

## Understanding mammography behavior among the west of Iranian women: stage of change model testing

Farzad Jalilian<sup>1</sup>, Mehdi Mirzaei-Alavijeh<sup>1</sup>, Behzad Karami Matin<sup>1</sup>, Mohammad Mahboubi<sup>2</sup>, Abbas Firoozabadi<sup>3</sup>,  
Nasser Hatamzadeh<sup>4</sup>

<sup>1</sup>Research Center for Environmental Determinants of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran

<sup>2</sup>Abadan School of Medical Sciences, Abadan, Iran

<sup>3</sup>Department of Work and Social Psychology, Maastricht University, Maastricht, Netherlands

<sup>4</sup>Social Determinants of Health Research Center, Faculty of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

✉ **Reprint or Correspondence:** Mehdi Mirzaei-Alavijeh; PhD. Research Center for Environmental Determinants of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran  
✉ mehdimirzaiea@yahoo.com

### ABSTRACT

Breast cancer is the second leading cause of death in industrial countries and the third one in developing countries. The aim of this study was determined the stages of change of mammography screening behavior among women. This cross-sectional study was conducted on 400 women aged 30 to 60 years old referred to health centers in Kermanshah County, the west of Iran, during 2016, who were randomly selected to participate in the study. Data collected by standard questioner and were analyzed by SPSS version 21. The mean age of respondents was 39.61 years [SD: 8.28]. Our findings indicated, nearly 59% (236/400), 27.3% (109/400), 2.5% (10/400), 9.3% (37/400), and 1.8% (7/400) of the respondents reported that pre-contemplation, contemplation, preparation, action, and maintenance, respectively. Our results showed most of the women were in pre-contemplation and contemplation stages regarding doing mammography. These results can be highly useful to the researchers in designing effective interventional plans for achieving the intended objectives.

**Keywords:** Breast Cancer, Transtheoretical Model, Prevention, Behavior Change.

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### Introduction

Breast cancer is the second leading cause of women death in industrial countries and the third one in developing countries. Currently 70000 new cases of cancer occur and over 35000 individuals die due to cancer annually (1). Breast cancer is one of the most common types of cancer in women globally and is the main cause of death due to cancer in women in a way that in the year 2000

over one million new cases of cancers were diagnosed in women and the disease has resulted in death in 37.3% of the cases (2). All women at any age are at risk of breast cancer but the risk is increased with the increase of age. The prevalence of this type of cancer is increasing in the world and an alarming increase of breast cancer incidence in Iran has been observed (3, 4). According to global

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statistics 80 individuals in every 100 thousand individuals have breast cancer. This disease is the second leading cause of death due to cancer in women, after lung cancer. The breast cancer survival rate is different in different countries and it varies from 80% in North America, Sweden and Japan to 60% in countries with average income to 40% in countries with low income. The low rate in low-income counties is due to the lack of early diagnostic programs and the shortage of appropriate diagnostic and therapeutic means and equipment (5). The incidence of breast cancer in Iran is 22 per 100000, the prevalence is 120 cases per 100000 individuals and its related deaths are 1200 cases in year (6, 7). According to the report of the National Plan for Registration of Cancer breast cancer is the most common type of cancer and the leading cause of cancer-related deaths in women in Iran (3). Breast cancer as the most common type of cancer in women will result in death in the absence of timely diagnosis and treatment. If breast cancer is diagnosed early in the initial stages and appropriate treatments are done the chance of recovery is increased and the life expectancy of more than 90% of the individuals with this type of cancer is increased (8). There are multiple studies globally which estimate the rate of deaths due to cancer that are attributed to different risk factors. However, there are not many studies, in Iran or globally, on the level of knowledge of the public population regarding the warning signs of cancer (9).

These facts highlight the necessity of performing preventive interventions for women's health, especially regarding breast cancer social preventive programs (10) and on the other hand, a health improvement program should be consistent with the changing situation. In this regard, Prochaska and DiClemente in their

Transtheoretical Model present a concept called Stages of Change (SOC) and suggest that individuals have motivation and preparedness for behavior in different levels. These behavioral stages and levels include five distinct stages: pre-contemplation (in this stage individuals do not have information about the results of their unfavorable behavior and do not intend to change it in a near future), contemplation (in this stage the individual knows about the results of his/her unfavorable behavior but stays at this stage due to the costs of the new behavior), preparation (in this stage the individual decides to take action in a near future, for example one month, and adopt the new behavior), action (in this stage the individual adopts the health behavior and acts) and maintenance (in this stage the individual has followed the appropriate behavior for at least six month and continues to do so) (11). Therefore, considering each level, different types of necessary interventions can be created by employing planning frameworks for theory and evidence-based health improvement programs like Intervention Mapping Approach (12, 13).

Considering the importance of breast screening in early diagnosis of breast cancer and doing effective clinical and psychological intervention and the necessity of accurate identification of change status in individuals subject to intervention, the present study was conducted with the aim of determining the different levels of change of mammographic screening behavior in women visiting health and medical centers in the city of Kermanshah in western Iran.

## **Materials and Methods**

This cross-sectional study was conducted among 400 women in aged 30-60 years old referred to health centers in Kermanshah County,

the west of Iran, 2016. To register the members and collection data the following stages were done. First, different areas of the Kermanshah city were classified based on the division of the geographical region, next for each geographical part one health centers were randomly selected (a total of eight health centers were selected). Then, subjects referred to the health centers, were enrolled into this study voluntarily. In addition, the participants were given the self-questionnaire. Only the subjects aged 30-60 years old, and without history of breast cancer were eligible to participate in this study. This study has been approved by the Institutional Review Board at the Kermanshah University of Medical Sciences.

Questionnaire included two sections: demographic factors and SOC about mammography;

First section: demographic and background information: this section was consisted of 6 questions and evaluated the participants' information on age, education level, husband education, occupation, having a family member with a history of breast cancer, history of undergoing mammography screening.

The section: this section designed based on a standard questionnaire about mammography stage of change (14). Respondents were classified into five stages of change: pre-contemplation (never had mammogram and no plans to have one in the next year), contemplation (never had mammogram, but plans to in the next year), preparation (never had mammogram, but plans to in the next month), action (one recent mammogram and plans to stay on a 1–2 year schedule), and maintenance (2 mammograms on schedule and plans to stay on a 1–2 year schedule).

Data were analyzed by SPSS version 21 using appropriate statistical tests.

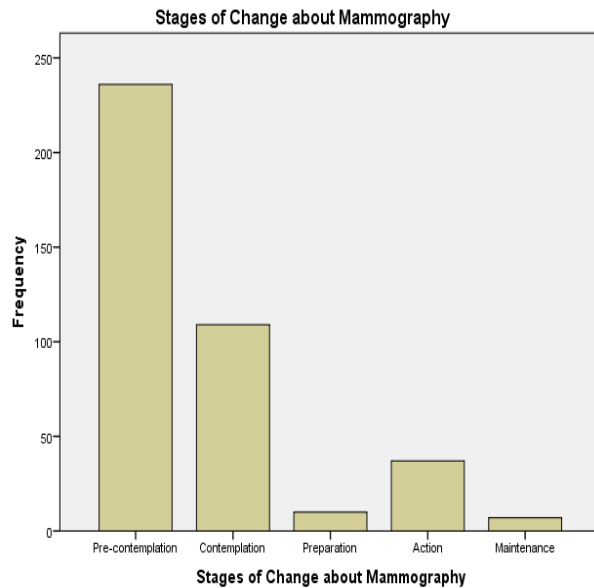
## Results

The mean age of respondents was 39.61 years [SD: 8.28]. More details of demographic characteristics of the participants are shown in Table 1.

**Table 1.** Description of the demographic characteristics among the participants

		Number	Percent
Marital Status	Single	19	4.8
	Married	358	89.5
	Widow	23	5.7
Education Level	Primary	149	37.3
	Secondary	90	22.5
	School		
	High School	109	27.2
Husband Education	Academic	52	13
	Primary	104	26
	Secondary	85	21.3
	School		
Occupation	High School	118	29.5
	Academic	76	19
	Unanswered	17	4.3
	Housewife	375	93.7
Having a Family Member with history of Breast Cancer	Working	25	6.3
	Yes	11	2.8
Undergoing Mammography	No	389	97.2
	Yes	52	13
	No	348	87

The stages of change about mammography among participants were showed in Diagram 1. Based on our findings, nearly 59% (236/400), 27.3% (109/400), 2.5% (10/400), 9.3% (37/400), and 1.8% (7/400) of the respondents reported that pre-contemplation, contemplation, preparation, action, and maintenance, respectively.



**Diagram 1.** Stages of Change about Mammography among participants

## Discussion

Mammographic screening behavior is one of the behaviors for which the study of stages of change can be used in designing appropriate and effective interventions for doing and continuing mammographic screening. In this regard, Champion and Skinner showed that it is especially needed to determine different stages of mammography in women so that the interventions appropriate to the stages lead to more useful results in the increase of using mammography (15). The findings of the present study indicated that most of the women explored, 59% were in pre-contemplation stage. According to Prochaska individuals in pre-contemplation and contemplation stages have no intention for doing a behavior. There are usually two groups of people in this stage; the first group includes individuals who have no information or inappropriate or insignificant information on health behavior. The second

group is consisted of individuals who have done health behavior before but have no intention for doing it now (16). The lower levels of stages of change for doing breast cancer screening behavior can be considered as a health threat for women. Stages of change show the stages in which more interventions should be done and behavioral interventions can be different in each stage. Giving information, creating motivation and encouragement in this group of individuals for doing mammography can result in useful outcomes in this group.

The findings of the present study also showed that 27.3% of the individuals were in contemplation stage. In this regard, it should be said that individuals who are in contemplation stage are exploring the benefits and barriers of doing health behavior but they do not have enough motivation for doing the behavior and going towards the next stage yet. Studies have shown that women in contemplation stage view the benefits of mammography to be less and the barriers more (17, 18). Giving information to this group regarding the benefits and barriers of mammography can be useful.

According to the findings of the present study 2.5% of the individuals explored were in preparation stage. Also, based on the results 9.3% and 1.8% of the individuals were in action and maintenance stages respectively. Individuals who are in action stage need support and encouragement to move towards maintenance stage. Regarding the levels of the stages of change of mammography in other studies, the study by Wu showed that 50% of the women were in action and maintenance stages (19). The study by Strong among Chinese American women showed that 45% of the individuals were in maintenance stage (20). The

comparison of these results with the findings of the present study indicates the unfavorable levels of stages of change of mammography in Iranian women that can be alarming for women's health policy makers in Iran.

## Conclusion

The findings of the present study indicated that most of the women explored in this study were in pre-contemplation and contemplation stages regarding doing mammography. These results can be useful to the researchers in designing effective interventional program for achieving the intended objectives.

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## Conflict of Interest

Not Declared

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