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Original Article

The mediating role of psychological resilience, and social support on the relationship between spiritual well-being and hope in cancer patients

Zinat Mahdian [1]; Majid Ghaffari [2*]

[1] *MA. student in general psychology, Ayatollah Amoli Branch, Islamic Azad University, Amol, Iran*
[2] *Assistant professor of psychology, University of Mazandaran, Babolsar, Iran*

Abstract

Introduction: Although cancer affects the person's mental health, sense of disappointment and lack of hope seem to be the most major problem for the patient at the time. The main purpose of this study was to investigate the effects of spiritual well-being, psychological resilience, and perceived social support on hope in cancer patients.

Materials and Methods: In this descriptive-analytical study, among women with cancer aged between 17 and 75 years old who referred to Baqban treatment center of Sari, 198 women with cancer diagnosis were selected through convenience sampling method. All participants were asked to complete the Spiritual Well-Being Scale, Ahvaz Hardiness Scale, Multidimensional Scale of Perceived Social Support, and Snyder's Hope Scale. Data analysis was performed using descriptive statistics, SPSS software version 22.0 and Amos-20.0 statistics package.

Results: Using structural equation modeling, the results showed that the direct (P=0.001), and indirect (P=0.016) effect of spiritual well-being on hope was positive and significant.

Conclusion: In women with cancer disease, the positive effect of spiritual well-being on hope can be explained through the mediating role of psychological hardiness and perceived social support.

Keywords: Cancer, Hope, Psychological, Resilience, Social support, Spirituality, Well-being

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Introduction

With over 100 types of virulent tumors, cancer can emerge among people of all ethnic groups, races, ages, genders, and socio-economic strata. In fact, all human beings are prone to catching this disease, in a way that it is the second cause of death in developed countries, and the fourth in developing countries (1). Due to the chronic nature of cancer, the patient has to accept a long-term treatment with chemotherapy drugs. Several times of hospitalization halt the patient's natural life and the side-effects of chemotherapy prevent him/her from enjoying different aspects of life.

Meanwhile, hope makes people capable of seeing their current conditions and pains with a broader view (1). Positive effects of hope on physical and mental health have been confirmed in different studies. For instance, the positive correlation of hope with positive emotion and sense of self-value and self-respect, and its negative correlation with depression and generally with negative emotion is shown (2). Although cancer affects the person's mental health, sense of disappointment and lack of hope seem to be the biggest problem for the patient at the time (3). According to some studies, cancer seems to have the greatest impact on hope compared with other chronic diseases (4). Most of the reports on hope are about patients suffering from cancer, because this disease is a factor that threatens hope. It is thus important for patients with cancer and their relatives to deal with a type of psychotherapy that focuses on hope as the main target for change. Patients with different levels of hope, from total disappointment to hope in different stages of the disease, expect anything, even miracle, in their treatment, and are willing to move forward based on their own predictions. Hope is an important mechanism in chronic diseases including cancer, and it is defined as a complex multidimensional and

***Corresponding Author:** Department of psychology, University of Mazandaran, Babolsar, Iran
m.qaffari@umz.ac.ir
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strong factor in recovery and effective compliance (5). Support from others, religion, accepting the disease, personality, self-awareness, and understanding one's situations toward others in the best way possible are among the factors that contribute to the increase of hope in patients (6); in a way that these people can make better use of compliance resources (7). Hope, physiologically and emotionally, helps patients tolerate the disease, and is known as an effective factor in predicting the trend of serious diseases (8). On the contrary, disappointment is defined as bearing a situation in which one cannot believe achieving any goal, and is associated with depression, wish for death, and suicide (8). Hopeful thinking and cancer are related to each other in two ways. First, hopeful people are more focused on reality and are more active in resolving the issue. There are more likely to undergo cancer screening procedures such as mammography, and show less distress and more compliance when faced with the diagnosis and treatment of cancer (9). During the treatment, hopeful patients show more resistance in tolerating long and severe treatments and the side-effects of chemotherapy or radiotherapy, and are more likely to pursue their treatment. These patients more easily cope with the side-effects of their treatment, including hair loss, overweight, exhaustion, and nausea, and if their disease regresses, they are more likely to think of additional treatments (10). In the recovery stage, hopeful people have more positive thoughts about their lives, and are more inclined toward identifying the positive aspects of traumatic situations (11).

One of the factors that create hope in people is the existence of meaning in life (1). Spiritual well-being is one of the aspects of spirituality. Spiritual well-being can be defined as sense of having relationship with others, having meaning and goal in life, and having belief and being related to a superior power (12). Spirituality has been recently studied by many researchers, and its definition has caused a controversy among them. In a comprehensive definition, spirituality involves many constructs including religiosity, participation in religious gatherings, religious and spiritual teachings, religious coping, and spiritual well-being (13). A practical definition of spiritual well-being was first presented by Moberg and Bruseck (12). They believe that spiritual well-being consists of two dimensions. The first dimension is religious well-being and is associated with one's connection to a superior power in a particular system of religious beliefs, and the second dimension is existential well-being, which is when someone feels his/her life is meaningful and targeted. Spiritual well-being includes a psychological-social and a religious element. The religious well-being - which is the religious element - is a sign of connection to a superior power, that is God, and existential well-being - which is the psychological-social element – is when one feels who he is, what he does and why, and where he belongs to (14). Both religious well-being and existential well-being include transcendence and moving beyond oneself. The religious well-being dimension guides us toward God, while the existential well-being dimension moves us beyond ourselves and toward others and our surrounding. Since human acts as an integrated system, these two dimensions-though separate from each other-interact with and overlap each other, and thus we feel spiritually healthy, satisfied, and targeted (14). Spiritual well-being is a state of health that indicates the positive feelings, behaviors, and understandings of one's relationship with self, others, nature, and the superior existence (15). Spiritual well-being creates a coordinated and integrated relationship between people, and is characterized by stability in life, peace, appropriateness and harmony, sense of close relationship with oneself, God, society, and the environment. When spiritual well-being is endangered, it is possible that one suffers from psychological disorders such as sense of loneliness, depression, and loss of meaning in life, which per se can disrupt compliance in life, especially one's eternal existence (16). The results of 350 studies have shown that people with spiritual well-being have healthier lifestyle, are more hopeful, enjoy more mental stability, and are more satisfied with their life (17). According to the literature, spirituality is a strong predictor of hope and mental health (18,19). Spirituality is associated with psychological and medical syndromes and is effective in the improvement of syndromes (20). Spirituality is thus associated with valuable consequents of life that are positive, make people happy, and reinforce "hope to the future" in people (20). Spiritual health is very effective in disappointment and the end of life in patients diagnosed with cancer. It is even possible that spiritual and religious comfort is more important than physical health for those patients who are on the final stages of their disease. Therefore, the present study supposes the spiritual well-being variable as a predictor of hope in patients with cancer.

Kobasa (21) considers hardiness as a personal characteristic that function as resistance resource

and protective shield in the encounter with stressful life events. Using existential theories in personality, he defines hardiness as a constellation of beliefs about self and the existing world that consists of three components of commitment, control, and challenge, and is at the same time a single structure which originates from the integrated and coordinated action of these three interrelated components. Commitment is mixed with many aspects of life including family, occupation, and interpersonal relations, which causes one to find out the meaning and goal of life. Control is a belief that one can predict and control life events and their consequences or even change them. Finally, challenge is the belief that change is a normal aspect of life, and positive or negative states requiring re-compliance are not a threat to one's security and comfort, but they are opportunities for further growth and learning (22). Psychological hardiness increases one's self-esteem and thus raises their resistance to mental stresses (23). Studies have shown that psychological hardiness is associated with hope (24). There is a positive and significant correlation between psychological hardiness and life expectancy, and in stressful conditions, those with more hardiness would have more mental health compared with those with less hardiness (24). In the present study, therefore, psychological hardiness is supposed to be a mediator in the relationship between spiritual well-being and life expectancy.

In patients with cancer, getting support from others functions as a shield against the adverse consequences of the disease and its therapy, and is strongly related to the patient's psychological performance (25). Social support in stressful situations seems to function as a protective shield that prevents the emergence of psychological symptoms or reduces their severity (26). The tangible response that one receives from others is defined as social support (27). These responses can take the form of confirmation or the recognition of one's valuable actions and the confirmation of one's attitudes by others. Social support, as the strongest factor in the successful and easy encounter with cancer and stressful conditions, makes it easier for patients to tolerate the problems (27) and by playing an intermediary role between the stressful factors of life and physical problems, improves the quality of people's lives (27). According to some reports, the strongest and most stable predictor of following therapeutic instructions is family support for the patient (28). Social support is directly related with hope and, thus the increase of social support leads to an increase of hope (29). A main variable in the definition of hopefulness in patients with cancer is receiving support from family, friends, and those survived from cancer (29). A two-stage study examined the predictors of adjustment and the pains of chemotherapy in women two years after being diagnosed with cancer. Its findings indicated that social support and religion's cognitive strategies are adjusting factors in recovery, acceptance, adjustment, and reduction of exhaustion and distress in patients (29). In addition to physical health, most studies have dealt with the relationship between social support and mental health, and have supported the evident impact of perceived social support on mental health and comfort (30). An analysis of the impacts of social support and religiosity as methods of compliance with anxiety indicates that higher levels of social support are correlated with lower levels of anxiety, and the greatest impact of religiosity in the decrease of anxiety was through social support, which shows the intermediary role of social support (31). Given the significant role hope plays in the improvement of life quality and acceptance of therapy in patients diagnosed with cancer, this study was aimed to examine the influencing factors on patients and the relationship among spiritual well-being, psychological hardiness, perceived social support and hope. In this study, it is assumed that psychological hardiness and perceived social support mediated the effect of spiritual well-being on hope.

Materials and Methods

In the present study, the conceptual model of the relationships between spiritual well-being, psychological hardiness, social support, and hope was tested through covariance-based structural equation modeling. Mean and standard deviation were used for presenting the scores obtained from variables. The reliability of the instruments was estimated through Cronbach's α coefficient (32). Relative chi-square statistic (χ^2/DF), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), and the Root Mean Square Error of Approximation (RMSEA) were used to investigate the fit indices of the conceptual model. In an acceptable model the NFI, GFI, and CFI should be more than 0.90 (33), and the RMSEA is less than 0.08 (34) and ideally less than 0.05 (35). The relative chi-square should be less than 2 or 3 (36,37).

The research population includes all female patients diagnosed with various types of cancer in Baqban Specialty and Subspecialty Medical

Complex in the year of 2014 in Sari, Iran. In order to test the research hypothesis, two hundred and ten patients were selected using convenience sampling method. Passing at least a month from the diagnosis, the minimum level of the end of elementary school and minimum age of 15 were considered as inclusion criteria. After omitting the defective questionnaires and also outliers, the sample was reduced to one hundred and ninety eight people. The researcher made arrangements with the university and the medical complex to provide descriptions and asked the physician to cooperate. Research instruments were compiled into a booklet. In a short note at the beginning of the test booklet, participants were provided with certain information about the research nature, the policy to keep the answers confidential, and the voluntary nature of participation. Volunteer patients filled in questionnaires while waiting for their appointment.

Research instruments

- *Snyder Hope Scale:* Snyder's 12-item hope scale (38) is designed for the age of 15+ and includes two subscales of pathway and motivation. A short period of time (2-5 minutes) is enough for its administration. Pathway is a cognitive component of hope and an indicator of one's ability to create reasonable ways to achieve one's goals, and motivation is the motivational component of hope and an indicator of one's perception of one's ability to create reasonable ways to achieve one's goals in the past, at present, and in the future (38). A Likert-type scale from 1 (completely false) to 4 (completely true) is considered for answering each item. Items 5, 7, 11, and 3 are not scored and are related to distraction. Items 1, 4, 6, and 8 are related to pathway subscale and items 2, 9, 10, and 12 to motivation subscale. Hope score is the sum of these subscales. Therefore, total scores can range from 8 to 32. Studies have reported suitable psychometric characteristics for this scale (38). The psychometric properties of Snyder's hope scale were approved in Iran and Cronbach's alpha coefficient was calculated 0.89 (39). In this research, the reliability of hope scale was estimated using Cronbach's alpha coefficient for the whole scale and for pathway and motivation subscales to be 0.81, 0.78, and 0.82, respectively.

- *Spiritual Well-Being Scale:* The scale was developed for the psychometric assessment of one's perception of spiritual well-being (40). This 20-item self-assessment scale includes two religious well-being (RWB, odd items) and existential well-being (EWB, even items) subscales. The RWB subscale assesses the quality of one's perception of spiritual well-being in one's relationship with God, and the EWB subscale is considered as the socio-psychological dimension assessing the quality of one's adaptability with oneself, the society, and the environment. Items are answered based on a Likert-type scale in 6 levels (from 1 – completely agree to 6 – completely disagree). Minimum score is 20 and maximum is 120, which is estimated by summing up all the scores. Items 1, 2, 5, 6, 9, 12, 16, and 18 are reverse scored. SWBS reliability coefficients and its subscales were estimated to be 0.87 for the whole scale, 0.84 for the existential well-being, and 0.84 for the religious well-being (13). An analysis of the construct validity of SWBS using confirmatory factor analysis showed a good fitness index for the Persian version of SWBS (14). In this research, Cronbach's alpha was used to estimate SWBS reliability and EWB and RWB subscales, which were found to be 0.82, 0.82, and 0.80, respectively.

- *Ahvaz Hardiness Questionnaire:* This scale was developed and validated by Kiamarsi (41) and includes 27 items. Each item has four choices including Never, Rarely, Sometimes, and Often. These choices are scored as 0, 1, 2, and 3, respectively. Reliability of the scale was reported to be 0.84 using test-retest methods (41). In this research, Cronbach's alpha of 0.78 indicated the desirable reliability of the scale.

- *Multidimensional Scale of Perceived Social Support:* Multidimensional Scale of Perceived Social Support (42) is composed of 12 items measuring the three components of perceived support from family (4 items), perceived support from important others (4 items), and perceived support from friends (4 items). All items in this scale were rated based on a 5-point Likert-type scale (totally agree, agree, neither agree nor disagree, disagree, totally disagree). Internal consistency of items in the social support scale was calculated to be 0.91, 0.89, and 0.91 using Cronbach's alpha method (43). The result of Bruwer et al. study examined the psychometric properties of the Multidimensional Scale of Perceived Social Support using confirmatory factor analysis demonstrated that three factors (significant others, family and friends) structure are of an acceptable fit to the data (44). In an Iranian sample, Cronbach's alpha for the whole scale and the subscales of perceived social support from family, significant others, and friends were estimated to be 0.89, 0.84, 0.85, and 0.91, respectively (45). In this research, Cronbach's alpha for the whole scale and the subscales of perceived social support from family, significant others, and friends were estimated to be 0.85, 0.78, 0.81, and

0.87, respectively.

Results

The average age of the participants in this study was 45.18 years old (SD=11.71) (range of age=17-75 year). 92% of the participants were married and 8% were single. Furthermore, 132 participants (65%) were high school diploma and lower, 63 people (33%) had an associate and bachelor's degree, and 4 of them (2%) were master's degree holders. Table 1 demonstrates the mean and standard deviation of research variables and the correlation coefficients matrix among them. Using maximum likelihood estimation in AMOS 20.0 and bootstrapping procedure [bias-corrected (BC) confidence intervals (CI) and 5000 bootstrap samples] to assess mediation through examining specific indirect effects within the model (46), fitting of the proposed conceptual model of this study showed good overall indexes (Fig 1). Since the d^2 values were not distinctively apart (47), multivariate outliers were not a problem.

Table 1. Mean, standard deviation and the correlation coefficients matrix

Variable	1	2	3	4	5	6	7	8	9	10	11
Religious well-being	1										
Existential well-being	.53**	1									
Spiritual well-being	.87**	.88**	1								
Psychological hardiness	.29**	.51**	.46**	1							
Support-significant others	.18*	.27**	.26**	.36**	1						
Support- Family	.25**	.40**	.37**	.35**	.63**	1					
Support-friends	.08	.26**	.20**	.32**	.36**	.40**	1				
Perceived social support	.20**	.38**	.33**	.43**	.78**	.80**	.81**	1			
Pathway	.22**	.46**	.39**	.46**	.32**	.33**	.39**	.44**	1		
Motivation	.11	.47**	.34**	.61**	.29**	.33**	.38**	.43**	.56**	1	
Hope	.18**	.52**	.41**	.62**	.34**	.38**	.43**	.49**	.84**	.92**	1
Mean	46.23	38.92	85.15	77.11	16.30	16.83	14.58	47.73	15.68	15.71	31.40
Standard deviation	6.70	7.04	12.02	10.45	2.67	2.70	3.93	7.43	2.18	2.93	4.52

**P<0.01, *P<0.05

As presented in Table 1, all the correlation coefficients but the one between perceived social support from friends and religious well-being (r=0.08, P=0.22) and also motivation and religious well-being (r=0.11, P=0.12) are significant. The results related to fitting indexes and direct standard coefficients are presented in Figure 1.

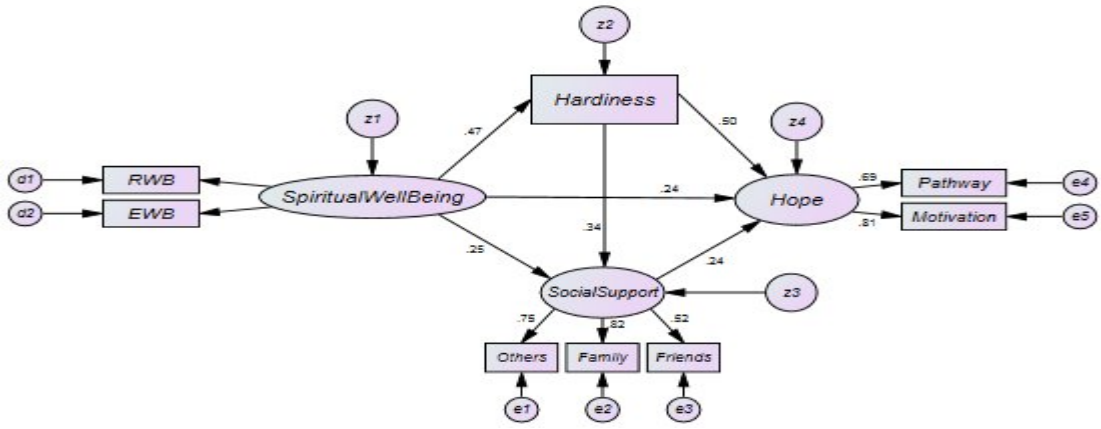

Figure 1. The direct standard coefficients of the conceptual model of the relationships between spiritual well-being, psychological hardiness, perceived social support and hope

Note: x^2/DF=2.49, P=0.01, GFI=0.95, CFI =0.96, NFI=0.93, RMSEA=0.07, Hoelter's index=161 at 0.01 level

Based on the presented information on Figure 1, spiritual well-being has direct positive effects on psychological hardiness (0.53, P=0.001), perceived social support (0.25, P=0.013) and hope (0.34, P=0.009). Also, the direct effect coefficients of psychological hardiness on the perceived social support (0.34) and hope (0.50) were significant (P=0.001). Also, the direct effect coefficient of perceived social support on hope (0.24) was significant (P=0.001). The estimate of indirect and

total effect coefficients was reported in Table 2.

Table 2. The indirect and total effects of the mediation model of the relationships between spiritual well-being, psychological hardiness, perceived social support and hope

Variable		Effect	
Predictor	Criterion	Indirect	Total
SWB	PH	-	0.47
SWB	PSS	0.16	0.41
SWB	HO	0.33	0.57
PH	PSS	-	0.34
PH	HO	0.08	0.58
PSS	HO	-	0.24

Note: SWB=Spiritual Well-being, PH=Psychological Hardiness, PSS=Perceived Social Support, HO=Hope

The results of the bootstrapping procedure indicated that the indirect effect coefficients of spiritual well-being on perceived social support [0.16, BC 95%, CI (0.07, 0.29), *P*=0.002] and hope [0.33, BC 95%, CI (0.22, 0.48), *P*=0.001] were significant. The indirect effect coefficient of psychological hardiness on hope [0.08, BC 95%, CI (0.01, 0.22), *P*=0.002] was significant as well. Findings associated with the total effects showed that the spiritual well-being has a positive effect on psychological hardiness [0.47, BC 95%, CI (0.27, 0.62), *P*=0.001], perceived social support [0.41, BC 95%, CI (0.21, 0.59), *P*=0.001] and hope [0.57, BC 95%, CI (0.37, 0.74), *P*=0.001]. The total effect coefficients of psychological hardiness were significant on perceived social support [0.34, BC 95%, CI (0.12, 0.53), *P*=0.005] and hope [0.58, BC 95%, CI (0.40, 0.73), *P*=0.001]. According to Table 2, the total effect coefficient of perceived social support on hope [0.24, BC 95%, CI (0.03, 0.48), *P*=0.022] was significant too. The aforementioned model explained 64% of the variance of hope (through spiritual well-being, psychological hardiness and perceived social support), 22% of the variance of perceived social support (through spiritual well-being and psychological hardiness) and 26% of the variance of psychological hardiness (through spiritual well-being).

Discussion

In this study, a conceptual model of spiritual well-being, psychological hardiness, perceived social support and hope were tested in female patients with cancer. The presented results state the fitting of proposed conceptual model with the data. In general, it can be said that hope can be explained in female patients with cancer through direct and indirect effects of spiritual well-being (through the mediating role of psychological hardiness and perceived social support), the direct and indirect effects of psychological hardiness (through the perceived social support) and the direct effect of perceived social support. The proposed conceptual model explained 64% of the variance of hope through spiritual well-being, psychological hardiness and perceived social support. In line with the findings of this study, it was reported that spirituality is a strong predictor of hope and mental health (18,19). Since the spiritual well-being provides coordinated and integrated relationships among people and is defined by the properties of stability in life, peace, balance and coordination, feeling close to oneself, God, society and the milieu (16), we can say that it can be related to psychological issues such as loneliness, depression and also loss of meaning in life. Hence, it has a direct effect on compatibility in life, especially on one's sterna life. It is particularly reported about the relationship of the spiritual/religious variables that healing of the property of spirituality is related to decrease and alleviation of medical and psychological symptoms and it leads to reinforcement of hope (20). Findings reported that the religious and spiritual comfort may be more important than physical health for patients with cancer who are in the last stage of the disease (20). Another explanation about the positive effect of the spiritual well-being on hope is its important role on the adjustment and coping with stressful situations. According to some reports, patients who apply positive coping techniques in their daily lives such as forgiveness, munificence, seeking spiritual connection with God, friendship with religious people, receiving spiritual-social support, hope, and knowing God as benevolent and compassionate to some extent have stronger religious beliefs, recover faster and have better mental health (28). In this regard, the findings have suggested that spiritual/religious beliefs lead to the use of religious coping in stressful situations (49). In explaining the spiritual well-being and its positive effect on psychological hardiness since it is a personality trait when faced stressful life events and acts as a source of strength and shield (21), it can be inferred that through the formation of a purposeful valued and meaningful system based on trust on God's decision and his wisdom (as omniscient), spiritual well-being launches a spiritual/religious coping. Thus, it leads to an increase of coping ability and psychological hardiness (commitment, control and challenge). So, it is not so far-fetched that commitment, control and challenge (as spiritual well-being consequences)

leads to an increase resiliency and hope in people, especially during the fight with an incurable disease. Previous studies have also linked psychological hardiness to self-esteem, resistance to stress (23), hope (24) and better mental health in stressful situations (24). In fact, meaningful system of spiritual well-being makes people with higher levels of hardiness apply coping techniques that are more compatible in dealing with life's problems, and believe that life events are predictable and controllable, and they can influence whatever happen around them with effort. Accordingly, they do not consider changes in life as threats to their safety.

It is also stressed that one of the differences between religion and spirituality is that religion includes a specific set of beliefs in a particular religion and membership in religious communities and participation in religious rituals in which a sort of social support is created for individuals (48). The relationship between religion and social support was reported in some studies (49). So, it can be explained that given the formation of social networking, religion plays a social support type of role about mental health. And, the essence of members of the worship groups to some extent can be a source of means and psychological support.

On the other hand, alongside the positive role of spiritual well-being on social support, the findings suggest that hardiness people tends to have strong interpersonal communication with those who are more active and decisive and have a desire of being close around the ones with high hardiness (50). Hence, it can be explained that psychological hardiness (as a consequence of spiritual well-being), leads to higher levels of positive thinking and interpretation based on challenge (not threat) of stressful situations. So, in order to find efficient solutions, individuals are more likely to attract to others' support, especially other persistent ones. The significance of these findings is that receiving support from others is like a shield against negative consequences in treatment of cancer patients and therefore has strong association with their adjustment (25). Also, some studies reported that for women with cancer, perceiving support from family, friends and those who have survived cancer, are the key predictors of hope (30). Therefore, it can be said that psychological hardiness mediated the positive effect of spiritual well-being on perceived social support. Also, the perceived social support leads to adoption of functional strategies to tolerate suffering alongside with modifying the cancer patients and their family's life style, and therefore is a great help to cope with the disease (51). So, it can be said that perceived social support can mediate the positive effect of spiritual well-being and its consequence (psychological hardiness) on hope. In generalizing the findings of this study, it should be noted that it was a cross-sectional one and the data was collected at a specific point; the research community as well as the sample size are limitations of this study. To measure the variables a self-report technique was employed and questionnaires were used to collect intended data. So, employing only one measurement technique (instrument) can be one of the limitations of this research. Furthermore, variables such as personality traits, religious coping, and socio-economic status and so on are suggested for future research in this area. The theoretical basis of this study can be used by other researchers to suggest and test several hypotheses. In other words, being a fundamental research it may be the source of other ones. Due to the fact that the structure of spiritual well-being is very close to Iranian cultural and religious beliefs, research in this area can have an important role in explaining psychological problems during treatment of incurable diseases in Iranian culture. Further research could employ targeted sampling considering different developmental periods. The findings of this study could be used in giving consultation to cancer patients and their families. Finally, using this research is recommended as an educational-medical topic for physicians and psychiatric nursing.

Conclusion

It seems that the positive effect of spiritual well-being on hope can be explained through the mediating role of psychological hardiness and perceived social support in female patients with cancer.

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