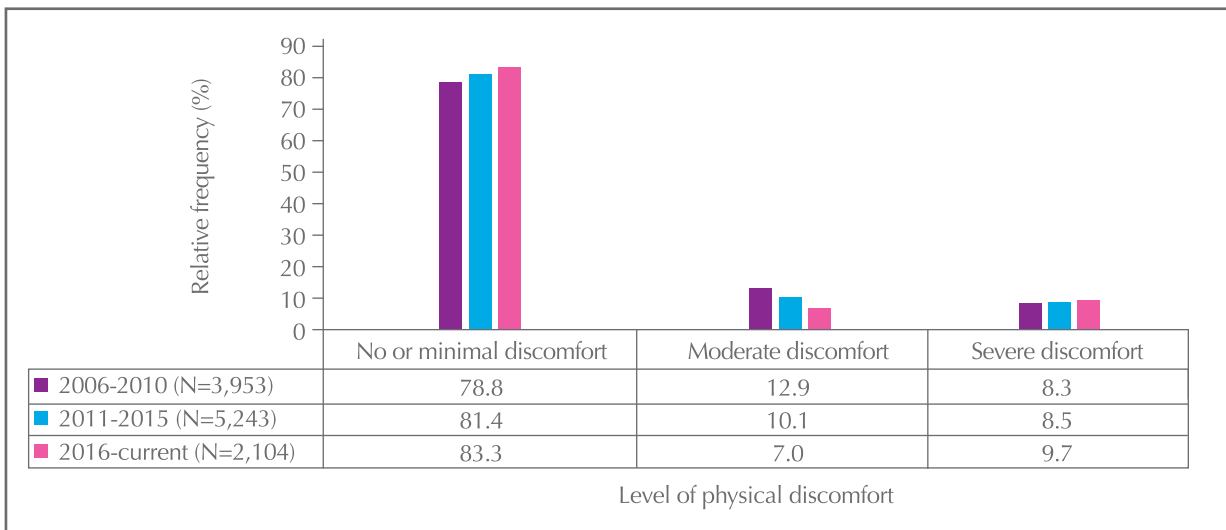
Figure 3.5: Level of physical discomfort after targeted therapy (N=2,303)

|	No or minimal discomfort	Moderate discomfort	Severe discomfort
■ 2006-2010 (N=557)	79.9	12.6	7.5
■ 2011-2015 (N=1,258)	83.5	11.2	5.2
■ 2016-current (N=488)	85.5	8.0	6.6

Level of physical discomfort
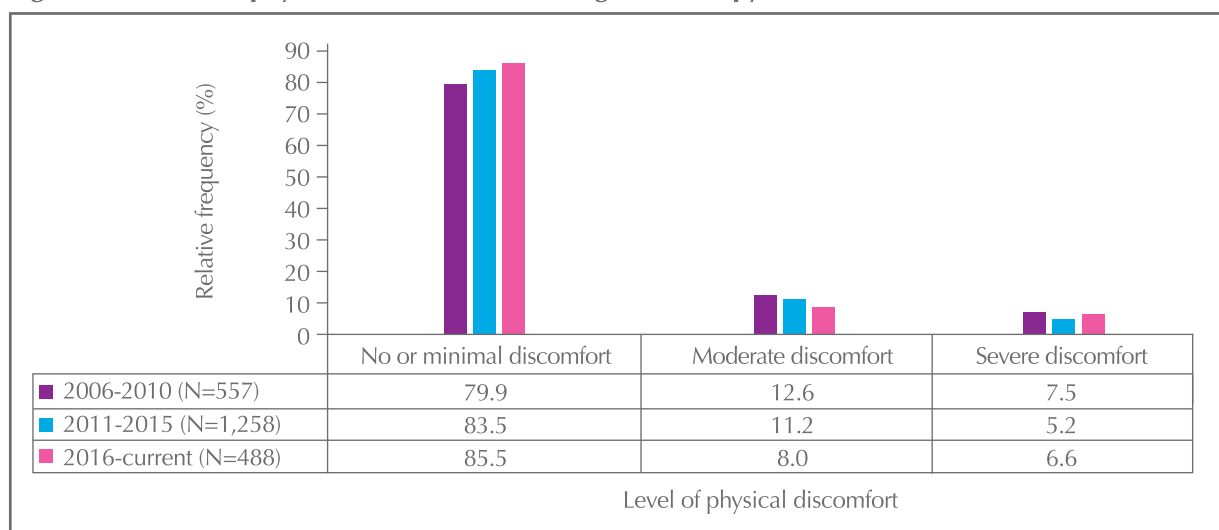
B. Cancer-specific effects after treatment

3.3 To delineate the discomfort and functional effect of breast cancer treatment, the validated scales developed by the European Organisation for Research and Treatment of Cancer (EORTC) was given to patients newly diagnosed with or treated for breast cancer.[51] The majority (72.3%) of them completed the cancer-specific surveys – quality of life questionnaire (QLQ-C30) and the breast cancer survey (QLQ-BR23) – within two years from diagnosis.

3.4 Two items were adopted from the QLQ-C30 survey to generate a summary score of global health status/ quality of life (QoL). Respondents are asked to rate their overall health and overall QoL during the past week with a scale from 1 (very poor) to 7 (excellent). All the scales are then transformed to scores from 0 to 100. Higher scores correspond to better QoL. Patients overall rated their general health status as good, with a mean score of 65.00 (Table 3.1).

3.5 As for QLQ-BR23, questions involving functional impact and the extent of symptoms are administered in order to explore the impact of breast cancer treatment on patients. Five multi-item scales are used in order to evaluate the side effects of treatment, sexual functioning and symptoms on arms and breasts.
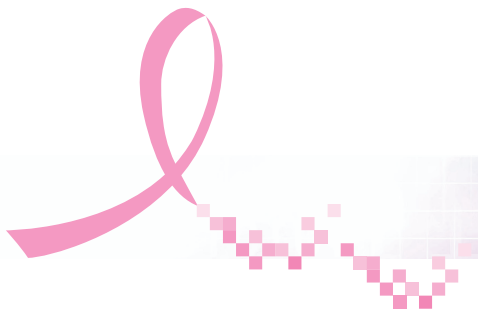
3.6   Consistent with the findings in the previous section, the overall symptoms related scores were low, signifying a lower ("better") level of symptoms. The mean summary scores assessing breast symptoms and systemic therapy side effects, in particular, ranked in the first quartile (20.72 and 22.61, respectively). Slightly higher scores were reported for arm symptoms (mean = 26.36) and upset by hair loss (mean = 29.89). In line with the low level of symptoms, they perceived a high level of functions associated with body image (mean = 78.65) and sexual functioning (mean = 88.47). More details are shown in Table 3.1.

3.7   In addition, patients' age was negatively correlated to scores assessing breast symptoms and systemic therapy side effects, indicating that younger patients perceived a higher level of these symptoms (Figure 3.6). For the functional aspects, younger patients also had more negative ratings on body image, sexual functioning, sexual enjoyment, and future perspective (Figure 3.7).

Table 3.1: Mean scores on cancer-specific scales

	Mean	Standard Deviation
Global health status	**65.00**	**18.81**
Functional scales		
Body image	78.65	20.47
Sexual functioning	88.47	15.04
Sexual enjoyment	15.62	22.66
Future perspective	45.76	29.29
Symptom scales		
Systemic therapy side effects	22.61	17.69
Breast symptoms	20.72	19.39
Arm symptoms	26.36	22.31
Upset by hair loss	29.89	31.60

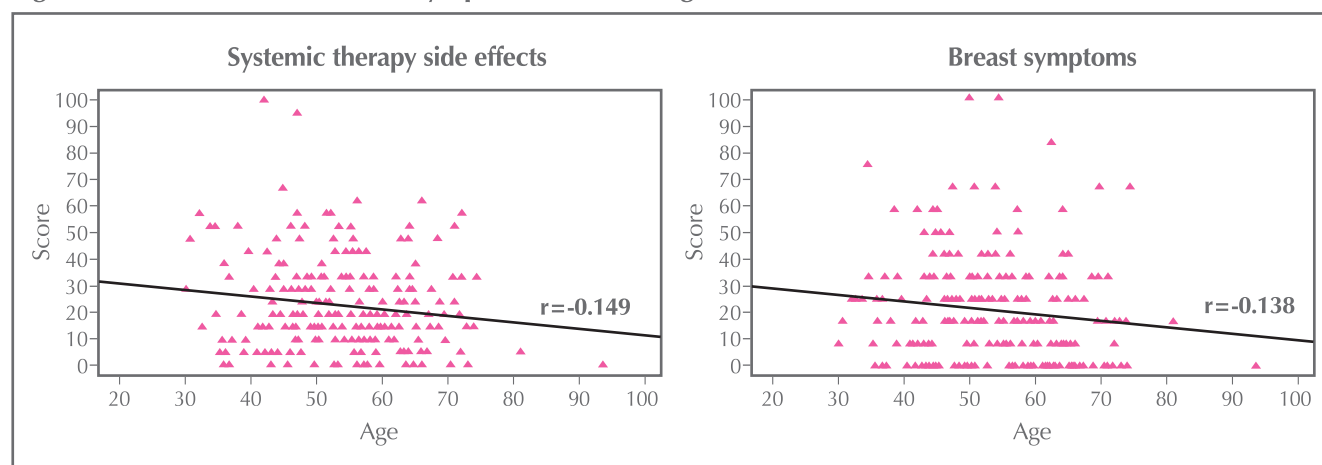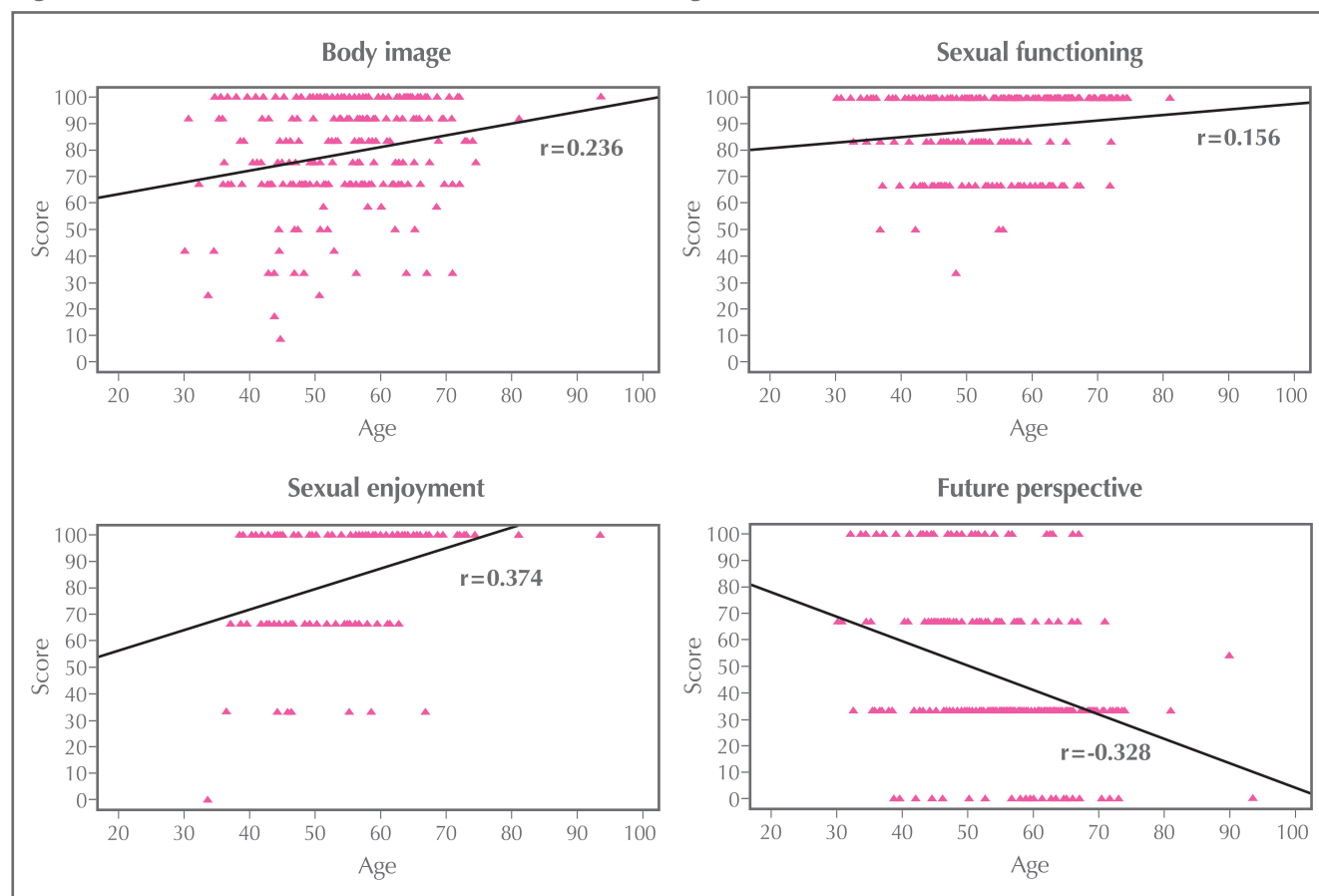**Figure 3.6: Correlations between symptom scales and age**

Figure 3.7: Correlations between functional scales and age

C. QoL after diagnosis and treatment

3.8 To further assess patients' QoL in both the physical and psychological aspects, SF-12 Health Survey (SF-12) was employed in this report.[52] Physical Component Summary (PCS) and Mental Component Summary (MCS) derived from eight health concepts were calculated for comprehensive analysis and interpretation of health conditions. While PCS is based on two items each from physical functioning and role-physical; one item each from bodily pain and general health, MCS takes two items each from role-emotional and mental health; one item each from vitality (energy/fatigue) and social functioning.

3.9 The choices of SF-12 are either in forms of yes-or-no answers or in Likert scales (5- or 6-point). After the respondents have indicated their choices on the survey, the results will then be processed and transformed into quantitative scores. By allocating each score to the corresponding choice, weighing different variables, standardising the scores generated and checking the accuracy of scoring, the scores of SF-12 can be produced and used in research. In this report, the scores were further transformed to give a maximum score of 100, which indicates excellent QoL.

3.10 The mean of PCS and MCS were 61.76 (SD = 16.10) and 66.49 (SD = 19.21), respectively, indicating that both the physical and mental QoL of patients were above average.

III. Psychosocial impact and adjustments after diagnosis and treatment

A. Psychosocial impact after diagnosis and treatment

3.11 At diagnosis, 45.3%-54.9% of the patients accepted their diagnosis with a calm or positive attitude. In contrast, 20.3%-24.8% could not accept their diagnosis (Table 3.2). After treatment, 27.3%-32.5% of the patients felt that "cancer was a wake-up call that caught them by surprise". As for other changes, 41.7%-52.8% of the patients reported having a positive change in their outlook on life and 31.8%-44.9% reported having a positive change in their self-image after cancer diagnosis and its treatment (Table 3.2).

Table 3.2: Psychosocial impact of breast cancer

	2006-2010 %	2011-2015 %	2016-current %
Feelings at time of breast cancer diagnosis (N=17,344)	(N=6,089)	(N=7,834)	(N=3,421)
Acceptance and positive attitude to fight	23.0	19.6	26.0
Calm acceptance	22.3	26.7	28.9
Acceptance with depression	32.1	27.4	19.8
Lack of acceptance ("It cannot be true.")	20.3	24.8	23.6
Acceptance with anger ("Something must be wrong.")	2.4	1.4	1.7
Feelings after breast cancer treatments (N=12,381)	(N=4,842)	(N=5,374)	(N=2,165)
Cancer was a wake-up call that caught patient by surprise	31.8	32.5	27.3
Life was not fair	54.1	56.2	61.2
Cancer changed patient's value system	6.6	5.5	6.1
Cancer took away something from patient	7.5	5.7	5.5
Change in outlook on life (N=17,489)	(N=6,128)	(N=7,844)	(N=3,517)
Positive	51.4	52.8	41.7
Negative	6.5	7.3	8.5
No change	42.1	39.9	49.8
Change in self-image (N=17,473)	(N=6,134)	(N=7,827)	(N=3,512)
Positive	39.0	44.9	31.8
Negative	8.8	9.3	10.6
No change	52.2	45.8	57.6

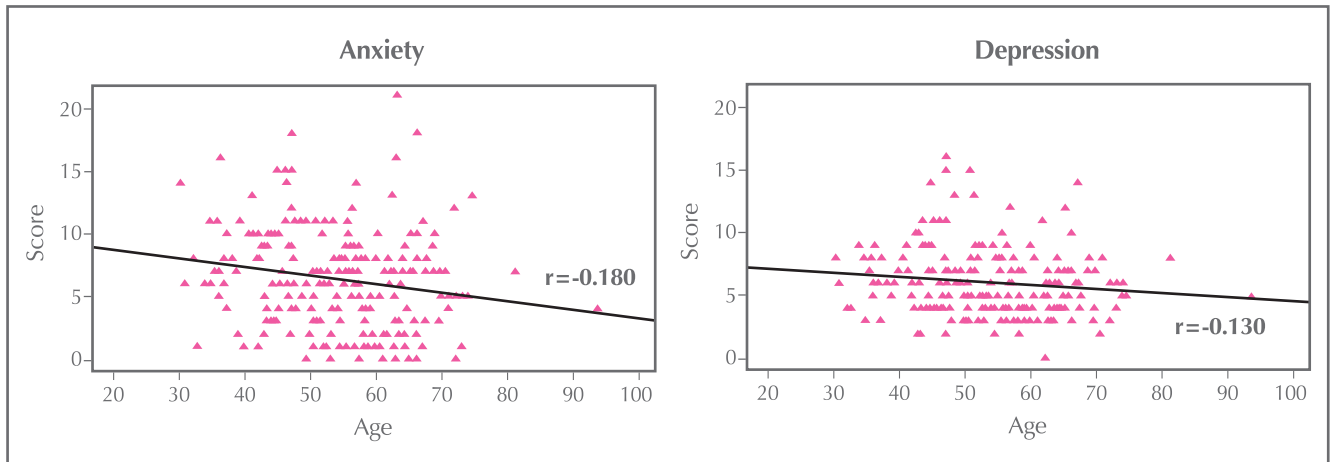## B. Moods after diagnosis and treatment

3.12 Since a noticeable proportion of patients had negative feelings after their breast cancer diagnosis, a validated scale was administered to patients newly recruited in order to assess their mood. Hospital Anxiety and Depression Scale (HADS) is shown to be a reliable instrument in the simultaneous detection of patients with anxiety and/or depression. HADS was created to screen patients in outpatient clinics for anxiety and depression.[53] It is crucial in the early diagnosis of mood disorders which are prevalent in non-psychiatric hospital clinics.

3.13 A total of 14 items with two subscales (7 items each) is designed to assess anxiety and depression. A four-point Likert scale is adopted for all the questions related to one's emotional upheavals and one's general perception towards life over the past week, giving each subscale a maximum score of 21. For patients who obtain a score from 0 to 7, their emotional status is considered as normal. Patients with scores from 8 to 10 are classified as borderline. Clinical anxiety and/or depression is highly probable when patients reach a score of 11 or above.

3.14 The majority of patients had no mood disorders. More than half of them fall within the normal range of anxiety (63.7%) and depression (74.6%). Only 15.2 % and 7.0% of them were more likely to have clinical anxiety and depression, respectively. In addition, younger age was associated with more anxiety and depression (Figure 3.8).

Figure 3.8: Correlations between emotional scales and age

C. Coping ability after diagnosis and treatment

3.15 Resilience refers to the capacity to persevere in face of adversity together with the ability to recover from challenges and obstacles. It is an important attribute in life as life is full of ups and downs. In view of this, Sinclair and Wallston developed the Brief Resilient Coping Scale (BRCS) which aims at assessing a person's resilient coping ability.[54] With the assumption that resilient people are able to set realistic life goals and solve problems with an optimistic attitude, BRCS covers four items related to the response to obstacles in life, i.e. creativity in face of adverse situations, self-control, positive growth through resolving crisis and the activeness in finding alternatives to replace losses in life. A five-point Likert scale (1-5 points) ranging from "does not describe me at all" to "describe me very well" is accredited correspondingly. Those who score 4-13 will be indicated as low resilient coping; 14-16 being medium resilient coping and 17-20 being high resilient coping.

3.16 BRCS is highly recommended by many researchers because of its conciseness, simplicity and user-friendliness. Studies have also shown that BRCS has a high validity and reliability in measuring different psychometric properties related to various resilient coping skills. Multiple character traits such as adaptability, optimism, psychological well-being and self-efficacy can also be demonstrated through the respondents' choices in BRCS.

3.17 About half of our patients demonstrated low (46.0%) and medium (43.8%) resilient coping in the face of adversity. Only 10.3% of them handled their problems with high resilience.