

Research Paper

Investigating the Role of Spiritual Health in Health Literacy and Breast Self-examination Awareness Among Female High School Students in Shiraz, Iran



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ABSTRACT

Background and Objectives: This study aims to investigate whether a relationship is observed between spiritual health and health literacy among female teenagers, especially in terms of their attitudes toward breast self-examination.

Methods: This study was a cross-sectional survey. Using multi-stage cluster sampling, 600 female students in grades 10 and 11 were chosen. A standard health literacy questionnaire created by Montazeri et al. and a 20-item spiritual health questionnaire created by Paloutzian and Ellison were used. Data were analyzed using SPSS software, version 22.

Results: Most respondents had moderate health literacy and spiritual health with a positive and significant correlation ($r=0.32$). Health literacy has also been linked to maternal education and lower social class affiliation. Spiritual health was shown to be the vital variable in explaining health literacy in the regression.

Conclusion: The research results showed the importance of spiritual health in health literacy and attitude towards health and preventive behaviors. Policymakers should give much more importance to spiritual health, especially in existential and non-ritual religious forms, in designing preventive interventions.

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Introduction

Breast cancer is one of the most common and preventable malignancies in women all over the world and is especially prevalent in Iran [1]. According to statistics, after cervical cancer, breast cancer has the highest fatality rate among women [1, 2].

Breast cancer is a preventable and early-detectable malignancy that can be effectively treated with early treatment [3] to minimize mortality, increase life expectancy, and improve patients' quality of life.

Monthly breast self-examination is one of the most effective ways to detect breast cancer early [4], and it is the best and easiest way to detect breast cancer due to its convenience and effectiveness. This behavior and similar preventive behaviors in the lifestyle of teenagers can promote public health, and reduce the burden of disease on the social system, and increase the quality of life of people in society, especially in middle and old age [5]. It is for this reason that the institutionalization of behaviors related to health and well-being is the focus of theory and research in public health [6, 7].

Both experience and research demonstrate that a certain level of health literacy is necessary to institutionalize health-related activities [8-10]. According to the definition, health literacy is a broad set of skills and knowledge to receive, process, understand, and use health information [11]. According to Lewis et al. health literacy is an individual's ability to achieve a goal, process, understand basic health information, and provide services needed when making appropriate decisions to provide health care [12]. People with low health literacy know less about disease prevention techniques and participate less in disease prevention programs [13]. People with low health literacy lack sufficient knowledge of health concepts, which limits their understanding of the importance of cancer screening and its benefits. Inadequate health literacy can be a critical obstacle in accepting self-care [14] and preventive activities [15, 16], therefore having sufficient health literacy encourages these behaviors and increases the probability of their completion [17-20]. Many health programs, especially programs that have a preventive approach, consider basic health literacy among the target population as one of the crucial prerequisites for creating and institutionalizing health promotion habits. As a result, one of the research goals of health researchers is to pay attention to the factors affecting health literacy [5, 21].

According to studies, spiritual health is crucial as one of the factors affecting public health [22-28] and health behavior. Spiritual health is to have a sense of acceptance, positive emotions, ethics, and a sense of positive interaction with superior sacred power, others, and self-conscious, cognitive, emotional, action, and personal consequence. [29] Spiritual health consists of two existential and religious dimensions. In the existential dimension, the individual's relationship with himself and the world is considered, and in the religious dimension, the individual's relationship with the superior and transcendent being is crucial. Since humans act in an integrated manner, these two dimensions, while being separate, interact and overlap, and as a result, the feeling of spiritual health, satisfaction, and purposefulness arises. [30] Spiritual health has a lot to do with health as well as health behavior. For example, Williams and Sternthal [31] in a study investigated the various effects of religiosity and spirituality on health in Australia. They demonstrated that empirical data supports the good impact of religious and spiritual activity on a variety of health indicators. The relationship between religiosity and mortality rate reveals that the higher the level of religiosity, the lower the risk of mortality, is the most compelling evidence. Cotton et al. [32] found that spirituality is associated with adolescent health after reviewing numerous studies on religion and spirituality in spiritual adjustment. According to their results, spiritual adjustment and religious decision-making were the situations that had a favorable effect on health outcomes in adolescents in the majority of research. Debnam et al. [33] investigated the relationship between spiritual health and health-related behaviors, such as the consumption of fruits and vegetables, alcohol consumption, and physical activity, and found that the dimensions of spiritual health can strengthen positive behaviors and reduce negative behaviors.

In summary, first, health literacy has a lot to do with health-related behaviors and research shows the level of health literacy in Iran is insufficient, and more efforts should be made [17, 20, 26]. Second, practically, all research on health behaviors in Iran and throughout the world shows that spiritual health has a favorable relationship with health and health behavior [16-19, 22-25, 28, 33]. Third, spiritual health can have a positive and significant effect on health literacy in some situations [26, 34]. Less research has been conducted on the relationship between spiritual health and health literacy. Therefore, the current research has investigated the relationship between these two variables regarding awareness of breast self-examination.

The main research question is what is the relationship between spiritual health and health literacy (about breast cancer) among teenage girls? If health literacy is related to spiritual health, then this factor can be used to institutionalize health-based behaviors in these ages and design preventive programs that will lead to reducing the burden of this disease in the future.

Based on this, the following experimental model was examined in this research (Figure 1).

Methods

The survey method was used in this study. The statistical population of this study included female high school students in grades 10 and 11 in the academic year 2019-2020 in Shiraz City, Iran. According to the Line Table [35] for sampling, with an error of 4%, the required sample size was 583, but considering the possible errors and greater reliability, 600 questionnaires were distributed. Random cluster sampling was used in this study. Eight schools in four educational districts in Shiraz City were randomly chosen, and questionnaires were handed to all students in the 10th and 11th grades. The inclusion criteria included education in the 10th to 12th grades of girls' day high schools in Shiraz City. The exclusion criteria included study in night courses and age over 18 years. In this study, individuals were studied with knowledge of the purpose of the study and with complete satisfaction. The questionnaires were also anonymous and the privacy of individuals was fully respected. The questions were approved by the [General Education Department of Fars Province](#) and presented to the respondents in cooperation with the principals of the schools to which they were referred.

The necessary questions to measure the variables were prepared using standard or researcher-made questionnaires. Health literacy was measured using 12 items from Montazeri et al.'s questionnaire [36], which measures the dimension of decision-making and use of health information. This questionnaire was created and validated by Montazeri et al in 2014 to measure the health literacy of the Iranian urban population. The questionnaire has 33 items and 5 dimensions, including access, reading skills, understanding, evaluation and decision-making, and application of information. The validity of this construct has been measured using the exploratory factor analysis method and its reliability has been measured by calculating its internal correlation coefficient. Cronbach's α coefficient was 0.810 for the whole questionnaire and 0.890 for the dimension of decision-making and use of information used in this research. Panahi et al [37] tested this questionnaire on the student population and found the reliability of the whole scale to be 0.94 and the reliability of the decision-making dimension to be 0.86. In this research, the alpha coefficient of the decision-making and information use scale is 0.86.

Spiritual health was prepared using Palotzian [5] and Ellison's questionnaire [30, 38], which has 20 items and includes subscales that measure spiritual health in two dimensions, existential well-being (EWB) and religious well-being (RWB). The spiritual well-being (SWB) scale asks individuals to rate their responses on a six-point Likert-type scale from (1) strongly agree to (6) strongly disagree. The ten odd-numbered items represent the RWB subscale and measure the degree to which a person perceives his or her SWB expressed about God. The ten even-numbered items represent the EWB subscale and measure the degree to which a person is adjusted to self, community, surroundings, and life overall and can identify meaning and purpose in their life. This questionnaire

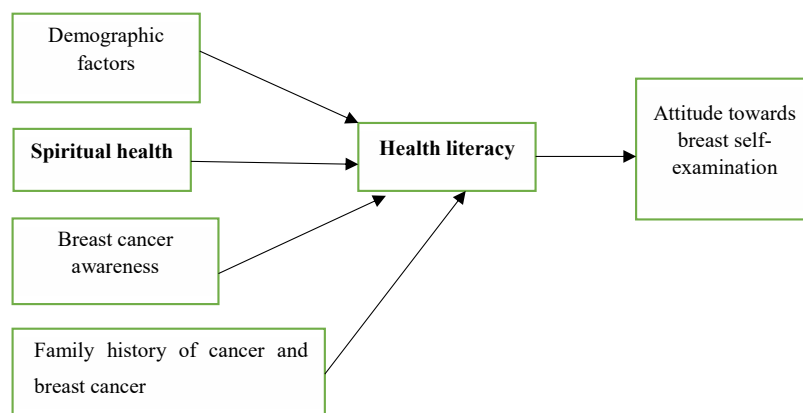


Figure 1. Research model

has been widely used in many research and theses. For example, Dalmida et al used this measure in 2011 [39]. Cronbach's α was obtained in their research for the existential dimension of 0.93, and the religious dimension of 0.96 and the total measure of 0.86. In the present study, Cronbach's α for spiritual health is 0.86.

The researchers designed questions related to demographic variables, attitude towards breast self-examination, family history of cancer, and respondents' understanding of breast cancer. Attitude is defined as readiness for action, that is, readiness for a particular type of activity. The concept of attitude is preparing for a social issue leading to certain positive or negative behaviors and beliefs (willingness to act or unwillingness, interest or disgust) [40]. Attitude toward breast self-examination was measured using 20 items as a Likert scale. Face validity was used to examine the questionnaire's validity, and Cronbach's α statistics were used to test its reliability for the scale. In this study, Cronbach's α coefficients were measured at 0.75 for attitude toward breast self-examination. Class affiliation assesses a person's sense of prestige, wealth, and power. This variable is on the ordinal level and divided into three categories, "high," "medium," and "low." Parents' education indicates the number of years a person has spent in formal education and is measured at the interval level. Family income is the monthly income of the respondent's family. The monthly expense of the respondent is the amount of expenses that the respondent spends on his various affairs during a month. Awareness of breast cancer was asked with a question from the respondent and the history of cancer and breast cancer in particular for the respondent's family were all considered dichotomous variables.

Data were analyzed using SPSS software, version 22. Pearson coefficient, one-way analysis of variance (ANOVA), independent sample t-test, and stepwise multivariate regression were used to analyze the data.

Results

According to the descriptive statistics (Table 1), the average household income is computed at 33.07 million Rials per month and the average years of education for fathers was 12.34 years and the average years of education for mothers was 11.71 years. The average monthly cost of responders is 3.100 million Rials per month. Sixteen percent of respondents identified themselves as members of the lower class, 60.3% of the middle class, and 23.7% of the upper class. The results showed that 82.3% of the respondents received a medium score on the attitude towards breast self-examination scale, which

shows that neither positive nor negative attitudes are more prevalent among female students, which provides a basis for effective interventions. The health literacy of 72% of the respondents and the spiritual health of 70% were at the moderate level.

The Pearson correlation coefficient statistic was used to test the relationship between health literacy and continuous research variables. Table 2 presents the results obtained from this statistic.

The results indicate that health literacy has a relatively strong and significant relationship with spiritual health, implying that the stronger a student's health literacy, the better their spiritual health. Similarly, the more the students' health literacy, the more enthusiastic they are about self-examination as a cancer prevention tool. Due to a correlation coefficient near zero, the results demonstrated that respondents' family income and monthly expenses, were not related to adolescent health literacy. The father's education had no significant correlation with adolescent girls' health literacy, but the mother's education level had a significant correlation with the girls' health literacy at 95% CI. One-way ANOVA and t-test, were employed to compare the mean levels of rank and nominal variables (Table 3).

ANOVA results demonstrated a significant mean difference between distinct groups of class affiliation. The average health literacy of people who consider themselves to be in the upper classes is higher than people who consider themselves to be in the middle and lower classes. People who believe themselves middle class have higher health literacy than people who consider themselves lower class. The results of Tukey's post hoc test revealed a significant difference between the lower and middle classes (Sig=0.047, T=0.047).

An independent sample t-test was used to investigate the mean difference in health literacy in students with and without a history of cancer and breast cancer in the respondents' families. The test results showed that health literacy is not different in those groups. The average health literacy in the groups with a history of cancer, especially breast cancer, in their family was not significantly different from the group that had not experienced the disease in their family. The t-test showed that the health literacy of students who are aware of breast cancer is not different from their uninformed peers.

Stepwise multivariable regression has been used to determine the vital variable affecting health literacy. The dependent variable of health literacy, as well as indepen-

Table 1. Description of variables

Variables	Groups	No. (%)	Mean±SD	
Level of parent's education	Illiterate	7(1.2)	12.34±3.44	
	Father (y)	Up to diploma		393(65.4)
		University degree		200(33.4)
	Mother (y)	Illiterate		3(0.5)
		Up to diploma		457(78.9)
University degree		119(20.4)		
Monthly family income*	<15	69(11.5)	33.07±20.76	
	15-30	337(56.2)		
	31-45	96(16)		
	>45	98(16.3)		
Spiritual health	Low	58(9.7)	71.22±31.78	
	Moderate	422(70.3)		
	High	120(20)		
Monthly respondent cost* (million Rials)	<15	178(29.7)	3.10±0.64	
	15-30	178(29.7)		
	31-45	102(17)		
	>46	142(23.6)		
Class affiliation	Low	96(16)	64.67±10.30	
	Middle	362(60.3)		
	High	142(23.7)		
Attitude toward breast self-examination	Positive	35(5.8)	64.67±10.30	
	Moderate	494(82.3)		
	Negative	71(11.8)		
Breast cancer awareness	Yes	252(42)	24.76±9.76	
	No	348(58)		
Health literacy	Low	79(13.2)	24.76±9.76	
	Moderate	436(72.7)		
	High	85(14.2)		

*Per million rials.

Table 2. Pearson correlation coefficient between health literacy and other variables

Variables	r	P
Spiritual health	0.320	<0.001
Attitude towards self-examination	0.237	<0.001
Family income	0.004	0.916
Adolescent cost	0.004	0.952
Father education (y)	0.076	0.062
Mother education(y)	0.096	0.019



dent variables, such as spiritual health, attitude toward breast self-examination, parents' education, parents' income, and adolescents' monthly expenses, class affiliation (which has become three dichotomous variables). [Table 4](#) presents the regression model in the fifth phase.

Spiritual health is included in the equation as the variable that explains the largest variance in health literacy, as seen in [Table 4](#). The attitude toward breast self-examination is entered into the equation next. The next factors being included in the equation are maternal education and breast cancer awareness. The next variable in the equation was low-class affiliation. The last variable is given a negative coefficient in the equation, indicating that it lowers health literacy. The variables in the equation accounted for 16.5% of the total variance in health

literacy, with other factors not examined in this study accounting for the remaining variance in teenage girls' health literacy.

Discussion

The results showed that respondents' health literacy and spiritual health levels were intermediate, with just a small percentage having high health literacy. More than 80% of respondents have a moderate attitude about breast self-examination. This result suggested that taking the right steps with adolescent females can have a favorable impact on their attitudes toward this important health-related practice. The stronger the adolescent's health literacy, the more favorable their attitude toward self-examination is. These results are consistent with the

Table 3. Results of one-way ANOVA and t-test for class affiliation, cancer history, and health literacy

Class Affiliation		No.	Mean±SD	SE	F	Sig. F/T
High		142	25.464±9.986	0.838	3.303	0.037
Average		362	25.096±9.685	0.509		
Low		96	22.447±9.476	0.967		
Sum		600	24.760±9.762	0.398		
Cancer history in the family	Yes	168	23.666±10.147	0.782	1.671	0.096
	No	432	25.185±9.586	0.461		
Breast cancer history in the family	Yes	81	26.296±10.926	1.214	-1.525	0.128
	No	519	24.520±9.557	0.419		
Breast cancer awareness	Yes	252	25.996±10.001	.630	-2.652	0.008
	No	348	23.864±9.499	0.509		



Table 4. Results obtained from the last step of stepwise multivariate regression of health literacy

Variables	R	R ²	B	Beta	T	Sig. T
Spiritual health	0.320	0.103	0.21	0.30	7.9	0.000
Attitude towards self-examination	0.385	0.143	0.23	0.21	5.71	0.000
Mother education	0.40	0.153	0.26	0.09	2.27	0.024
Awareness of breast cancer	0.410	0.16	1.82	0.09	2.46	0.014
Low-class affiliation	0.415	0.165	-2.13	-0.08	-2.12	0.034

F=21.86, Sig F=0.000



results of other research linking health literacy [22, 24, 26, 29] and spiritual health [23, 25, 28, 31, 32] to health-related activities. The inferential results supported Padehban et al [26] and Zadeahmad et al.'s [41] results that spiritual health has a positive and significant relationship with health literacy, and these two variables reinforce each other. Spiritual health had the strongest connection with health literacy among the examined factors in multivariate analysis, indicating the importance of this variable. Spirituality strengthens the meaning of life, having a purpose, and proper relationship with oneself, others, and the world; therefore it can affect the quality of life, health, and encouragement to achieve health literacy. Considering the current atmosphere of Iranian society, in which religiosity in its ritual form [42, 43] has been dramatically reduced, emphasizing the non-ritualistic aspects of religion and spirituality can maximize the effect of spiritual health on health literacy and public health. The strong relationship between health literacy and spiritual health showed that having meaning in life and feeling connected to a higher reality can provide more motivation to maintain health and increase the pursuit of health-related information and its use (health literacy). To improve the attitude towards preventive behaviors and in this way lead to the improvement of public health.

Only the amount of maternal education demonstrated a significant and weak relationship with health literacy among the contextual variables, while class membership has been linked to increased health literacy focusing on the middle class. This statistic has also been influenced by maternal education. These relationships showed the high importance of mother's education in children's health literacy. There is no doubt about the role of mothers in the family and shaping the healthy lifestyle of children, and the results of this research, have shown its health through education and increasing literacy.

In the regression equation, breast cancer awareness has raised health literacy while lower class affiliation has decreased health literacy. Knowing the existence of disease symptoms does not imply greater health literacy. According to the definition, health literacy refers to one's ability to apply knowledge; nevertheless, without knowledge, no material can be transformed into attitudes or behaviors.

Conclusion

The results of this research showed that more emphasis on preventing and institutionalizing preventive behaviors can be done in low-cost and community-oriented ways by using people's potential under the guidance of experts, and the spread of religious and non-religious spiritual values can be a good companion for it.

The results demonstrated that cancer awareness is associated with a greater level of health literacy. As a result, raising health literacy and a positive attitude toward habits that promote health and prevent severe diseases, such as breast cancer can be quite successful. In Iran, the health system's educational measures are few, and the results of this research also indicate that the health literacy of the students is not very high; therefore, non-governmental organizations working in the fields of health and education should be supported more by the health system. Effective interventions cannot be performed without the collaboration of all sectors of the social system. The relationship between maternal education and adolescent girl health literacy demonstrated that the more we stress women's empowerment in society, the better the results will be in the field of health. Expanding women's education on a big scale, as well as enhancing women's health literacy benefits not just their health but also the health of their families and society.

Finally, the results showed that being in a lower socioeconomic class is associated with a lower level of health literacy. Undeniably, a health disparity is observed between the upper and lower classes. Iran is one of the most successful countries in the Eastern Mediterranean region, with a leading health system; however, this does not remove societal inequities in health metrics. In addition to geographical inequalities that demonstrate the value of health services in different sections of the country, health professionals should also consider class inequalities. When we pay special attention to the health of the poorer classes, and we compensate for their lack of resources by providing greater national resources, justice in health is more achieved.

This research has investigated the attitude and awareness towards breast cancer and breast self-examination but did not consider the extent of self-examination practice. Future research can measure the effect of spiritual health and health literacy on actual self-examination practice.

Ethical Considerations

Compliance with ethical guidelines

Answering the questionnaire was completely voluntary for the respondents and the respondent could withdraw from participating in the research at any time. All questionnaires were completed anonymously and the results were analyzed collectively. All the mentioned cases were explained orally before distributing the questionnaire in the class and oral consent was obtained from the participants. After completing the data entry into the software and data filtering, the questionnaires were destroyed.

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Authors' contributions

Conceptualization: Majid Movahhed; Writing the manuscript and analyzing: Maryam Soroush; Developing the theory: Marzie Baneshi and Maryam Soroush.

Conflict of interest

The authors declared no conflict of interest

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