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Research Article

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Comparison of Psychological Hardiness and Lifestyle of Patients with Coronary Heart Disease and Aged Healthy Individuals

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ABSTRACT

The aim of this study was to compare the psychological hardiness and lifestyle of patients with coronary heart disease and healthy people from 40 to 65 years old in Isfahan city.The research method was causal – comparative and the research population included all patients with coronary heart disease in Isfahan Cardiovascular Research Center in 2015 and non-patient companions. A simple random sampling method was used for coronary heart disease (93 patients) and available for healthy subjects (83 person).The data collection tool were Ahwaz's Psychological Hardiness Questionnaire (Kaymarthi et al., 1998) and lifestyle Questionnaire (LSQ) of Lali et al. (2012) [2]which was performed for both groups. The findings showed that there is a significant difference between psychological hardiness (P= 0.001) and lifestyle (physical health, exercise, weight control, disease prevention, mental health, spiritual health, social health, drug avoidance, accident prevention and environmental health (P= 0.001) between the two groups of patients with coronary heart disease and normal. Based on the findings of the research can be considered psychological hardiness and healthy life styles as a constitutive and proactive factor for coronary heart disease.

Keywords: Psychological hardiness; Lifestyle; Coronary heart disease patients

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INTRODUCTION

Coronary heart disease (CHD) is one of the main causes of mortality and disability in the world [1-3]. Researches in recent years have been showing more than ever the effect of psychosocial factors on the appearance and course of coronary heart disease [4] . The stressful conditions of today's societies have caused heart disease to be at the forefront of the causes of premature mortality, which annually threatens millions of people in industrialized and developing countries. It is predicted that by 2020 nearly 25 million mortality of cardiovascular disorders occur each year and the disease is among the first deadly and debilitating lesions [5]. According to some researchers, heart disease in the early childhood is also increasing in Iran [6]. At the beginning of the current century (the 21st century), it is estimated that deaths due to coronary heart disease problems are more than other deaths [7].

One of the characteristics of personality which is considered as a source of resistance to stress is psychological hardiness. This structure with three components of commitment, containment and challenge protects a person in a state of stress. Strong people, despite having a life in stressful

conditions, show less psychological and physical symptoms [1].Strong people have a strong sense of responsibility and strong purpose, they feel dominant at events, and they see changes as growth and growth [8]. Psychological hardiness can be an important factor in increasing individual performance and mental health, despite experiencing stressful situations [9].
Some personality traits, such as psychological hardiness, self-esteem and happiness, can be effective in preventing coronary heart disease. Research in this field has shown that hardiness has a positive relationship with physical and mental health. Although stress in the long run weakens the immune system and predisposes a person to a variety of illnesses, but psychological hardiness is recognized as the most important source of moderating the negative effects of stress. Several studies have shown that people with low tenacity will have long-term coronary heart disease, cholesterol and blood pressure and those with a high tenacity are immune to the negative effects of stress [10]. Research has shown that psychological hardiness is associated with a reduction in cardiovascular and lower blood pressure responses and acts as a protective shield against the development of behavioral patterns that are the main cause of cardiovascular disease [11].
Lifestyle is also seen as an important and effective factor along with other factors in all disorders. According to experts, the basis of all mental illnesses is the result of psychological problems, personality and even lifestyle on the body. The most important and most common psychiatric illness, with an average of about 30-40% of mortality all over the world, is the disorder of coronary heart disease or disorder in the arteries feeding the heart [10].

The World Health Organization considers the lifestyle based on distinct patterns of behavior that result from the interaction between personality traits on the interaction of social relationships, environmental conditions, and socio-economic situations. Urban life development, life in the industrialized world, and the control of contagious diseases, along with a change in the age structure of the population, will face us the increasing incidence of non-communicable diseases such as cancers, cardiovascular diseases and their risk factors. It seems that coronary heart disease can be prevented through controlling risk factors [12]. A healthy lifestyle comes from a wide range of behaviors, activities and correct functions, such as proper nutrition, exercise, proper patterns of sleep with adequate rest, ability to adapt correctly to stress, the ability to use family and social support, the employment in favorite job and recreational activities and providing sufficient opportunities for the development of spirituality, health and well-being [13].
Today, given the increasing importance of the role of psychological factors and Psychological vulnerability which can be seen in coronary heart disease and considering the emphasis on the holistic view on the physical, psychological, social, spiritual factors in the causality, continuity and outcomes of diseases,in this regard, this article has been designed to compare the psychological hardiness and lifestyle of patients with coronary heart disease and healthy people.

METHODOLOGY

The research method was causal – comparative. The statistical population included all patients with coronary heart disease in Isfahan in 2015, which their illness lasted at least two months and a maximum of three year and healthy people who had no history of illness and were in the range of 40 to 65 years old. Sampling method for coronary heart disease patients was simple random and was available to ordinary people. The statistical sample included 176 patients, 93 of whom were patients with coronary heart disease and 83 people were normal people. The criteria for entry included: Having coronary heart disease for at least two months and a maximum of three years from the point of view of diagnosis and confirmation of the disease for patient group, having a minimum age of 40 and a maximum of 65 years for both groups, having no heart disease and other chronic diseases for ordinary people.

Research tool

Ahwaz Psychological Hardiness Questionnaire

The Ahwaz psychological hardiness questionnaire is a pencil and paper self-reporting scale that was built by Kaymarthi, Najarian, Mehrabizadeh andhonarmand (1998) [1] in Ahvaz in order to measure psychological hardiness. At first, the test was performed on 523 students with 90 items. Factor analysis of data showed that among 90 items, 27 items had a more significant relationship with the psychological hardiness scales. Thus, Ahwaz's hardiness questionnaire was built with 27 items. The

questions in this questionnaire are four options, and subjects must respond to one of the four "never", "rarely", "sometimes" and "often" options. Kiyamrasi et al. [1] calculated the reliability coefficients of the questionnaire by two methods of retrospective and Cronbach's alpha of 0.84 and 0.77 respectively.

Life Style Questionnaire

The questionnaire was built in a research that was conducted with the aim of constructing and validating by Mohsen Lali, Ahmad Abedi and Mohammad Bagher Kajbaf on 300 educational teachers (145 males and 155 females) by multi-stage cluster random sampling in Isfahan In the years 2008-2009.The used tools were Life Style Questionnaire (LSQ) and Reef Psychological Well-Being Scale. The results showed that life style questionnaire (LSQ) has sufficient validity and reliability to measure life style of individuals.

The questionnaire consists of 10 factors or components which include: 1-Physical health, 2- Sports and wellness, 3-Weight and nutrition control, 4-Prevention of disease, 5-Psychological health, 6-Spiritual health, 7-Social health, 8- Avoiding of drugs and alcohol, 9-Prevention of accidents and 10-Environmental health. The high score in each of the components and in the whole of the questionnaire reflects the appropriate lifestyle. Cronbach's alpha is 89% for physical health, 87% for sports and wellness, 85% for weight and nutrition control, 87% for prevention of disease, 88% for psychological health, 84% for spiritual health, 82% for social health, 79% for avoiding of drugs and alcohol, 85% for prevention of accidents, 76% for environmental health and 87% for the total score.

RESULTS

Table 1: Frequency distribution of gender based on group membership

Group membership	Coronary heart disease		Ordinary	
Gender	Frequency	Frequency percentage	Frequency	Frequency percentage
Male	52	55/9	30	36/1
Female	41	44/1	53	63/9
Total	93	100	83	100

As in Table 1 is observed in the heart patients group 55.9% are male and 44.1% are female. While in the ordinary group 36.1% are male and 63.9% are female.

The mean and standard deviation of the age and education of the participants in the research by group membership is presented in Table 2.

Table 2: descriptive indicators of age and education of participants based on group membership

Groups	Coronary heart disease		Ordinary	
	mean	standard deviation	mean	standard deviation
Age	56/37	May-74	50/15	Jun-37
Education	Nov-39	02-Jan	Nov-97	02-May

As in Table 2 is observed the age mean in the heart patient group is 56.37 and the standard deviation is 5.74 and in the ordinary group the age mean is 50.15 and the standard deviation is 6.37also education mean in the heart patient group is 11.39 and the standard deviation is 2.1 and in the ordinary group the education mean is 11.97 and the standard deviation is 2.5.

The findings of the research hypothesis test show that

The demographic variables of age have shown a significant relationship with all the research variables in both groups. There is a significant relationship between education in both groups and in the subscales of physical health, disease prevention, mental health, avoidance of drugs, prevention of accidents and environmental health with other variables. In the ordinary group, the relationship between education with dimensions of weight control, social health and prevention of accidents is significant.

Table 3: Correlation coefficient of demographic variables of age and education with research variables in the group of coronary artery disease

Demographic variables / Research variables	Age		Education	
	Correlation coefficient	Significant	Correlation coefficient	Significant
Psychological hardiness	-0/378	*0/001	0/294	*0/004
Life style	-0/422	*0/001	0/36	*0/001
Physical health	-0/243	*0/019	0/165	0/114
Sports and wellness	-0/255	*10/01	0/288	*0/005
Weight and nutrition control	-0/265	*0/009	0/282	*0/006
Social health	0/385	*0/001	-0/099	0/347
Avoiding of drugs and alcohol	0/255	*0/01	0/119	0/255
Disease prevention	0/209	*0/044	-0/119	0/254
Environmental health	-0/244	*0/017	-0/015	0/884

Table 4: Correlation coefficient of demographic variables of age and education with research variables in the ordinary group

Demographic variables / Research variables	Age		Education	
	Correlation coefficient	Significant	Correlation coefficient	Significant
Psychological hardiness	0/263	*0/016	-0/398	*0/001
Life style	0/277	*0/011	0/355	*0/001
Physical health	-0/24	*0/029	-0/101	0/363
Sports and wellness	0/272	*0/013	-0/058	0/601
Weight and nutrition control	0/269	*0/007	0/243	*0/027
Social health	0/246	*0/025	0/296	*0/007
Avoiding of drugs and alcohol	0/243	*0/027	0/039	0/723
Disease prevention	0/27	*0/013	0/224	*0/042
Environmental health	0/247	*0/025	0/167	0/131

According to the findings of Table 5, the mean scores of psychological hardiness and lifestyle variables in both groups of patients with heart disease and healthy people were significantly different (P=0.001). The results show that nearly 66.5% of individual differences in research variables are related to the difference between the two groups. Therefore, it can be concluded that there is a significant difference between the two groups of heart patients and healthy people in the research variables.

Table 5: The results of the multivariate analysis, psychological hardiness and life style variables in two groups

Source	Villex Lambda Coefficient	F	Degrees of freedom Assumption	Degrees of freedom Error	Significant	Effect size	Statistical power
Group	0/335	113/643	3	172	0/001	0/665	1/000

The results of Table 6 show that age and education with psychological hardiness have no meaningful relationship. But by controlling this relationship, the difference between the adjusted mean of psychological hardiness scores is significant in both groups of coronary heart disease patients and normal people (p=0.001). In other words, there is a difference between the psychological hardiness of ordinary people and patients with coronary heart disease and the effect of coronary heart disease on psychological hardiness is equal to 0/528. That is, about 52.8 percent of the variance of psychological hardiness is related to group membership.

Table 6: Results of covariance analysis Comparison of mean scores of psychological hardiness in term of group membership

Source of change	Total squared	Degrees of freedom	Mean squares	F	Significant	Effect size	Statistical power
Age	64/701	1	64/701	0/697	0/405	0/004	0/132
Education	296/236	1	296/236	3/19	0/076	0/018	0/427
Group membership	17849/45	1	17849/45	192/207	0/001	0/528	1/000
Error	15972/884	172	92/866				

As Table 7 shows, there is no meaningful relationship between age and lifestyle but the relationship of education with it is significant. By controlling this relationship, the difference between the adjusted mean scores of lifestyle in both groups of coronary heart disease patients and normal people was significant (p=0.001). In other words, there is a difference between the lifestyle of ordinary people and patients with coronary heart disease and the effect of coronary heart disease on lifestyle is equal to 0/606. That is, about 60/6 percent of the variance of lifestyle is related to group membership.

Table 7: Results of covariance analysis Comparison of mean scores of lifestyle in term of group membership

Source of change	Total squared	Degrees of freedom	Mean squares	F	Significant	Effect size	Statistical power
Age	1243/789	1	1243/789	1/426	0/234	0/008	0/221
Education	7136/618	1	7136/618	8/185	0/005	0/045	0/812
Group membership	230447/22	1	230447/22	264/269	0/001	0/606	1/000
Error	149971/985	172	871/93				

Based on the results obtained in Table 8, the only relation between education with subscales of sport, psychological health and social health is significant that by controlling this relationship, the mean scores of all subscales of lifestyle, namely physical health, exercise, weight control, disease prevention, mental health, spiritual health, social health, avoidance of drugs, accident prevention and environmental health in two groups coronary patients and ordinary have a significant difference.

Table 8: Single-variable analysis results

Source	dependent variable	Total squared	Degrees of freedom	Mean squares	F	Significant	Effect size	Statistical power
Education	Physical health	22/972	1	22/972	0/584	0/446	0/003	0/118
	Sports and wellness	308/18	1	308/18	5/812	0/017	0/033	0/669
	Weight and nutrition control	84/722	1	84/772	3/584	0/06	0/02	0/469
	Prevention of	39/014	1	39/014	3/164	0/077	0/01	0/424

	disease						8	
	Psychological health	153/102	1	153/102	6/225	0/014	0/035	0/696
	Spiritual health	62/765	1	62/765	3/209	0/075	0/018	0/424
	Social health	288/388	1	288/388	13/519	0/001	0/073	0/955
	Avoiding of drugs and alcohol	10/561	1	10/561	1/205	0/274	0/007	0/194
	Prevention of accidents	14/877	1	14/877	0/89	0/347	0/005	0/155
	Environmental health	5/256	1	5/256	0/396	0/53	0/002	0/096
Group	Physical health	8177/879	1	8177/879	207/816	0/001	0/547	1/000
	Sports and wellness	5893/356	1	5893/356	111/153	0/001	0/393	1/000
	Weight and nutrition control	2795/425	1	2795/425	118/171	0/001	0/407	1/000
	Prevention of disease	1672/575	1	1672/575	135/647	0/001	0/441	1/000
	Psychological health	3117/988	1	3117/998	126/77	0/001	0/424	1/000
	Spiritual health	640/19	1	640/19	32/732	0/001	0/16	1/000
	Social health	1660/106	1	1660/106	75/289	0/001	0/304	1/000
	Avoiding of drugs and alcohol	155/595	1	155/595	17/753	0/001	0/094	0/987
	Prevention of accidents	2744/121	1	2744/121	164/202	0/001	0/488	1/000
	Environmental health	1089/334	1	1089/334	82/053	0/001	0/323	1/000

DISCUSSION AND CONCLUSIONS

The purpose of this study was to comparison of the psychological hardiness and lifestyle of patients with coronary artery disease and healthy people. The results showed that there is a significant difference between the two groups of coronary patients and healthy people in the research variables. It can be said that high psychological hardiness and healthy lifestyle in healthy people have shown themselves as a protective agent against coronary heart disease on the other hand, lower levels of these factors in coronary heart disease patients have increased their vulnerability to the disease. There is a difference between the psychological hardiness of ordinary people and patients with coronary heart disease and the effect of coronary heart disease on psychological hardiness is equal to 0/528. That is, about 52.8 percent of the variance of psychological hardiness is related to group membership and the mean of psychological hardiness scores in the normal group is higher than that of coronary heart disease patients. The results of this study are consistent with the study of Vogt et al. (2008) [14] on psychological hardiness as an effective factor in coping with stress, With the research of Baritone et al. (2009) [15] which has shown there is a positive correlation between psychological hardiness with increasing of useful cholesterol and the reduction of harmful cholesterol and there is a negative correlation between psychological hardiness with body weight, which is one of the most important factors in cardiovascular disease, With the research of Besharat (2007) [16] on the positive relationship of psychological hardiness using an appropriate stress coping technique, With the research of Hamid

(2007) [17] on the difference between psychological hardiness in heart patients and healthy people, With the research of Haghighatgu (2015) [18], on the difference between psychological hardiness and coping strategies for heart disease, migraine and healthy people.

Also the results showed there is a difference between the lifestyle of ordinary people and patients with coronary heart disease and the effect of coronary heart disease on lifestyle is equal to 0/606. That is, about 60/6 percent of the variance of lifestyle is related to group membership.

In the current study, there is a difference between the results of Mancau's analysis of lifestyle components in coronary heart disease patients and normal people and nearly 66.9 percent of individual differences are related to differences in lifestyle components between the two groups. Based on the results, the only relation between education with subscales of sport, psychological health and social health is significant that by controlling this relationship, the mean scores of all subscales of lifestyle, namely physical health, exercise, weight control, disease prevention, mental health, spiritual health, social health, avoidance of drugs, accident prevention and environmental health in two groups coronary patients and ordinary have a significant difference.

The results are consistent with the results of the research [19-26].

The results of this study showed that there is a difference between normal people and coronary heart disease patients in terms of psychological hardiness and lifestyle. Considering that coronary heart disease is one of the most important health problems and is one of the most important causes of mortality in societies and according to the research committee of the Iranian Heart Association, the incidence of cardiovascular disease in Iran has decreased from 7 to 10 years in comparison with other countries. Also, increasing evidence suggests that many psychological, personality, spiritual, social and economic factors contribute to the disease and one of the important and protective factors in chronic diseases is the psychological hardiness that has attracted many researchers in recent years. The results of many studies show that the physical consequences of stress are heart disease, dyspepsia, muscle cramps, high cholesterol, asthma, coldness, headache, high blood pressure and the psychological consequences of stress are disturbed sleep, high irritability, anger, alcohol dependence, high smoking, inability to concentrate, obesity and anxiety, depression and sexual issues. According to the results of these studies, we can say a structure called psychological hardiness keeps people healthy despite high stress in life and resists them in stressful conditions. The psychological hardiness makes people engage in behaviors that are related to health, perceive their health under their control, consider stressors as an opportunity to gain their own personal growth and experience, and in the face of hardship do not be frustrated. Psychological hardiness is an important motivating factor for determining the health outcomes and psychological and physiological adaptation to the disease. Hardy people are blended well with their duties and responsibilities and with other aspects of life, they are more influential than others on the events around them and they see the change as an opportunity to grow and gain experience.

This research and related studies show that the enhancement of this feature can be useful in preventing heart disease in normal people and to increase the resistance of heart patients against the stress of the disease and to prevent the progression of the disease and its psychological damage. On the other hand, the use of direct strategies to identify vulnerable people sometimes due to self-esteem bias leads to inaccurate results and answers. Especially if the questions are about socially sensitive issues such as substance abuse, alcohol and some components of high-risk lifestyle, Therefore, determination of the hardness of people indirectly, will be a good diagnostic strategy for their vulnerability.

On the other hand, a healthy lifestyle leads to physical health, which leads to mental health and psychological well-being. Choosing the right style and healthy lifestyle plays a very important role in preventing diseases. Considering the holistic approach proposed in the world, it is necessary to focus on the healthy lifestyle of individuals in the individual and social, communicative, spiritual and material, environmental and psychological areas. This research emphasizes the importance of all aspects of lifestyle in preventing coronary heart disease and since in the etiology of heart diseaseshas considered genetic readiness, biochemical factors, psychological, social and communicative factors, nutrition and physical activity, obesity and overweight, in terms of the etiology of coronary heart disease is multi-factor. Given the fact that heart disease especially coronary heart diseasehas been recognized as a disease in lifestyle therefore, the necessity of healthy lifestyle management is doubled

in every person in the community and the prerequisite for doing this is to strengthen the self-care of the community, to increase the psychological hardiness, as well as to increase the awareness and attitudes in this field that chronic diseases are preventable by health professionals between individuals of community.

According to the results, the above factors can be considered as protective and preventive factors for coronary heart disease. It is suggested that the use of a psychological treatment method in coronary heart disease patients to be implemented by specialists in this field together with medicinal treatment.

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