



**A mixed method study on Reproductivity concerns
among young women with breast cancer**

Introduction:

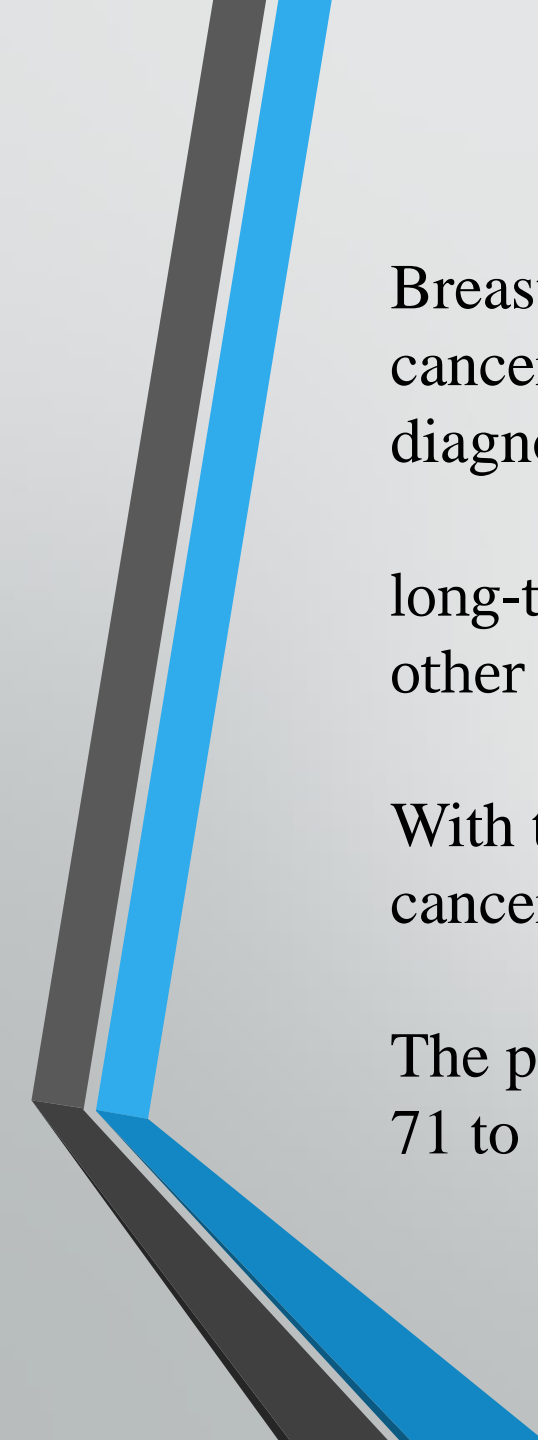
Breast cancer is the most common non-skin malignancy among women.

Breast cancer can account for 12.5% of all cancers in Iran.

The average age of breast cancer in the Middle East is 5 to 10 years lower than other countries.

Breast cancer is the most common cancer among women of childbearing age, explaining 45% of cancers in women aged 25-49 years.

Over 15% of all breast cancer cases are under the age of 40.

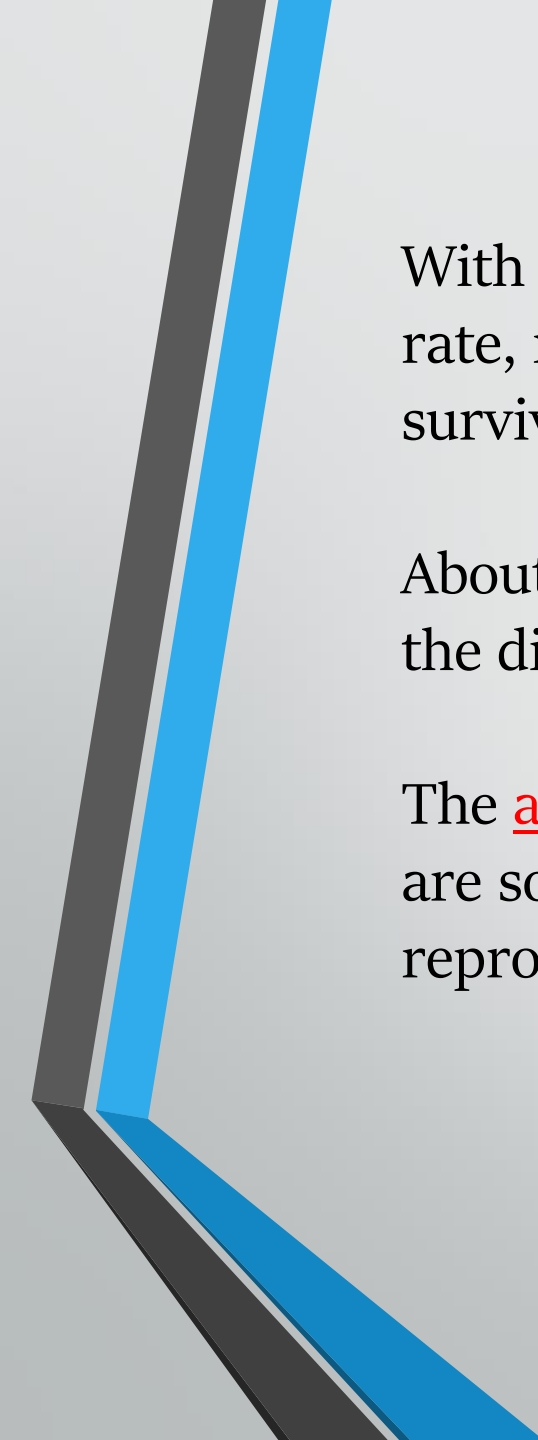


Breast cancer in Iranian women is of the first place regarding the woman's cancers in the country and most of them are at their reproductive age when diagnosed with the cancer.

long-term survival rate following breast cancer treatment is much higher than other types of malignancies.

With the advancement of systemic therapies, the 5-year survival rate of breast cancer has increased to more than 91% .

The percentage of women who survive 10 years after breast cancer treatment is 71 to 84%.



With the development of treatment methods and increasing patients' survival rate, reproductivity takes on considerable significance among breast cancer survivors.

About **two-thirds** of young women of childbearing age experience the effects of the disease and its treatment on their reproductivity and sexual health.

The ability to conceive, form a family and have a safe pregnancy in the future are some of the issues that are raised for survivors of breast cancer in their reproductive age.



In addition to the patient herself, living with breast cancer **puts stress on those around her.**

Problems such as reproductivity, the health of the patient and the risk of the disease to be inherited by children, the ability to become pregnant in the future following breast cancer are some of the concerns that affect women's lives.

Taking the increasing growth of the disease in the communities, the control of these unmet needs should not be treated negligently.

Methods:

A descriptive analytical cross-sectional study was conducted to determine the reproductivity concerns in young women with breast cancer. Then study continued qualitatively.

Phase 1: Methods of quantitative study:

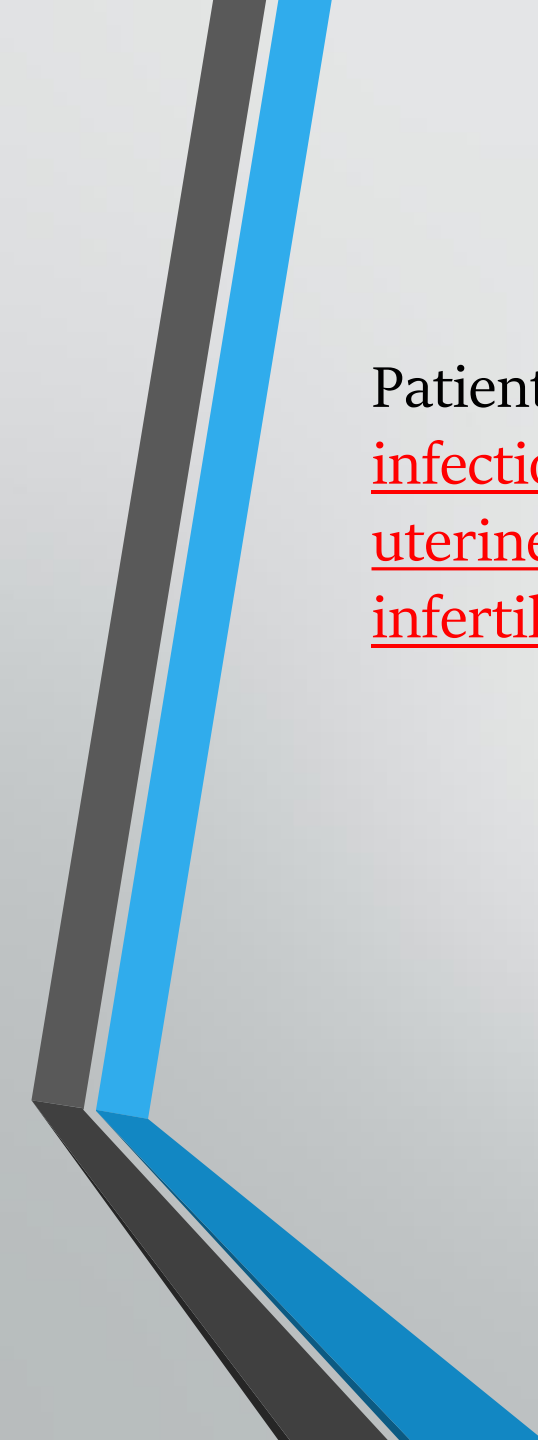
The participants of quantitative section of the study were 139 women with breast cancer under the of 45.

Data collection:

The patients' demographic, pathological and clinical data was collected through a **researcher-made questionnaire**, and the information on their concerns about reproductivity after breast cancer was gathered using the Reproductive Concerns After Cancer (RCAC) questionnaire.

The reliability of the questionnaire was estimated to be more than 75% using Cronbach's alpha test and the validity of the questionnaire was assessed via asking experts' opinions

Inclusion criteria in this study were breast cancer, age below 45 years, and the patient's consent to participate in the study.



Patients with metastasis, polycystic ovary syndrome, endometriosis, history of infectious abortion, sexually transmitted infections, Pelvic surgery, pelvic and uterine surgeries or fallopian tubes, uterine leiomyoma, primary or secondary infertility , and dissatisfaction with participating in the study were excluded.



The Reproductive Concerns after Cancer Questionnaire (RCAC) scale measured women's reproductive challenges in 6 dimensions:

1.Reproductivity potential

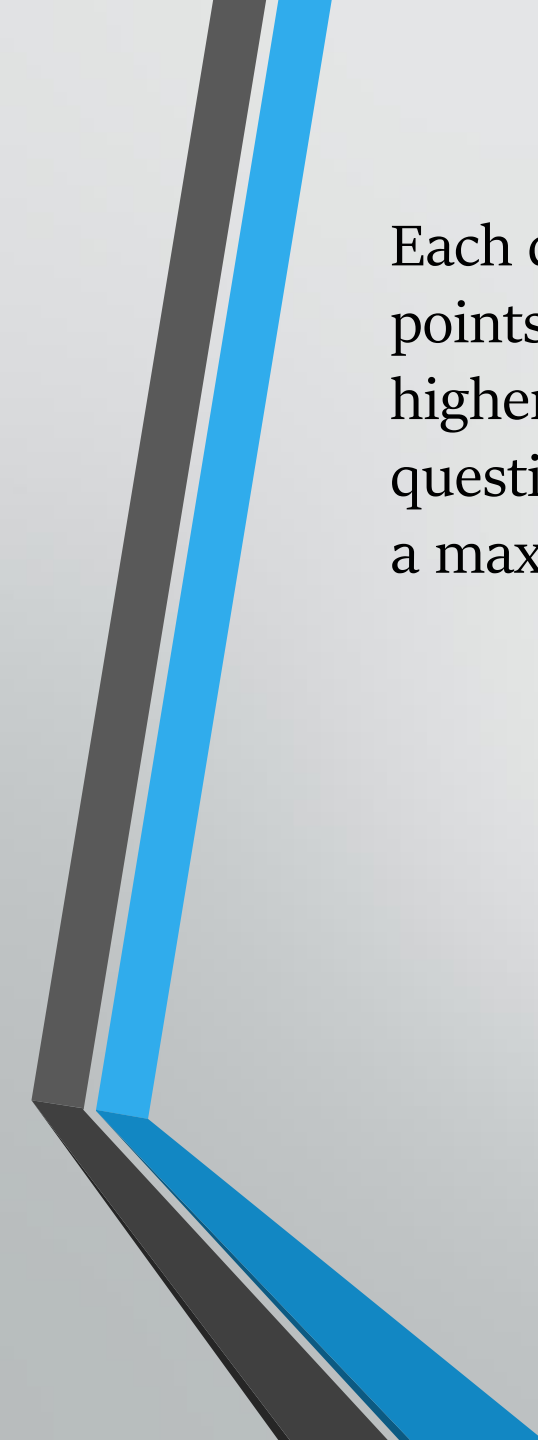
2.Disclosing the problem

3.Child health

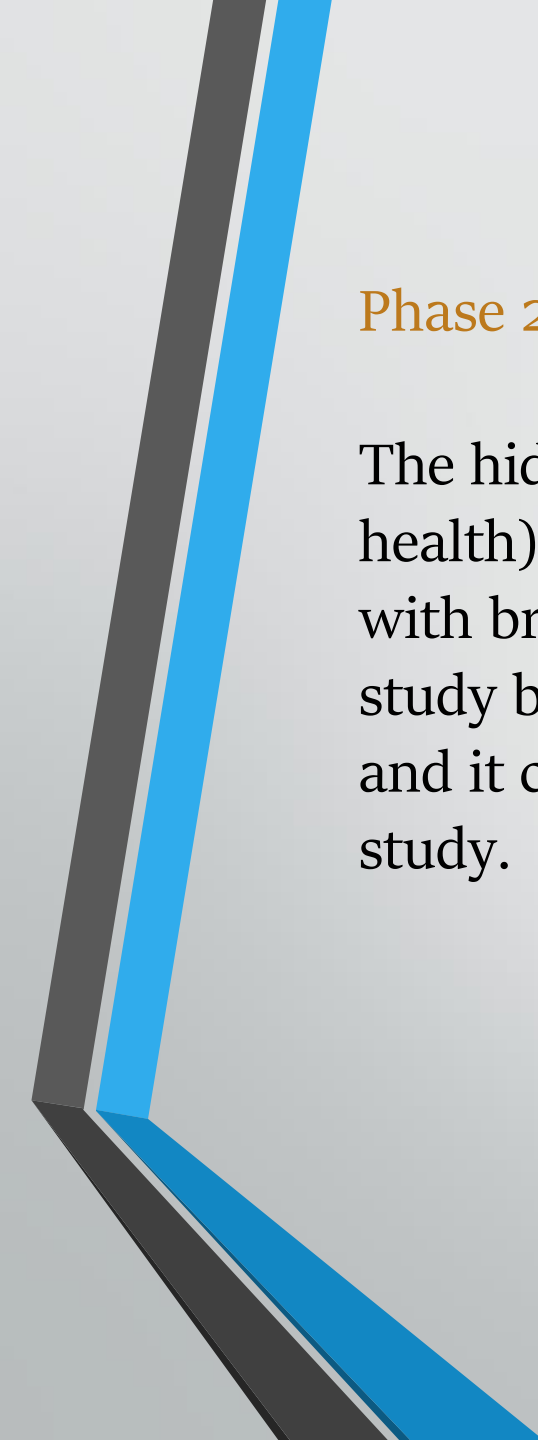
4.Personal health

5.Acceptance

6.Becoming pregnant



Each question was answered on a 5-point Likert scale anchored at five points. Scores in each dimension could be at least 3 and at most 15, and higher scores reported more concern in patients. For the entire questionnaire, a minimum score of 18 indicated the absence of concern and a maximum score of 90 indicated the highest level of concern.



Phase 2 : Methods of qualitative study:

The hidden and non-obvious causes of major reproductivity concern (personal health) which were the main causes of reproductivity concerns in young women with breast cancer in northwest of iran were investigated through qualitative study because these causes can be influenced by the culture of the studied society and it can have reasons beyond what was obtained in the quantitative section of study.

Data collection:

Using purposive sampling, 30 women under 45 years of age, with breast cancer having completed adjuvant treatment without cancer recurrence were included in this section of study.

For data collection, in-depth, open and semi-structured interviews were employed.

The respondents' answers directed the interview and triggered other questions. Interview lasted for 45-90 minutes depending on the survivor's condition. Individual interviews were conducted at a time and in a location convenient to each woman.



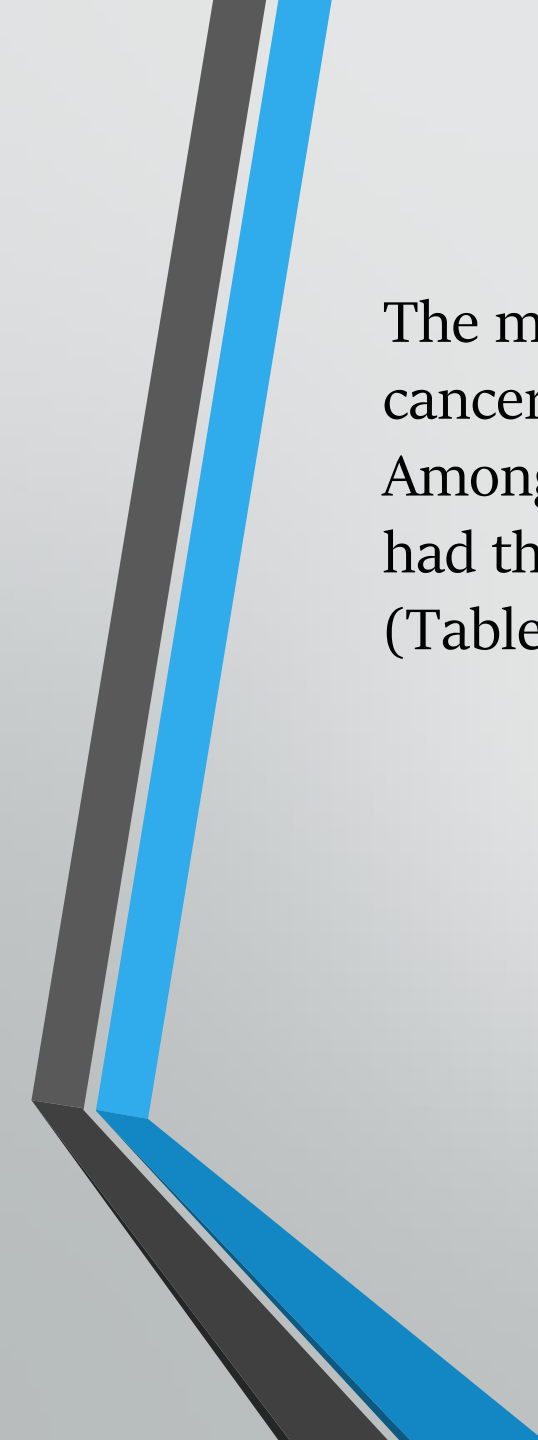
Results

quantitative section results:

The average age of the participants was 37.55 ± 5.95 years, ranging from 18 to 45 years of age. The majority of the patients (67.6%) had 1 child or 2 children, and 9.4% didn't have any child. The mean age of the last child in the patients who had children was 5.31 ± 9.93 years. In terms of the sufficiency level of income, the income was insufficient to meet the living needs of **more than 50%** of patients. The self-assessment of **47.5%** of the patients of their health level was poor (Table 1).

Table 1 : Distribution of demographic and reproductivity variables in patients

age		37.5±5.9
Level of education		
	Elementary and secondary	84(60.4%)
	High school	38 (27.3%)
	university	17(12.2%)
job		
	housekeeper	128(92.1%)
	occupied	11(7.9%)
Partner level of education		
	Elementary and secondary	59(42.4%)
	High school	46(33.1%)
	university	20(14.4%)
Number of children		
	0	13(9.4%)
	1-2	94(67.6%)
	3-4	27(19.4%)
	No response	5(3.6%)
Menstrual status		
	Has menstrual cycle	73(52.5%)
	menopause	66(47.5%)
Method of contraception		



The mean age of the patients was 34.90 ± 6.05 years at the time of diagnosis of cancer. The percentage of the patients undergoing lumpectomy was %65.5. Among other treatments, chemotherapy accompanied by radiotherapy (28.1%) had the highest frequency in complementary therapies received by patients (Table 2).

Table 2 : Distribution of patients in terms of disease-related variables

	<u>mean±SD/no(%)</u>
Age at the time of diagnosis	34.9±6
Diagnosis stage	
Local	104(74.8%)
Advanced localization	29(20.9%)
Metastatic	3(2.2%)
unknown	3(2.2%)
Type of surgery	
lumpectomy	91(65.5%)
unilateral mastectomy	34(24.5%)
Non-surgical	10(7.2%)
No response	4(2.9%)
Adjuvant therapies	
chemotherapy	37(26.6%)
Hormone therapy	6(4.3%)
Chemotherapy +radiotherapy	39(28.1%)
Chemotherapy +radiotherapy+ hormonotherapy	15(10.8%)
Chemotherapy+ hormonotherapy	3(2.2%)
No adjuvant therapy	35(25.2%)
No response	4(2.9%)

The mean total score of **perceived reproductivity concern** of patients was **48.5 ± 6**, with the minimum score of 37 and the maximum score of 75.

Also, people who received **complementary therapy** had **higher levels** of total concern. The **employed people** were **less concerned** (Table 3).

Investigating the relationship between demographic variables and the type of patients' perceived concerns, as well, showed that the level of patients and their spouses' education was related to patients' concern pertaining personal health, respectively ($P = 0.049$) ($p = 0.048$), so that **perceived concern in the personal health** subscale **fell significantly as the level of education rose**. The results also displayed a significant relationship between the **number of children** with the reproductivity potential ($P = 0.033$) and **acceptance** ($P < 0.001$) **decreased** significantly (Table 3).

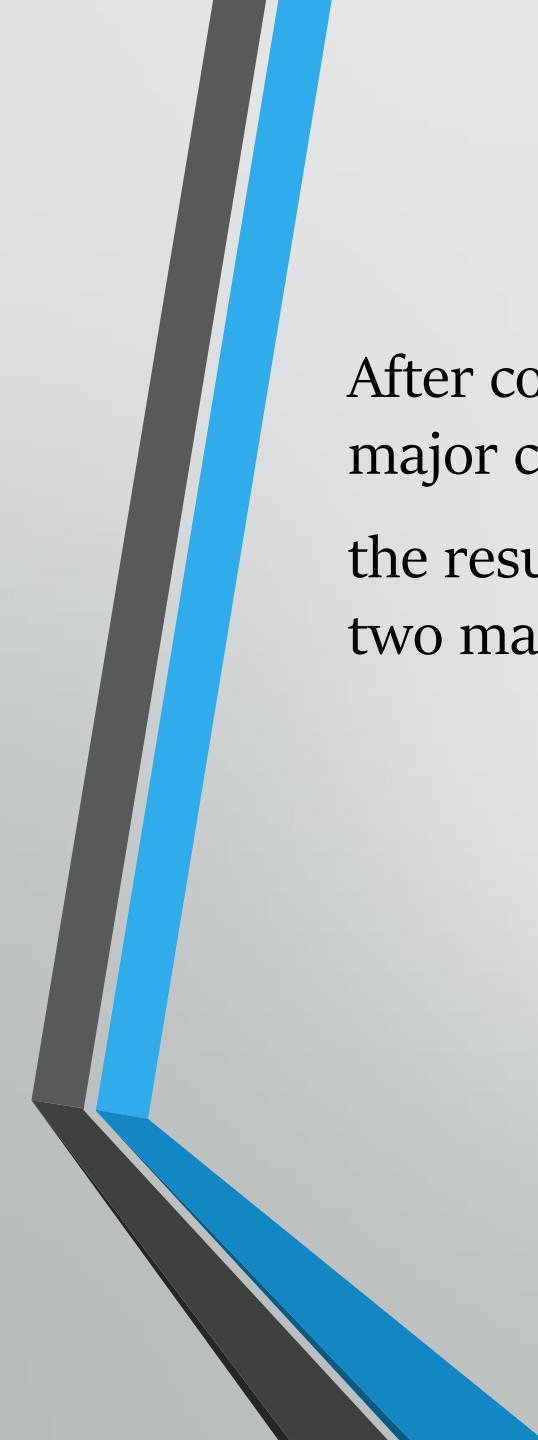
Table 3: Mean score of perceived reproductive concerns in terms of demographic variables and disease-related variables in patients with breast cancer

		number	Mean±SD	p- value
Number of children	Without child	13	52.46±6.6	0.028
	1-2 child	94	48.55±5.9	
	>3 child	27	47.07±5.5	
Job	housekeeper	128	48.59±6	0.57
	occupying	11	47.45±6.1	
Adjuvant therapy	yes	35	45.26±4.5	<0.001
	no	100	49.7±6.1	
Patients' self-assessment of their level of health	good	36	46.22±5.9	0.031
	medium	37	49.27±6.4	
	Weak	66	49.30±5.6	

Patients having received **all three complementary treatments** following surgery, including chemotherapy, radiotherapy, and hormone therapy, had **greater and significant concerns** about their children's health ($P = 0.008$) and personal health ($P = 0.001$).

As the **economic situation improved**, the perceived challenge in the personal health subscale **decreased** significantly ($P = 0.025$).

The ability to conceive was one of the most important concerns in patients according to as 85 patients' report (61.6%). The inability to take care of children was one of the major challenges in 65 patients



After completion of quantitative study a qualitative study was done on the major cause of reproductivity concern .

the results showed that the roots of personal health concern were placed in two main categories including: psychological and physical causes.

Psychological causes:

These psychological factors include women's fears and worries. Fear of an indefinite future for themselves and their children, feeling unable to protect their children from social harms due to illness, fear of probable physical separation from their child due to their illness or their death, concern about neglecting children's needs.

These factors cause women to feel bad motherhood, inadequacy in playing an educational role, inability to protect their children, inability to monitor their children's social activities, and cause the inability to provide quality maternal care and inefficient care by mothers.

Physical causes:

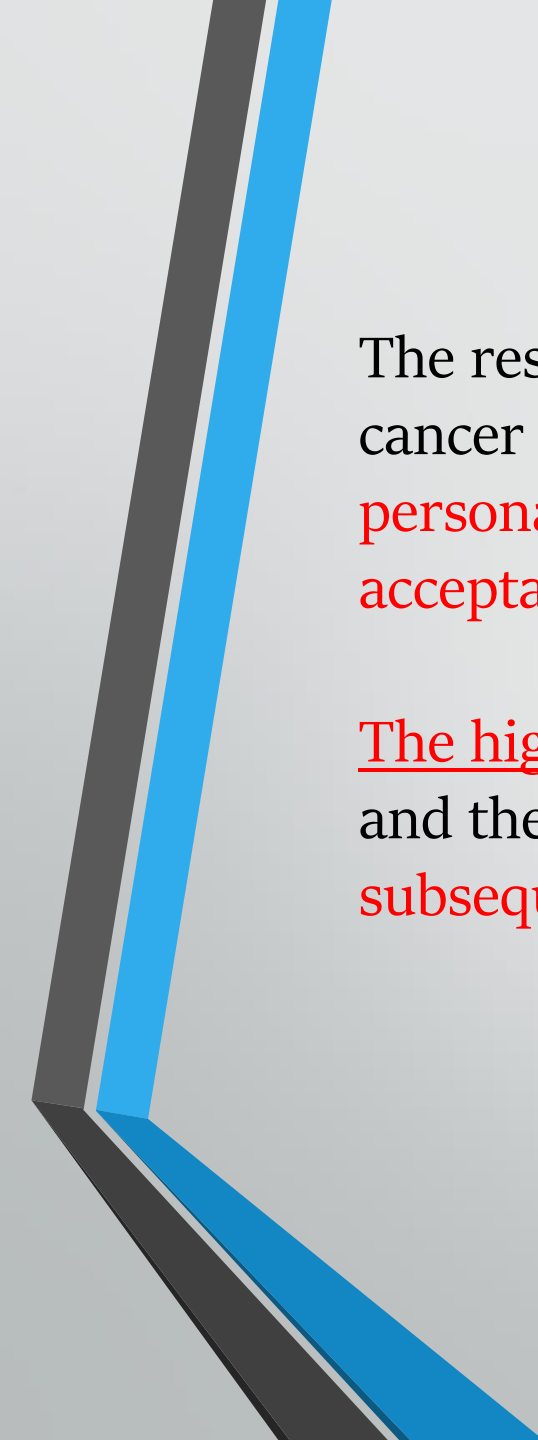
Physical restrictions caused by the disease and its treatment, such as movement restrictions, fatigue and disability, and pain, as well as the shift of family financial resources to the treatment of the disease, are other causes that affect personal concerns of patients.

Discussion:

In addition to the many problems that the breast cancer causes in young women, it may also disrupt the normal course of life in women with breast cancer who are at a young age in terms of reproductivity, leaving the patient with challenges regarding menopausal symptoms, contraception, and the possibility of facing loss of fertility.

The aim of this study was to investigate the perceived reproductivity challenges and related factors in young women with breast cancer in northwest of Iran.

The mean total score of **perceived reproductivity concern** of patients was 48.5 ± 6

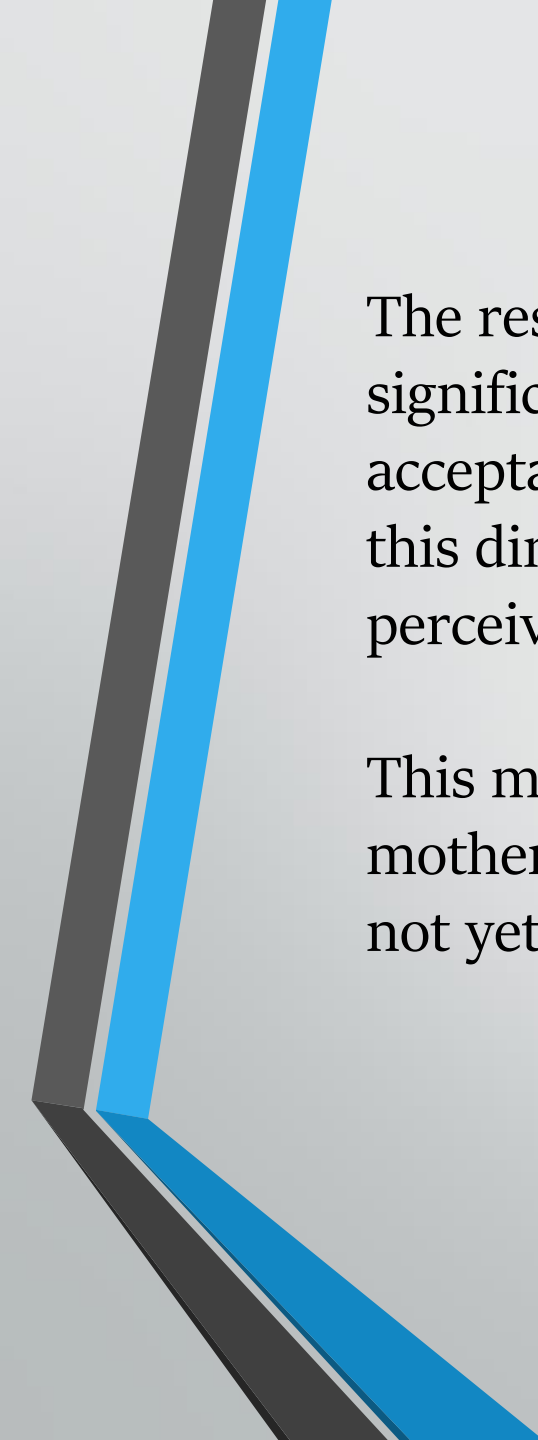


The results of the present study uncovered that the young women with breast cancer had some degree of concern in **all areas** related to **reproductivity**, namely **personal health, reproductivity potential, child health, becoming pregnant, acceptance, and partner disclosure.**

The highest level of the perceived challenges were in the area of "**personal health**", and the dimensions of **reproductive potential** and **child health** were in the **subsequent levels** .

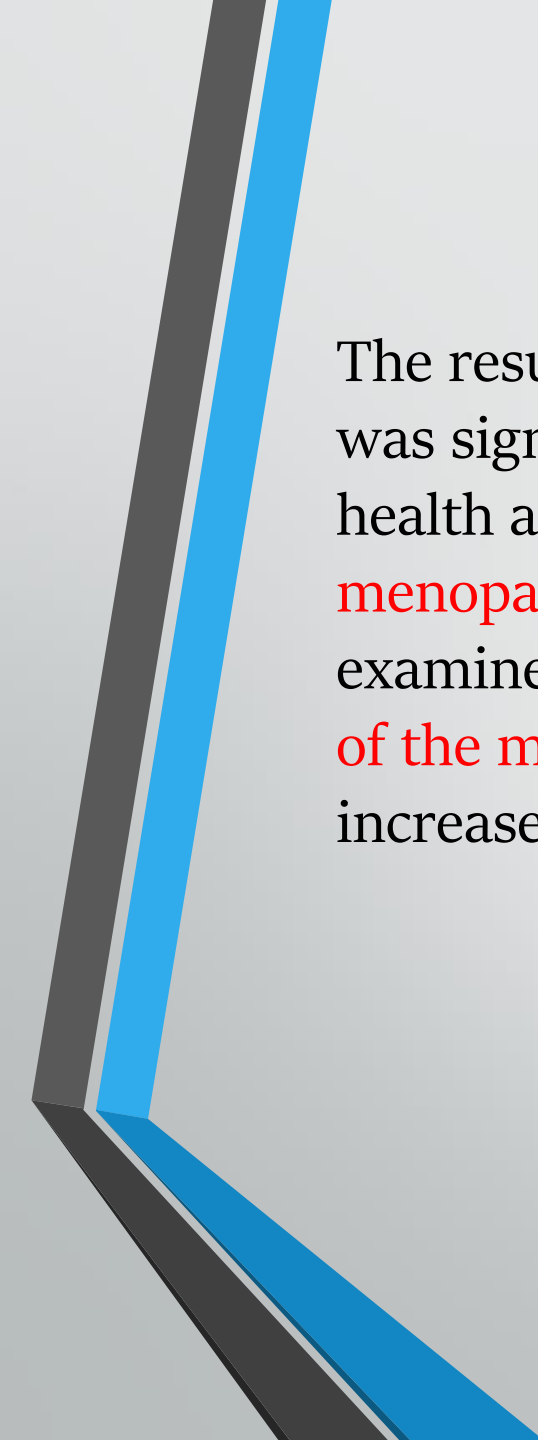
The level of patients' education and their spouses in this study was significantly related to the perceived challenge in the dimension of "personal health" and with increasing the level of education from undergraduate to diploma, and university, these concerns significantly reduced. It seems that one of the reasons for the lower level of perceived challenge in the dimension of "personal health" in couples with academic education can be due to their higher level of education and their awareness of existing treatments for maintaining reproductivity and safe pregnancy after breast cancer.

In addition, it has been shown that factors such as social support, self-efficacy, self-care, quality of life are higher in cancer patients with higher education (especially those with university education)

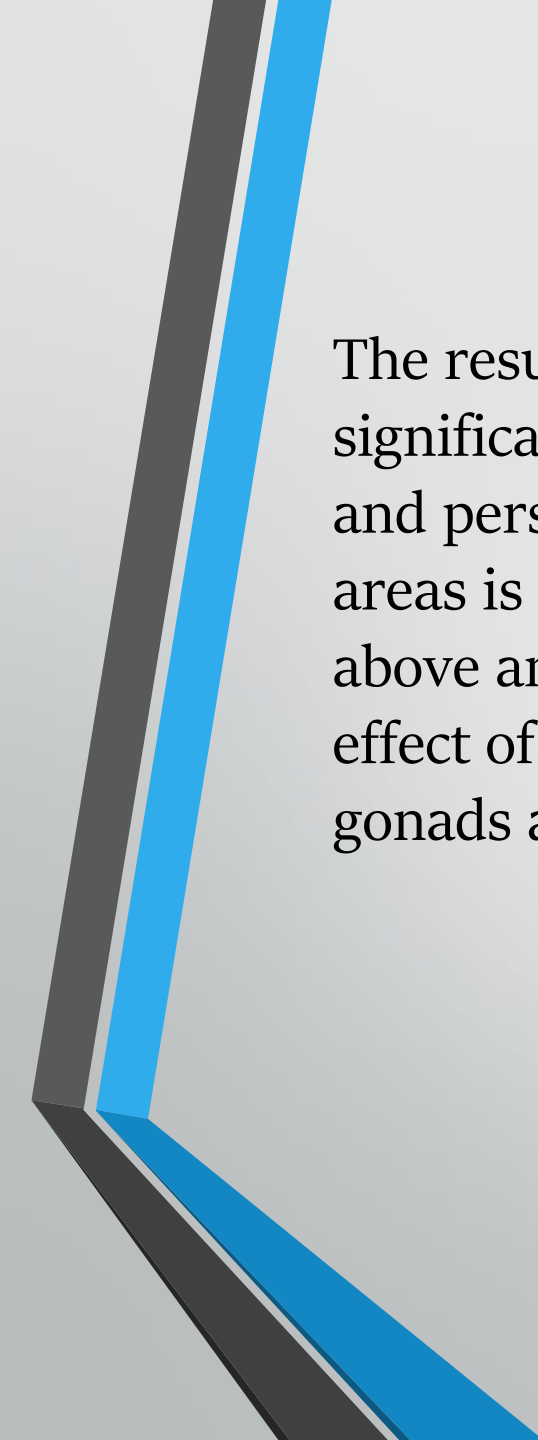


The results of the present study revealed that the number of children was significantly related to the perceived challenge in the dimensions of acceptance and reproductivity potential. Thus, the **perceived challenge** in this dimension was the **highest** in **women without children** while the perceived challenge in women shrank as the number of their children rose.


This may be ascribed to the instinct tendency of a women to become a mother, and of course this tendency is more intense in women who have not yet completed their family and have no children



The results of the present study illustrated that the menstrual status of patients was significantly pertinent to the perceived challenge in the dimension of personal health and the perceived challenge in this regard in **women experiencing menopause** was **significantly higher** than women with menstrual cycles. As the examined women in the present study were of **childbearing age, early termination of the menstrual cycle**, these factors may cause additional concerns and thus increase their perceived challenge in this group of patients.



The results of the present study show that the use of **complementary therapies** is significantly related to the perceived challenge in the dimensions of child health and personal health. Additionally, the level of perceived challenge related to these areas is the **highest** in women **using all three methods of the treatment** mentioned above and the lowest in women not using any of those methods. The cytotoxic effect of chemotherapy and radiotherapy causes germinal tissue damage in the gonads and premature ovarian failure



The **economic status** in the present study is significantly and negatively related to the perceived challenge in the personal health, in other words the perceived challenge **decreased** with **increasing economic status**. Perhaps patients with higher economic status are **more hopeful and optimistic** and **use more advanced ways of therapy** to treat their current illness as well as their probable reproductivity problems in future, and therefore feel less worried in this area.



Thank You

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رضا سید شنوا

مریم اکران

مریم احمدزاده

افرا معمارزاده

رضا آگاه سادات

محمد رضا شمشیری