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Original Article

Relationship of Hardiness Components to General Health, Spiritual Health, and Burnout: The Path Analysis

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Abstract

Objective: Acknowledging the key role of hardiness, importance of health and its various dimensions, the present study aimed to investigate the simultaneous relationship between hardiness components and spiritual health, burnout, and general health, among Baqiyatallah University of Medical Sciences staff.
Method: 307 Baqiyatallah University of Medical Sciences' staff in Tehran with at least five years work experience participated in this cross-sectional study using simple random sampling. Four questionnaires were used to evaluate the participants: the 28-item General Health Questionnaire (GHQ) to assess general mental problems with four subscales, 22-item Maslach Burnout Inventory (MBI) with two aspects (frequency and intensity) and three subscales of emotional exhaustion, depersonalization and personal accomplishment, the 20-item Spiritual Well Being Scale (SWBS) Questionnaire with two subscales of religious well-being and existential well-being and the 50-item Kobasa Hardiness Questionnaire to measure psychological hardiness with three subscales of control, commitment and challenge. At the end, two conceptual models which have shown effect of hardiness and its subscales on general health, Spiritual health and burnout were evaluated by path analysis.
Results: According to the path analysis results, it was found that hardiness and its subscales, which were approved by univariable and multivariable analyses, had significant relationship with general health (direct effect: -0.525, $P < 0.001$), spiritual health (direct effect: 0.555, $P < 0.001$) and burnout (direct effect of frequency aspect: -0.523, $P < 0.001$). Thus, by increasing hardiness and its subscales, spiritual health increases while symptoms of illness and burnout decrease.
Conclusion: Spiritual health increases as hardiness and its subscales increase as well; therefore, symptoms of illness and burnout decrease as hardiness and its subscales increase.

Key words: *Mental Disorders; Professional Burnout; Spirituality; Surveys and Questionnaires*

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According to advances in medical sciences and health-related fields, definition of health has currently undergone many changes in expanding societies. Indeed, health is not just absence of disease, but definition of health and well-being emphasizes quality of human life. One of the variables recently considered by many psychologists is psychological hardiness, or alternatively referred to as personality hardiness. Psychological hardiness is a concept which roots in existential philosophy and demonstrates a sense of commitment to self and work and a genuine interest in and curiosity about the surrounding world as well. Hardiness as a multi-faceted personality structure consisting of three components; commitment, control, and challenge (1). When we compare hardy people, we recognize that they feel more committed to themselves and their work and experience greater sense of control in their lives; they view changes and hardships in life as a challenge rather than a stressor. There is ample evidence to suggest that hardiness is positively associated with physical and mental health and moderates negative effects of stress (2). In defining general health, two major approaches should be emphasized and each has played a complementary role to other perspectives. In the first approach, health means absence of illness or disability. Accordingly, true health means prevention of disease and abnormality. Hence, if one does not experience cognitive or physical problems, he is a healthy human being. However, the second approach, according to adoption of the WHO Code of Conduct, emphasizes the concept of well-being and positive quality of life. In this approach, in addition to absence of illness or disability, health is viewed as a positive concept emphasizing the biological well-being and other broad positive social, political and economic factors (3, 4, 5).

One of the other health dimensions in the new WHO definition is spiritual health. Spiritual health, as one of the dimensions of health, integrates the other aspects of health and encompasses both existential and religious dimensions (6). Spiritual health has been defined as a connection of the person with self, others, nature, and a superior power which is attained through a dynamic and coherent growth process. It can lead to understanding the ultimate purpose and meaning of life. People with spiritual health are stronger and enjoy more control and social support. Besides, they have adaptation ability to spiritual stresses; therefore, they can cope with emerging problems and crises. On the other hand, with loss of spiritual health, one may experience depression, feel lonely and loss of meaning in life (7).

As many people usually spend a significant portion of their time at their workplace, workplace issues affect their lives. Work is considered a very important source of livelihood and social status. However, it can cause mental and physical impairment because the workplace is full of various physical, psychological, and social stimuli that can affect one's life and health. Numerous studies have emphasized the role of different factors as well as the two-way relationship between workplace health and personal health. Burnout is one of the variables that relates to health. The phenomenon of burnout is an inevitable part of work which arises from experiences gained from work. It causes dissatisfaction in the employee and as a result has many negative effects on job performance. Burnout, as a concept that has been studied extensively, occurs due to chronic stress on the job and has three dimensions including emotional exhaustion, depersonalization, and reduction in personal accomplishment (8).

Abdollahi and Abu Talib studied 450 individuals with substance abuse seeking treatment at 10 addiction treatment centers in Tehran, and they used structural equation modeling. The results showed that spiritual health and hardiness were positively correlated. Besides, hardiness and spiritual health were found to be negatively correlated with suicidal ideation, accounting for 46% of the variation in suicidal ideation (9). In a correlational study, Bahmani *et al.* examined mothers of children with disabilities in the rehabilitation clinic of University of Social Welfare and Rehabilitation Sciences in Tehran. The results of Pearson's correlation coefficient and regression analysis showed that spiritual attitude of mothers toward child rearing had a significant relationship with maternal hardiness. Moreover, spiritual health was significantly correlated with hardiness components of commitment and challenge but not with the control component (10).

Akbarizadeh *et al.* studied 125 nursing experts at Bushehr University hospitals in a cross-sectional study. Results of statistical methods of correlation and regression analysis showed that hardiness and its components were significantly correlated with general health of subjects. So, symptoms of illness were decreasing while hardiness and its components were increasing (11).

Talavera-Velasco *et al.* surveyed 223 Spanish Police Officer Candidates in a cross-sectional study. They used correlation coefficient and hierarchical regression analysis. Their results showed that by adjusting the other variables including dimensions of burnout index when the challenge dimension of hardiness increased, symptoms of illness decreased, whereas commitment and control dimensions had no significant relationship with general health of subjects (2).

In another correlational study, Babaeiamiri surveyed 400 nurses in general hospitals in Tehran by using statistical methods of correlation analysis and multiple regression analysis. The results showed that with increasing burnout and decreasing hardiness, symptoms of illness increased. Also, the findings showed that burnout, hardiness, and perceived social support accounted for 54.9% of the variance in general health of nurses (12).

Using the stepwise regression method for each dimension of burnout, Schimp studied 223 mental health workers. The results showed that hardiness was a strong

predictor for each dimension of burnout (13). Likewise, Richards surveyed 154 mental health counselors by using the multiple regression statistical method. According to results, hardiness was predictor for burnout. Thus, by adding hardiness to a model in which demographic variables, job characteristics and self-care factors were present, variation in burnout was 12.8% higher (14).

As mentioned before, personality trait of hardiness and its influence play an important role, as well as the importance of health and its various dimensions, including general health and spiritual health. This study intended to investigate the relation between hardiness components and spiritual health, burnout, and general health among staff of Baqiyatallah University of Medical Sciences. In previous studies, the relationship between hardiness with general health, mental health and burnout has been examined separately. To the best of our knowledge, however, no study has been conducted to examine the relationship between hardiness and the mentioned variables, simultaneously. Therefore, the aim of this study is to investigate the relationship between hardiness (and its subscales) with general health, spiritual health and burnout, simultaneously, so that the internal relationship between general health, spiritual health and burnout is considered.

Materials and Methods

Participants and setting

The research community of this study included all Baqiyatallah University of Medical Sciences staff in Tehran. Ethics committee of Baqiyatallah University of Medical Sciences approved this study (ethics code: IR.BMSU.REC.1396.132) Subjects were included in the study based on simple random sampling. Since approximately 800 people were eligible to participate in the study (with at least five years of work experience), the sample size was 260 according to Morgan's table (which provides the largest possible sample size for a finite population using Cochrane's formula). Taking into account a 20% drop out, the final sample size was considered 312 people. Five people withdrew from the study. Thus, a total of 307 people were surveyed in the cross-sectional study. To perform this study, informed written consent was obtained from the staff after they were debriefed on the research objectives and the procedure used. They were also informed that they were allowed to withdraw from the study any time. Also, ethical considerations regarding not mentioning the names and identities of the study participants were considered. Then, four questionnaires including the General Health Questionnaire (GHQ), Maslach Burnout Inventory (MBI), Spiritual Well Being Scale (SWBS) and Hardiness Questionnaire were administered to the subjects to complete in the workplace under the supervision of a trained staff member. After the questionnaires were collected, each was checked so that no questionnaire was left unanswered. If any questionnaire was not answered by the staff, it was returned to them with the necessary explanations so that they could complete it. Descriptions of each measure used in this study are as follows:

Instruments

General Health Questionnaire (GHQ-28):

This questionnaire was first developed by Goldberg with 60 items, then its short 28-item version was developed later by Goldberg and Hiller and we used the short type in this study. The GHQ-28 measures four subscales with 7 items, including somatic symptoms; anxiety and sleep disorder; social function, and depressive symptoms. The validity of this measure was 92% for whole items, and its reliability coefficient was 91%. Four-point scoring scale by Likert (0-3) was used for this measure, and the overall test score ranged from zero to 84 with the cut-off point of 23. As for each subscale of this measure, a cut-off point of 7 was considered (15). There were many studies on the psychometric properties of GHQ-28 in Iran which made this questionnaire one of the most valid tools widely used for psychological assessment in the general population (16, 17).

Maslach Burnout Inventory (MBI):

Maslach Burnout Inventory (MBI) was designed in 1993 by Maslach and Jackson to measure burnout. The MBI has three dimensions including emotional exhaustion (overextended exhaustion feelings at work; including 9 items), depersonalization (feeling of not caring or insensitivity towards colleagues or recipients of service; including 5 items), and personal accomplishment (feelings of valuable success in work; including 8 items) (18).

This measure has two aspects of frequency and intensity. The burnout frequency was based on a seven-point Likert scale ranging from 0 to 6. Subjects were classified into three categories of mild, medium, and severe according to their burnout scores. In the emotional exhaustion dimension, scores less than or equal to 17 were considered mild, 18 to 29 was medium, and greater or equal to 30 was severe. In the depersonalization scale, scores less than or equal to 5 were categorized as mild, 6 to 11 was medium, and greater or equal to 12 was severe. In turn, in the personal accomplishment scale, scores below 33 indicate low personal accomplishment, 34 to 39 was medium personal accomplishment, and scores greater than 40 were high personal accomplishment.

The burnout intensity was based on a Likert eight-point scale ranging from 0 to 7. In a similar vein, subjects were classified into three categories of mild, medium, and severe according to the scores obtained: in the emotional exhaustion dimension, scores less than or equal to 25 were classified as mild, 26 to 39 was medium, and greater than or equal to 40 was severe. In the depersonalization dimension, scores less than or equal to 6 were taken as mild, 7 to 14 was medium, and greater than or equal to 15 was severe. In turn, in the personal accomplishment scale, scores below 36 indicate

low personal accomplishment, 37 to 43 was medium personal accomplishment, and greater than or equal to 44 was high personal accomplishment.

Maslach and Jackson calculated the internal reliability for each subscale and reported the internal reliability of the questionnaire with Cronbach's alpha coefficient to be 71 to 90%. They also reported the test-retest coefficient of 60 to 80% for this measure.18 Similarly, Hosseinaei and Nouferesti reported that the internal reliability of this measure with Cronbach's alpha coefficient was 0.84 to 0.93, and the test-retest coefficient was 60 to 80%. The validity of this questionnaire was also calculated by the convergent validity method. In turn, by correlating the scores of this questionnaire with those of the Goldard burnout questionnaire, the correlation coefficient between these two questionnaires was reported to be significant at 0.59 (19). Moalemi *et al.* reported the reliability of this tool with Cronbach's alpha between 0.71and 0.85 (20).

Spiritual Well-Being Scale (SWBS):

The Spiritual Well-Being Scale (SWBS) was developed by Paloutzian and Ellison. It is one of the most widely used measures of spiritual health. This measure includes 20 items in two dimensions: religious well-being (RWB) and existential well-being (EWB). The response scale of this measure is a Likert scale with 6 points (e.g., 1 = strongly disagree, 6 = strongly agree).

Paloutzian and Ellison reported that Cronbach's alpha coefficients for religious, existential and overall well-being were 0.91, 0.91, and 0.93, respectively (21). Psychometric properties of SWBS have been already considered by Soleimani *et al.* in patients with Acute Myocardial Infarction. The test-retest reliability coefficient of SWBS was reported as 0.825. Moreover, Cronbach's alpha coefficient for the religious and existential well-being subscales were 0.92 and 0.84, respectively. The validity of the scale was assessed through face validity, content validity, and construct validity which was reported to be acceptable (22).

Kobasa Hardiness Questionnaire

The Hardiness questionnaire was developed by Kobasa *et al.* based on the personal value scale to measure psychological hardiness. This measure is a 50-item questionnaire comprising three subscales scored based on the Likert scale ranging from zero to 3 (23). There are many investigations on the psychometric properties of the Kobasa hardiness questionnaire in Iran which made this questionnaire one of the most valid tools widely used for psychological assessment of hardiness in different populations (24, 25).

Conceptual models

We examined two predefined conceptual models. In the first conceptual model, the relationship between demographic variables and hardiness as well as the relationship between hardiness and spiritual health, general health and burnout (frequency and intensity aspects) were considered. Moreover, the relationship between demographic variables and spiritual health, general health and burnout (frequency and intensity aspects) were examined in the conceptual model. Therefore, for the hardiness variable, one can only imagine its direct effect on spiritual health, general health and burnout (frequency and intensity aspects), whereas demographic variables can directly or indirectly affect spiritual health, general health and burnout (frequency and intensity aspects) through the hardiness variable. In addition, the relationship between spiritual health, general health and burnout (frequency and intensity aspects) were considered in a conceptual model. In the second conceptual model, the results of the first conceptual model are considered. In the conceptual model, effect of age on hardiness components as well as the effect of hardiness components on spiritual health, general health and burnout (frequency and intensity aspects) was considered. Moreover, effect of marital status on spiritual health, effect of gender on general health and burnout (frequency and intensity aspects) and effect of age and education on spiritual health, general health and burnout (frequency and intensity aspects) were examined in the conceptual model. Therefore, the hardiness components, gender, marital status and education can only affect spiritual health, general health and burnout (frequency and intensity aspects) directly, whereas, age can directly and indirectly (through hardiness variable) affect spiritual health, general health and burnout (frequency and intensity aspects).In addition, the relationship between spiritual health, general health and burnout (frequency and intensity aspects) and also the relationship between hardiness components were considered in the conceptual model.

Statistical analysis

Analyses were conducted by using SPSS software version 22 and AMOS software version 20. For quantitative variables, mean and median were used to describe the data and standard deviation and the interquartile range were used to describe the data dispersion. Frequency and percentage were, in turn, used to describe the data in the qualitative variables. Kolmogorov-Smirnov test and quantile-quantile (Q-Q) plot were used to evaluate the normality of the data. Moreover, univariable analysis was performed using Pearson’s correlation coefficient, Mann-Whitney test and Kruskal-Wallis test. By regarding the deviation from normality in the variables of spiritual health, general health, and burnout, for the multivariable analysis, first the root transformation was used (maximum+1-variable) in the spiritual health variable (given its left-skewed distribution), the logarithm transformation was used for the general health variable, and the root transformation was used for the burnout variable. Afterwards, multiple regression was used on the transformed variable data. The bootstrap technique was used in the Path Analysis method because the data did not follow the normal distribution.

Results

Data Description

For the purpose of this research, 307 employees of Baqiyatallah University of Medical Sciences were studied. The mean and standard deviation of the subjects' age were 42.41 and 7.79, respectively. Among the 307 people, number of men and married staff were 178 (58%), 267 (87%), respectively. As for their education level, 34 (11.1%) of the subjects had diplomas and associate degrees, 107 (34.8%) bachelors, 92 (30%) masters, and 74 (24.1%) Ph.D.s. Description of hardiness, general health, spiritual health and burnout and their subscales are given in Table 1.

Univariable and multivariable analysis

The correlation coefficient between the hardiness variable and the general health variable was -0.624 ($P < 0.001$). So, by increasing hardiness, symptoms of illness decreased. In the multivariable analysis, by controlling for age, sex, marital status and education, symptoms of illness decreased by increasing hardiness. This relationship was statistically significant ($P < 0.001$).

The correlation coefficient between the hardiness variable and spiritual health was 0.593 ($P < 0.001$). This indicates that as the hardiness increases, so does spiritual health. In the multivariable analysis, by controlling for age, sex, marital status and education, spiritual health increases as hardiness intensifies. This relationship was statistically significant ($P < 0.001$).

The correlation coefficient between hardiness and burnout (frequency aspect) and burnout (intensity aspect) were -0.622 and -0.629 ($P < 0.001$ and $P < 0.001$, respectively). Thus, burnout decreases as hardiness increases. In the multivariable analysis, by controlling for age, sex, marital status and education, as hardiness increases, burnout (frequency and intensity aspect) decreases accordingly. This relationship was statistically significant ($P < 0.001$). These results are given in Table 2.

Path analysis

The first conceptual model shown in Figure 1 explains the causal pattern of hardiness effect on spiritual health, general health and burnout (frequency and intensity aspects). Table 3 shows the direct and indirect effect of demographic variables as well as the direct effect of hardiness on spiritual health, general health and burnout. The hardiness variable, consistent with both univariable and multivariable analyses, had a strong significant relationship with spiritual health, general health and burnout. So, spiritual health increases while hardiness increases when symptoms of illness and burnout decrease accordingly. In addition to the hardiness variable, marital and educational variables also had a direct effect on spiritual health and the variables of age, gender, and education had a direct effect on general health and burnout. Among the demographic variables, only age had an indirect effect on spiritual health, general health and burnout through hardiness. Finally, the overall effect of age, marital status, education and hardiness on spiritual health was found to be significant. Also, the overall effect of age, gender, education and hardiness on general health and burnout was identified to be significant. Among the demographic variables, only age was found to have a direct significant effect on hardiness ($P = 0.030$) so that it would increase by increasing hardiness. This relationship reflects indirect effects of demographic variables on the response variables so that only age was indirectly related to the variables of spiritual health, general health, and burnout. The hardiness variable can be considered as a mediating variable for the relationship between age and general health, spiritual health and burnout. The root mean square error of approximation (RMSEA = 0.133) and the model goodness of fit index was given above at 0.9 (GFI = 0.973). Thus, it can be concluded that the model has a relatively good fit.

The second conceptual model shown in Figure 2 explained the causal pattern of hardiness component's effect on spiritual health, general health and burnout (frequency and intensity aspects). Table 4 shows the direct effect of demographic variables as well as hardiness components on spiritual health, general health and burnout (frequency and intensity aspect). Hardiness components, consistent with univariable analyses, have a strong significant relationship with spiritual health, general health and burnout. Therefore, spiritual health increases by increasing hardiness components, while symptoms of illness and burnout decrease accordingly. However, the challenge component has no significant relationship with spiritual health ($P = 0.531$). In Table 5, the direct effect of age on hardiness components was examined. Age had a direct significant effect on commitment ($P = 0.018$) and control ($P = 0.026$) and non-significant effect on challenge ($P = 0.446$). The direct significant relationship between age and hardiness component was found in the indirect effects of age on the response variables, therefore, age was indirectly related to spiritual health, general health, and burnout. These results were presented in Table 5. The model Goodness of fit index was given above at 0.9 (GFI = 0.967) and the root mean square error of approximation was below 0.1 (RMSEA = 0.08). It can be concluded that the conceptual model has a good fit.

Table 1. Descriptive Statistics of Hardiness, General Health, Spiritual Health and Burnout

Variables	Mean ± SD; Median (IQR)	OSR	FSR	Categories, Frequency (percent)
Hardiness	102.71 ± 18.25; 108(27)	33-136	0-150	
Subscales				
Commitment	36.05 ± 7.38; 38(8)	9-48	0-48	
Challenge	28.95 ± 6.59; 29(11)	3-44	0-51	
Control	37.27 ± 7.05; 40(9)	19-51	0-51	
General Health	18.03 ± 10.80; 15(14)	3-58	0-84	Non, 229(74.6); Mild, 63(20.5); Moderate, 15(4.9); Severe, 0(0)
Subscales				
Somatic symptoms	4.52 ± 4.04; 3(6)	0-18	0-21	Non, 226(73.6); Mild, 54(17.6); Moderate, 24(7.8); Severe, 3(1)
Anxiety & sleep disorders	4.22 ± 3.98; 3(5)	0-20	0-21	Non, 239(77.9); 48(15.6); Moderate, 15(4.9); Severe, 5(1.6)
Social dysfunction	7.95 ± 2.58; 8(3)	3-21	0-21	Non, 86(28); 195(63.5); Moderate, 24(7.8); Severe, 2(0.7)
Depression	1.33 ± 2.58; 0(1)	0-15	0-21	Non, 290(94.5); 13(4.2); Moderate, 4(1.3); Severe, 0(0)
Spiritual Health	99.74 ± 15.04; 102(20)	41-120	20-120	Low, 0(0); Moderate, 138(45); High, 169(55)
Subscales				
Religious	55.88 ± 7.42; 55(10)	27-60	10-60	
Existential	46.86 ± 8.42; 48(11)	11-60	10-60	
Burnout (Frequency)	26.89 ± 21.23; 21(33)	1-101	0-132	
Subscales				
Emotional Exhaustion	8.97 ± 8.32; 7(10)	0-54	0-54	Low, 268(87.3); Moderate, 32(10.4); High, 7(2.3)
Depersonalization	3.38 ± 3.45; 2(6)	0-21	0-30	Low, 226(73.6); Moderate, 73(23.8); High, 8(2.6)
Personal Accomplishment	33.46 ± 11.11; 35(18)	0-48	0-48	Low, 136(44.3); Moderate, 43(14); High, 128(41.7)
Burnout (Intensity)	40.49 ± 24.67; 36(41)	7-120	0-154	
Subscales				
Emotional Exhaustion	15.04 ± 9.37; 36(11)	2-59	0-63	Low, 270(87.9); Moderate, 27(8.8); High, 10(3.3)
Depersonalization	4.77 ± 4.55; 3(7)	0-25	0-35	Low, 205(66.8); Moderate, 94(30.6); High, 8(2.6)
Personal Accomplishment	35.32 ± 13.67; 38(23)	0-56	0-56	Low, 140(45.6); Moderate, 69(22.5); High, 98(31.9)

Note: SD, Standard Deviation; IQR, Interquartile Range; OSR, Observable Score Range; FSR, Feasible Score Range

Table 2. Results of Univariable and Multivariable Analyses for Predicting General Health, Spiritual Health and Burnout (Frequency and Intensity)

		Univariable		Multivariable*			
		R	p-value	B	SE	β	P-value
General Health	Hardiness	-0.624	< 0.001	-0.016	0.001	-0.514	< 0.001
	Commitment	-0.545	< 0.001				
	Challenge	-0.507	< 0.001				
	Control	-0.546	< 0.001				
Spiritual Health	Hardiness	0.593	< 0.001	-0.048	0.004	-0.535	< 0.001
	Commitment	0.550	< 0.001				
	Challenge	0.357	< 0.001				

	Control	0.551	< 0.001				
Burnout (Frequency)	Hardiness	-0.622	< 0.001	-0.060	0.005	-0.523	< 0.001
	Commitment	-0.567	< 0.001				
	Challenge	-0.407	< 0.001				
	Control	-0.550	< 0.001				
Burnout (Intensity)	Hardiness	-0.629	< 0.001	-0.058	0.005	-0.534	< 0.001
	Commitment	-0.562	< 0.001				
	Challenge	-0.447	< 0.001				
	Control	-0.538	< 0.001				

Note: R, Correlation coefficient; B, Unstandardized coefficient; SE, Standard Error; β, Standardized coefficient
* Adjusted for age, sex, marital status and education

Table 3. Direct, Indirect and Total Effect of Demographic Variables as well as Hardiness Components on General health, Spiritual Health and Burnout (Frequency and Intensity) in the First Conceptual Model

	Direct Effect			Indirect Effect			Total Effect		
	E	**95%CI**	**P**	**E**	**95%CI**	**P**	**E**	**95%CI**	**P**
General health									
Hardiness	-0.525	(-0.606,-0.433)	< 0.001				-0.525	(-0.606,-0.433)	< 0.001
Age	-0.102	(-0.196,-0.008)	0.031	-0.062	(-0.123,-0.008)	0.027	-0.164	(-0.266,-0.057)	0.002
Sex	0.188	(0.093,0.285)	< 0.001	0.050	(-0.016,0.111)	0.136	0.238	(0.123,0.345)	< 0.001
Marital Status	0.009	(-0.109,0.115)	0.898	-0.054	(-0.133,0.016)	0.136	-0.046	(-0.181,0.081)	0.482
Education	-0.152	(-0.230,-0.072)	< 0.001	-0.043	(-0.099,0.017)	0.156	-0.196	(-0.277,-0.100)	< 0.001
Spiritual Health									
Hardiness	0.555	(0.455,0.643)	< 0.001				0.555	(0.455,0.643)	< 0.001
Age	0.083	(-0.007,0.167)	0.077	0.066	(0.008,0.132)	0.026	0.148	(0.047,0.254)	0.005
Sex	0.008	(-0.087,0.101)	0.876	-0.053	(-0.118,0.016)	0.135	-0.045	(-0.156,0.061)	0.417
Marital Status	0.156	(0.044,0.262)	0.006	0.058	(-0.016,0.138)	0.132	0.214	(0.074,0.343)	0.002
Education	0.132	(0.047,0.219)	0.003	0.046	(-0.017,0.104)	0.153	0.179	(0.071,0.280)	0.002
Burnout (Freq)									
Hardiness	-0.523	(-0.615,-0.420)	< 0.001				-0.523	(-0.615,-0.420)	< 0.001
Age	-0.148	(-0.245,-0.049)	0.005	-0.062	(-0.125,-0.007)	0.027	-0.210	(-0.311,-0.095)	0.001
Sex	0.110	(0.006,0.212)	0.040	0.050	(-0.015,0.114)	0.130	0.160	(0.042,0.272)	0.012
Marital Status	-0.001	(-0.098,0.097)	0.965	-0.054	(-0.130,0.016)	0.132	-0.055	(-0.172,0.051)	0.297
Education	-0.135	(-0.214,-0.055)	< 0.001	-0.043	(-0.099,0.016)	0.145	-0.178	(-0.268,-0.081)	< 0.001
Burnout (Intensity)									
Hardiness	-0.536	(-0.618,-0.446)	< 0.001				-0.536	(-0.618,0.446)	< 0.001
Age	-0.142	(-0.229,-0.046)	0.004	-0.063	(-0.127,-0.008)	0.027	-0.205	(-0.307,-0.096)	< 0.001
Sex	0.144	(0.043,0.242)	0.007	0.051	(-0.016,0.117)	0.134	0.195	(0.076,0.301)	0.003
Marital Status	-0.006	(-0.099,0.092)	0.893	-0.056	(-0.134,0.016)	0.131	-0.062	(-0.167,0.037)	0.206
Education	-0.117	(-0.202,-0.031)	0.007	-0.044	(-0.101,0.016)	0.146	-0.161	(-0.254,-0.059)	0.002
Hardiness									
Age	0.118	(0.012,0.229)	0.030				0.118	(0.012,0.229)	0.030
Sex	-0.095	(-0.209,0.032)	0.137				-0.095	(-0.209,0.032)	0.137
Marital Status	0.104	(-0.033,0.236)	0.142				0.104	(-0.033,0.236)	0.142
Education	0.083	(-0.034,0.182)	0.168				0.083	(-0.034,0.182)	0.168

Note: E, Estimation; CI, Confidence Interval; P, p-value

Table 4. Direct Effect of Demographic Variables as well as Hardiness Components on General health, Spiritual Health and Burnout (Frequency and Intensity) in the Second Conceptual Model

	E	95% CI	P
General Health			
Commitment	-0.202	(-0.373,-0.027)	0.026
Challenge	-0.169	(-0.281,-0.057)	0.003
Control	-0.242	(-0.398,-0.076)	0.007
Age	-0.101	(-0.196,-0.004)	0.037
Sex	0.190	(0.101,0.281)	< 0.001
Education	-0.155	(-0.231,-0.071)	< 0.001
Spiritual Health			
Commitment	0.255	(0.067,0.434)	0.007
Challenge	0.033	(-0.070,0.144)	0.531
Control	0.341	(0.172,0.512)	< 0.001
Age	0.074	(-0.013,0.155)	0.107
Marital Status	0.160	(0.052,0.263)	0.003
Education	0.127	(0.045,0.212)	0.004
Burnout (Frequency)			
Commitment	-0.295	(-0.422,-0.103)	0.001
Challenge	-0.126	(-0.237,-0.018)	0.020
Control	-0.217	(-0.369,-0.052)	0.011
Age	-0.146	(-0.243,-0.048)	0.007
Sex	0.116	(0.015,0.213)	0.025
Education	-0.132	(-0.212,-0.051)	0.001
Burnout (Intensity)			
Commitment	-0.239	(-0.401,-0.084)	0.003
Challenge	-0.170	(-0.272,-0.068)	0.001
Control	-0.214	(-0.366,-0.045)	0.015
Age	-0.142	(-0.233,-0.045)	0.005
Sex	0.149	(0.057,0.243)	0.002
Education	-0.116	(-0.204,-0.030)	0.008

Note: E, Estimation; CI, Confidence Interval; P, p-value

Table 5. Direct Effect of Age on Hardiness Components and Indirect and Total Effect of Age on General Health, Spiritual Health and Burnout (Frequency and Intensity) in the Second Conceptual Model

	Direct Effect			Indirect Effect			Total Effect		
	E	95%CI	P	E	95%CI	P	E	95%CI	P
Commitment	0.126	(0.019,0.232)	0.018						
Challenge	0.042	(-0.067,0.151)	0.446						
Control	0.121	(0.014,0.233)	0.121						
General Health				-0.062	(-0.124,-0.006)	0.030	-0.164	(-0.269,-0.052)	0.002
Spiritual Health				0.075	(0.015,0.146)	0.015	0.149	(0.045,0.255)	0.006
Burnout(F)				-0.064	(-0.129,-0.007)	0.024	-0.210	(-0.314,-0.096)	< 0.001
Burnout(I)				-0.063	(-0.127,-0.004)	0.032	-0.206	(-0.308,-0.098)	< 0.001

Note: E, Estimation; CI, Confidence Interval; P, p-value; F, Frequency; I, Intensity

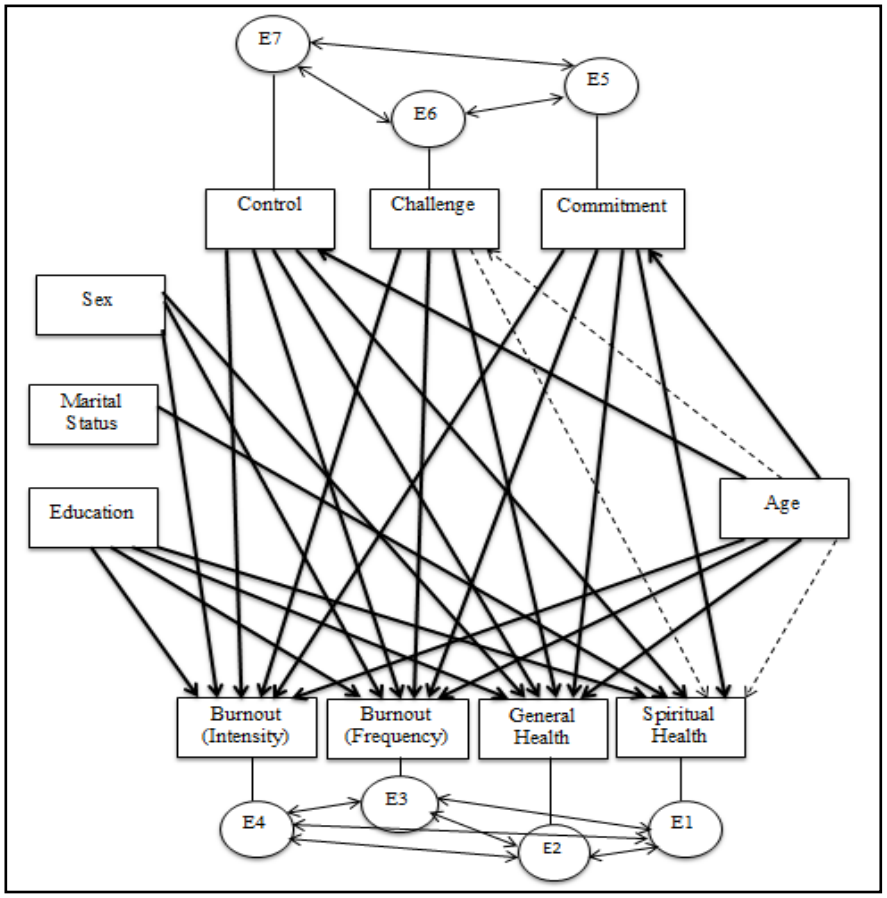

Figure 1. First Conceptual Model: Causal Pattern of Hardiness Effect on Spiritual Health, General Health and Burnout

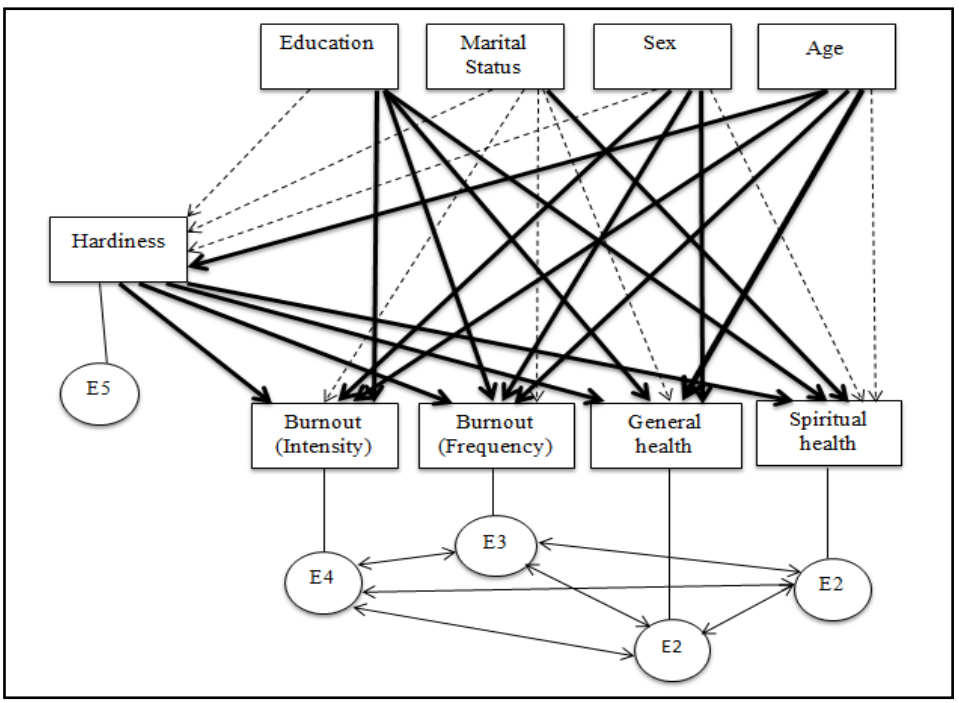

Figure 2. The Second Conceptual Model: Causal Pattern of Hardiness Component's Effect on Spiritual Health, General Health and Burnout

Discussion

In this study, four questionnaires including GHQ, MBI, SWBS and Hardiness Questionnaire were administered to the staff of Baqiyatallah University of Medical Sciences who had at least 5 years of work experience. This study was intended to determine the score of each of these variables and determine the relationship between hardiness variable (and its components) and spiritual health, general health, and burnout.

Based on the results of univariable and multivariable analyses of the general health scale, it was observed that hardiness and its subscales had a very significant relationship with general health. Based on the path analysis method, it was also found that the hardiness variable, consistent with univariable and multivariable analyses, had a very significant relationship with the general health variables so that symptoms of illness decreased by increasing hardiness. This result was in line with some already published articles (2, 11, 12, 26).

The results of univariable and multivariable analyses of spiritual well-being scale also showed that hardiness and its subscales had a very significant relationship with spiritual health though the correlation of challenge subscale with spiritual health was less than the other two subscales. Additionally, based on the path analysis method, it was found that the hardiness variable, consistent with univariable and multivariable analyses, had a very significant relationship with spiritual health. Thus, by increasing hardiness, spiritual health increases. This result is compatible with the study by Abdollahi and Abu Talib and also the Bahmani and Ebrahimi study. However, in the study conducted by Bahmani *et al.*, in which the questionnaire designed by Mahoney *et al.* was used, there was no significant relationship between spiritual health and the control subscale (9, 10).

Moreover, the results of the univariable and multivariable analyses of burnout scale (both aspects of frequency and intensity) revealed that hardiness and its subscales were significantly correlated with burnout. According to the results of the path analysis, it was also found that hardiness, consistent with univariable and multivariable analyses, had a highly significant correlation with burnout (both in frequency and intensity). This indicates that burnout decreases as hardiness increases. This result is in line with some studies in the literature (12, 13, 14, 27, 28, 29).

According to the hardiness theory, highly-hardy individuals feel commitment to what they are doing and focus on the activity ahead and find meaning in what they are doing. Also, people with hardiness, in stressful and difficult situations, keep their psychological health and psychological adaptation. They increase their performance and personal satisfaction with the work in which they are engaged. Highly-hardy individuals find stressful situations less threatening and more manageable. Instead of escaping from life's problems, they become more involved in problem-solving and use more problem-oriented strategies. Applying a problem-oriented strategy and increasing perception of one's abilities in face of stress increases job satisfaction and ultimately people's mental health. The environment can hardly threaten them and they can control the situation and this leads to more peace of mind and confidence while challenging situations arise (30).

Also, people with spiritual beliefs are constantly connected to an understanding of their life experiences, including spiritual interventions, and these interventions can change life events and human thoughts and behavior, and have a beneficial effect on how a person copes with adverse events. The adversarial trait enables the highly-hardy individual to see problems as an opportunity for progress rather than a threat to their safety, and all of these aspects help them to prevent or shorten the negative consequences of stressful events. Also, high social skills, problem-solving ability, self-directed sense of purpose, and hope for the future are the personality traits of hardy people to improve mental health. On the other hand, spiritual beliefs allow some people to make sense of the adversity, stress, and inevitable loss that occur during life so they can be hopeful and optimistic about the future (11, 31, 32).

Limitation

Our study design was cross-sectional. In cross-sectional studies, due to the simultaneous measurement of variables, temporal relationship between variables is unknown. Therefore, a causal relationship between variables cannot be considered. Since in our study only the variables of age, sex, marital status and education (along with hardiness) were measured, there was a possibility of confounding bias in the study. The population of this study was only the staff of Baqiyatallah University of Medical Sciences. Conducting a multicenter study could have led to a more accurate conclusion.

Conclusion

In this study, the multiple linear regression and path analysis showed that hardiness and its subscales were significantly associated with spiritual health, general health, and burnout. Therefore, with increasing hardiness and its subscales, spiritual health increased. However, with increasing hardiness and its subscales, symptoms of illness and burnout decreased.

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Conflict of Interest

None.

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