Original Article

Breast Cancer Fatalism Scale: A Validity and Reliability Study in Turkey

Fatma Ersin, PhD
Assosiate Professor, Harran University, Faculty of Health Science, Public Health Nursing Department, Sanlıurfa, Turkey

Canturk Capik, PhD
Assosiate Professor, Ataturk University, Faculty of Nursing, Public Health Nursing Department, Erzurum, Turkey

Aygul Kissal, PhD
Assosiate Professor, Gaziosmanpasa University, Faculty of Health Science, Public Health Nursing Department, Tokat, Turkey

Nihal Gordes Aydogdu, PhD
Assosiate Professor, Dokuz Eylul University, Faculty of Nursing, Public Health Nursing Department, Izmir, Turkey

Ayse Beser, PhD
Professor, Koc University, Faculty of Nursing, Public Health Nursing Department, Izmir, Turkey

Correspondence: Fatma Ersin Assos. Prof. Harran University School of Health, Public Health Nursing Department, Sanlıurfa, Turkey E-mail: fatmaersin1@gmail.com

Abstract

Purpose: The aim of this study is to carry out the validity and reliability test of Powe's Breast Cancer Fatalism Scale in Turkish language.
Method: This methodological study was carried out in January – June, 2014. The sample of the study consisted of 136 women from four different regions of Turkey who were not previously diagnosed with breast cancer. The data of the study were collected through a socio-demographic information form and Powe's Breast Cancer Fatalism Scale. The scores that could be obtained from the scale ranged between 0-11, and increased scores indicated increased fatalism. After the translation process and content validity steps were completed, Kuder Richarson – 20 coefficient and item-total correlations were analyzed.
Results: The ages of the participants ranged between 19 and 80 and the average age was 37.51 ± 14.69. The content validity index in the study was 0.80. Kuder Richarson – 20 coefficient was 0.797 and item-total correlations ranged between 0.264 and 0.530.
Conclusions: After the psychometric evaluation, Powe's Breast Cancer Fatalism Scale was determined to be a valid and reliable instrument in Turkish language. It is recommended that Powe's Breast Cancer Fatalism Scale can be used in the evaluation of the perception of fatalism, one of the factors affecting women's breast cancer early detection attitudes.

Keywords: Fatalism, breast cancer, reliability and validity.

Introduction

Breast cancer is the most common cancer type among women both in developed and developing countries (Parkin, 2005). It accounts for 23 % of the total cancer cases and 14% of the cancer related deaths (Jemal, 2011). While the average incidence of it in the world is around 38-40 out of one hundred thousand, it is 66-67 out of one hundred thousand in Europe and 40 out of one hundred thousand in Turkey (http://www.kanser.gov.tr).

There are a lot of factors hindering participation in screening behaviors in the early detection of breast cancer, which is an important public health

issue. Fatalism, one of these factors, is among the psychosocial barriers affecting the attitudes negatively (Franklin et al., 2007; Knight, 2003). Fatalism, at first glance, seems to be a thought or belief arising from divine religions. However, belief in fate, the idea that the events human beings experience are predetermined and predestined by a supernatural power or powers, has also been adopted in various cultures with no "god" concept (Macit, 2014). Fatalism is a cultural dimension, not to be considered equal to godliness. Fatalism takes away a person's freedom in daily life, and makes the attitudes and events that will cause undesirable results functional. In addition, it reflects people's opinions whether and to what extent they can control the outcomes of their deeds (Aycan & Kanungo, 2000).

According to the findings of an international comparative field study carried out recently, unlike people from Canada, US and Norway, half of the people participating in the study in Turkey acknowledged that "they have very little to change the course of their own life" (Carkoglu & Kalaycıoglu, 2009). It was reported in another study that cancer fatalism is the belief that people will eventually die and this is an inevitable fact (Cohen, 2013). There is a relationship between cancer-related undesirable health outcomes and reluctance causing attitude change. For this reason, the role of fatalism in cancer emerges both as dependent and independent variable in health attitudes (Powe & Finnie, 2003). Fatalism related beliefs affect attitudes and behaviors by reducing individuals' self-efficacy perception and motivation and increasing the external control perception over the individual (Straughan & Seow, 1998).

According to Powe (1997), cancer fatalism represents perceptions such as despair, weakness and worthlessness. Some women who have experienced breast cancer may feel themselves weak. This belief prevents a lot of women from participating in cancer screening. It was reported in a study investigating Chinese women that women did not want to inquire about their health problems and they had fatalistic thoughts making them avoid bad news (Holdroy et al., 2004). On the contrary, there was no statistically significant difference between breast cancer fatalism and self-breast examination in Akhigbe and Akhigbe (2012) (Akhigbe & Akhigbe, 2012). The literature review results failed to reach studies on the validity and reliability of breast cancer fatalism scale.

In conclusion, fatalism emerges as a factor hindering health improvement behaviors However, there isn't a tangible measurement tool to measure the breast cancer fatalism in Turkey. For this reason, this study aims to carry out the validity and reliability of Powe's Breast Cancer Fatalism Scale in Turkish language.

Methods

The Type of the Research

This methodological study was carried out in January – June, 2014. The steps of the study are as follows: (1) the adaptation of Powe's Fatalism Scale to Turkish language and retranslation into English, (2) testing the content validity by a group of experts, (3) performing psychometric analyses (factor analysis, validity coefficient and item-total correlation).

The Sample of the Study

The sample of the study was made up of 136 women from four different regions of Turkey who were not previously diagnosed with breast cancer. The data were collected from Kars, Sanlıurfa, İzmir and Tokat Provinces. 33 women from Kars, 26 from Sanlıurfa, 26 from İzmir and 51 from Tokat, who visited family health centers and acknowledged to participate in the study, were applied data collection forms.

Inclusion conditions: All of the women 18 years old or over who did not have problems in their communication skills and were not previously diagnosed with breast cancer were included in the scope of the study.

***Exclusion conditions*:** Those who had mental problems or were previously diagnosed with breast cancer were excluded. Table 1 presents the demographic characteristics of the participants.

The ages of the participants ranged between 19 and 80, and the average age was 37.51 ± 14.69. 27.9 % of the women had university and post graduate education, 64.7 % were married, 89.7 % had social security and 47.1 % had an income less than expenses (Table 1). 97.1 % of the participants did not have any other breast disorders. The rate of the subjects who had family members or relatives diagnosed with breast cancer was 21 %.

Table 1. The Demographic Characteristics of the Participants (N=136)

Education	n(%)
Illiterate	11(8.1)
Literate	11(8.1)
Primary school	33(24.3)
Secondary school	16(11.8)
High school	27(19.9)
University and post graduate	38(27.9)
Marital Status	
Married	88(64.7)
Single	48(35.3)
Social Security	
Yes	122(89.7)
No	14(10.3)
Income	
Income is less than expenses	64(47.1)
Income is equal to expenses	61(44.9)
Income is more than expenses	11(8.1)

The Translation Process and Content Validity

After 4 nursing academicians from the research team and an expert academician from English Language and Literature Department had translated the fatalism scale into Turkish language independently, the test was retranslated into its original language. Two independent academicians working as teaching staff in English Language and Literature Department performed the back translation process. The translators are native Turkish speakers. Next, ten different nursing academicians evaluated the translation in terms of cultural appropriateness and the scale in terms of content validity.

Content Validity

After the translation process of the scale was completed, it was presented to an expert group made up of ten nursing – midwifery academicians to get their views. The experts, whose views were collected through e-mail, evaluated the scale items in terms of comprehensibility and cultural appropriateness. The content validity process, performed based on the views of experts, used Davis technique (Gozum & Aksayan, 2002). Based on Davis technique, which uses a four rating system, the experts evaluated the scale in the following way:

1. Inappropriate
2. The item should be modified to make sure it is appropriate
3. Appropriate but needs some amendments
4. Very appropriate

At the end of this evaluation, the Content Validity Index (CVI) was obtained by dividing the total of the first two ratings by the total number of experts. A CVI of greater than 0.80 indicates adequacy of the item in terms of content validity (Gozum & Aksayan, 2002). Following this implementation, the scale was given its final form by making some statement amendments in the items. Upon the completion of the translation and content validity process, the final form of the scale was applied on 15 people as a pilot study.

Data Collection Tools

In the study, two materials, Powe's Breast Cancer Fatalism Scale and socio-demographic characteristics information form, were applied on all the participants. The test and the form were completed in about 5 minutes by each participant.

The socio-demographic characteristics information form was made up of 8 items questioning age, education level, marital status,

income, social security, whether diagnosed with breast cancer or other breast disorders, and whether family members / relatives were diagnosed with breast cancer.

Powe's Breast Cancer Fatalism Scale was developed in the USA, and it was employed by researchers developing it in many studies (Powe, 1995a, 1995b, 2001; Powe & Weinrich, 1999, Mayo & Hunter, 2003). The original form of the scale consisted of 15 items. However, it was revised by Mayo, Ureda and Parker (2001) and reduced to 11 items in 2001 as a result of qualitative interview methods, multi-interviews and factor analysis. The scale used in this study was the revised 11-item version. It was composed of eleven items with yes / no dichotomy type. Each "Yes" was worth 1 point and "No" 0. Increasing scale scores indicated increased fatalism. The scores that could be obtained from the scale ranged between 0 and 11 as there were totally 11 items in the scale. The scale had one sub-dimension and it could be filled in around 3 – 5 minutes. The internal validity coefficient of the original form of the scale is known to be 0.89 (Mayo, Ureda & Parker, 2001).

The Evaluation of the Data

The socio-demographic characteristics of the individuals were determined using descriptive statistics. Percentages were used for categorical data and mean scores and standard deviations were utilized for continuous data. The data were analyzed using SPSS (version 11.5, SPSS Inc.) software. No null data were observed during data analysis. The principal components analysis was employed in the study to obtain more conclusive findings. To determine the optimal structure, core values of over 1.0 and the lowest factor loading value of 0.30 were taken as criterion. To determine the content validity, Kuder Richardson -20 coefficient and item total score correlations were employed. The data weren't exposed to any rotation methods as one-dimensional structure was observed.

Research Ethics

To start the research, first a written permission was taken from Powe and Mayo via e-mail 2013 and the ethical committee permission was taken from the university ethical committee. During data collection process, written consent forms were taken from all participants and they were informed that they could leave the study at any time they wanted.

Results

Translation Process and Content Validity

After the translation process of the scale was completed, it was presented to a group of ten nursing academicians for evaluation in terms of content validity and cultural features. At the end of this evaluation, the content validity index (CVI) was determined to be 0.80 by dividing the total of the first two ratings by the total number of experts. Next, the scale was applied on 15 people as a pilot study. Following the pilot study, the next step was psychometric measurements by using the scale without any changes on the items.

Internal Validity

Kuder Richardson – 20 (KR-20) is a derivative of Cronbach's α coefficient and it is used to determine the internal validity in binary data. When the total number of items are between 10 and 15, KR-20 = 0.50 and over is considered to be acceptable (Sencan, 2005). KR-20 coefficient for the Turkish version of Powe's Fatalism Scale was estimated to be 0.797. The item total correlations of the participants were between 0.264 and 0.530 (Table 2). The average score of the participants from the fatalism scale was 3.62 ± 2.62 and it ranged between 0 and 11. The scores that could be obtained from each item were 0 or 1. The 10^{th} item received the lowest score with 0.12 ± 0.32, whereas the 5^{th} item received the highest average score with 0.74 ± 0.44 (Table 2).

It was determined that there was a positive significant relationship between the age and the fatalism score in Sperman Rho correlation analysis ($r = 0.302$, $p = 0.000$). This finding indicated that the fatalism score increased as the age increased. Table 3 presents the change in fatalism scores based on other variables. According to the table, the average fatalism scores of the women varied by the education level ($p < 0.05$). In the Mann-Whitney U post hoc test done to determine which education levels made the difference, it was determined that the average fatalism scores of women with high school, university and post graduate level were significantly lower than the average scores of women with secondary school and primary school level, or literate or illiterate. The fatalism scores did not statistically change in terms of other variables such as marital status, income, social security, whether diagnosed with breast cancer or other breast disorders, and whether

family members / relatives were diagnosed with breast cancer ($p > 0.05$).

Discussion

In the study, the scale data collected from 136 women with no previous cancer diagnosis from four different regions of Turkey were analyzed to determine the validity and reliability characteristics of the scale. To be able to use a testing material in another language, validity and reliability studies should be done (Gozum & Aksayan, 2002). The scale studied in this study was first used by Powe to measure fatalism in colorectal cancer (Powe, 1995a). It was later modified and used for measuring fatalism in breast cancer, too (Mayo, Ureda & Parker, 2001).

Validity is the degree of measuring what is desired. The most preferred validity is content validity and structural validity when evaluating the validity of a scale (Karasar, 2000). For the validity study of PFI_{TR}- rPFI, the scale was translated into Turkish by four nursing academicians and a language academician. After the academicians had reached a common opinion, the scale was retranslated into English by two academicians working in English Language and Literature Department. Translators are of particular importance as scales are adapted to different cultures (Gozum & Aksayan, 2002). The academicians doing the translations of PFI_{TR} – rPFI were people who had already mastered the foreign language and done scale adaptations before.

Table 2. Item Total Correlations

	Items	Mean	Item Total Correlation	KR-20 when the item is deleted
1	I believe if someone gets breast cancer it was meant to be.	0.32	0.456	0.781
2	I believe if someone is meant to get breast cancer they will get it no matter what they do.	0.62	0.530	0.772
3	I believe if someone is meant to have breast cancer they will have breast cancer.	0.45	0.458	0.781
4	I believe if someone was meant to have breast cancer it doesn't matter what the doctor tells them to do, they will get breast cancer anyway.	0.26	0.491	0.777
5	I believe if someone gets breast cancer it is part of God's plan.	0.74	0.264	0.801
6	I believe if someone gets breast cancer it doesn't matter when they find out about it, they will still die.	0.14	0.525	0.776
7	I believe if someone has breast cancer it is already too late to do anything about it.	0.13	0.445	0.783
8	I believe if someone gets breast cancer their time to die is near.	0.13	0.449	0.783
9	I believe if someone gets breast cancer that's the way they were meant to die.	0.35	0.470	0.780
10	I believe if someone gets breast cancer a lot of different treatments won't make any difference.	0.12	0.473	0.781
11	I believe if someone gets breast cancer a lot of different treatments won't make any difference.	0.26	0.510	0.775
	KR-20			0.797

Table 3. The Change in Fatalism Score Averages Based on Demographic Variables

Education	**n(%)**	**Mean ± SD**	**X^2_{KW}**	**p**
Illiterate	11(8.1)	6.55 ± 3.17		
Literate	11(8.1)	4.82 ± 2.44		
Primary school	33(24.3)	4.33 ± 2.29	27.06	**.000**
Secondary school	16(11.8)	3.13 ± 2.53		
High school	27(19.9)	3.04 ± 2.71		
University and post graduate	38(27.9)	2.42 ± 1.81		
Marital Status			**U**	**p**
Married	88(64.7)	3.72 ± 2.43	1857.00	.242
Single	48(35.3)	3.44 ± 2.97		
Social Security			**U**	**p**
Yes	122(89.7)	3.52 ± 2.59	669.50	.183
No	14(10.3)	4.50 ± 2.79		
Income			**X^2_{KW}**	**p**
Income is less than expenses	64(47.1)	3.78 ± 3.04		
Income is equal to expenses	61(44.9)	3.49 ± 2.28	0.01	.995
Income is more than expenses	11(8.1)	3.36 ± 1.86		
Diagnosed with other breast disorders except for breast cancer			**U**	**p**
No	127(93.4)	3.64 ± 2.64	550.00	.849
Yes	9(6.6)	3.33 ± 2.45		
Family members / relatives diagnosed with breast cancer			**U**	**p**
No	108(79.4)	3.56 ± 2.38	1452.00	.745
Yes	28(20.6)	3,82 ± 3,46		

Table 4. Breast Cancer Fatalism Scale

	Items	**Yes**	**No**
1	I believe if someone gets breast cancer it was meant to be.		
2	I believe if someone is meant to get breast cancer they will get it no matter what they do.		
3	I believe if someone is meant to have breast cancer they will have breast cancer.		
4	I believe if someone was meant to have breast cancer it doesn't matter what the doctor tells them to do, they will get breast cancer anyway.		
5	I believe if someone gets breast cancer it is part of God's plan.		
6	I believe if someone gets breast cancer it doesn't matter when they find out about it, they will still die.		

7	I believe if someone has breast cancer it is already too late to do anything about it.
8	I believe if someone gets breast cancer their time to die is near.
9	I believe if someone gets breast cancer that's the way they were meant to die.
10	I believe if someone gets breast cancer a lot of different treatments won't make any difference.
11	I believe if someone gets breast cancer a lot of different treatments won't make any difference.

The comprehensibility of the scale items, compliance with the target population and expert opinions are all used as estimation quality for content validity (Gozum & Aksayan, 2002). Following the translation process, the scale items were presented to 10 nursing academicians to get their opinions in terms of content validity. CVI was determined to be 0.80. This value indicates language appropriateness and cultural adequacy of the items. Next, the scale was applied on a group of 15 people as a pilot study and therefore the comprehensibility of the items were tested.

The internal validity coefficient of the original form of the scale was reported to be 0.89 in a study (Mayo, Ureda & Parker, 2001). Kuder Richardson coefficient is used instead of Cronbach's alpha coefficient in binary data (Sencan, 2005). In this study, KR-20 internal validity coefficient was studied. It was determined in the study that KR-20 coefficient of PFI_{TR} - rPFI was 0.797 and the item total correlations ranged between 0.264 and 0.530. Tavsancıl (2006) reported that the correlation coefficient between each item and total score could be 0.25 at $p < 0.00$ significance level and that it could be considered adequate (Tavsancıl, 2006). It is stated in the literature that a KR-20 coefficient of 0.50 and over is considered reliable when the total number of scale items is 10-15 (Sencan, 2005). The KR-20 coefficient of this study was accepted as reliable.

The average score taken from PFI_{TR} - rPFI, which was determined to be valid and reliable in Turkish language, by the participants was 3.62 ± 2.62 and it ranged between 0 and 11. Powe (1995b) stated in a study that cancer fatalism was common among African-American women with an average age of 66 and that the mean fatalism score was 10. The score obtained by Mayo et al. (2001) was quite close to the fatalism score in this study. In addition, the breast cancer fatalism score in another study carried out by Mayo et al. (2003) ranged between 3.78 and 11. These findings suggest that the breast cancer fatalism in African-American women is similar to that in Turkish culture. However, further studies on breast cancer fatalism after this study thought to be the first on the subject in our country might give more reliable results.

Powe (1995b) stated that there was a negative correlation between fatalism score and education level, and that fatalism score increased as the education level decreased. The mean fatalism scores of the women in this study yielded a statistical significance in terms of education level ($p < 0.05$). As in Powe (1995b), the fatalism scores in this study decreased as the education level increased. Powe (1995b) determined that there was a negative correlation between income level and fatalism score and that there was not a relationship between age and fatalism. In Sperman Rho correlation analysis done in this study, it was determined that there was a positive significant relationship between age and fatalism score ($r = 0.302$, $p = 0.000$). This finding indicated that fatalism score increased as age increased. The fatalism scores did not statistically change in terms of other variables such as marital status, social security, income, whether diagnosed with other breast disorders, and whether family members / relatives were diagnosed with breast cancer ($p > 0.05$).

In parallel with the findings of this study, Mayo et al. (2001) determined that breast cancer fatalism scores increased as the age increased and education level decreased (Mayo, Ureda & Parker, 2001). In addition, in another study by Mayo et al. (2003), it was determined that there was a significant relationship between fatalism scores and age and education level (Mayo & Hunter, 2003). In many studies carried out so far, it has been stated that there is a positive significant relationship between age and fatalism scores (Millon-Underwood, Davis, & Sanders, 1993; Vetter, Lewis, & Charny, 1991).

Conclusion

The breast cancer fatalism scale (PFI_{TR} - rPFI) was found to be a practical measurement tool as a result of validity and reliability analyses.

Limitations of the Study

The findings obtained in this study have limitations in terms of the research participants. The internal validity of the scale can be re-analyzed with different samples. There are very few studies carried out using a scale, and this limits the discussion of results.

Implications for Practice

Testing the scale again in a larger sampling group will increase the reliability and validity of the scale. Breast cancer fatalism perception is an important variable in the development of women's breast cancer early diagnosis behaviors. For this reason, it is recommended that the scale should be used in determining the fatalism beliefs of women.

Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, or publication of this article.

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