Is Enneagram Personality System Able to Predict Perceived Risk of Heart Disease and Readiness to Lifestyle Modification?

Abstract

Background: Studying personality traits and patterns is of significant importance in adopting healthy behaviors. Therefore, the current study investigates the relationship between Enneagram personality types and perceived risk of heart disease and readiness to lifestyle modification. **Methods:** In this cross-sectional study, 190 noncardiac patients (82.3% female) in an outpatient clinic in western Iran were selected using a simple random sampling method to fill out standard questionnaires. The obtained data were analyzed using Pearson's correlation coefficient and linear regression analysis. **Results:** The findings show that the performer personality (Type 3) can directly predict increasing readiness to lifestyle modification ($P < 0.001$). In contrast, there is a reverse significant relationship between the challenger personality (Type 8) and readiness to lifestyle modification ($P = 0.019$). Moreover, the helper personality (Type 6) is able to directly predict increasing the perceived risk of heart disease ($P = 0.012$). **Conclusions:** In the Enneagram system, unique personality types possess a unique risk perception and readiness to adopt healthy behaviors. The results of the current study can provide valuable information for healthy lifestyle programs professionals with regard to preventing cardiovascular diseases.

Keywords: *Cardiovascular disease, Enneagram, healthy behaviors, lifestyle, personality, risk perception*

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Introduction

Cardiovascular diseases (CVDs) are among the most significant health challenges in the current century, and they are the main reason behind the mortality of people in many countries around the world.[1] In Iran, about 15 million people are suffering from the illnesses and among every 100,000 CVDs reported in the country, 167 cases result in fatality.[2] Despite the fact that the cardiovascular mortality rate has significantly decreased since 2011,[3] the prevalence rate of CVDs and the deaths caused by them is still increasing among the population of developing countries.[4,5]

According to recent reports, underestimating the cardiovascular risk factors,[6] poor risk perception of heart problems,[7] and adopting an unhealthy lifestyle[8] are among the main reasons behind the increase in the risk of CVDs. Perception of cardiovascular risk plays an important role in preventing CVDs through increasing the readiness for lifestyle modification.[9] Adopting an

unhealthy lifestyle, particularly smoking, eating fatty foods, lack of physical activity, and industrial lifestyle patterns have increased the prevalence of CVDs.[10] Despite this, a wide range of vulnerable populations does not possess readiness to change their unhealthy behaviors and to modify their lifestyle. Based on the transtheoretical model or stages of behavior change, readiness for modifying lifestyle involves five stages: precontemplation, contemplation, preparation, action, and maintenance.[11]

So far, various scientific studies have focused on the role of the above-mentioned components in increasing cardiovascular risk. Despite this, the factors affecting the perception of cardiovascular risk and the determinants of readiness for modifying lifestyle have not attracted a sufficient attention. Previously, the potential role of the family history of CVDs, taking controlling fat and antihypertensive drugs, diabetes, smoking, lack of physical activity, and obesity in the risk perception of the diseases has been evaluated.[12] Moreover,

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previous studies show that readiness to modify unhealthy lifestyle is influenced by factors such as perceived stress and self-efficacy,[11] actual risk factors,[13] and depressive symptoms.[14] Nevertheless, it seems that there are other factors involved in increased perception of cardiovascular risk and readiness to lifestyle modification, which have not attracted ample attention. Personality is one of the potential variables which can be considered in evaluating a wide range of behaviors.[15]

Personality has always been studied by scholars from various perspectives and so far, various personality models have been proposed. While studying normal populations, common approaches, including the five-factor model, have been used more often. This emphasizes the necessity to focus on those models which have garnered less attention. The Enneagram personality system is one of these models which can provide an accurate map of the psychological structure of an individual.[16] According to this model, various personalities are metaphors for the active mental functions of individuals. This system divides individuals into nine personality types. The main personality of an individual toward his or her surrounding has both defensive and adaptive aspects, leading the individual to tend toward one of the nine personality types. The other eight personality types, which are less evolved during an individual's lifetime, indicate the latent talents of the individual and contain important parts of an individual's identity.[16]

Since each one of the personality types has its own characteristics and coping mechanisms against stress and anxiety, it is likely that some personality types are more eager to perceive cardiovascular risk and have higher levels of readiness to modify their lifestyle. Despite the fact that the role of the Enneagram system in stress and developmental level,[17] improving depression,[18] creating insight,[19] and knowing oneself[20] has been studied in nonclinical populations, there have been too few studies on the relationship between this system and CVDs.[21] To bridge this research gap, the current study has been carried out to evaluate the role of the Enneagram personality system in predicting the perceived risk of heart disease and readiness to lifestyle modification.

Methods

The statistical population of the current cross-sectional study includes all the noncardiac patients visiting Boustan outpatient clinic in Kermanshah city in January 2018. The criteria for entering the study included the following: (i) 18–80 years of age, (ii) minimum of a secondary school level of education, (iii) no personal history of CVDs, and (iv) willingness to participate in the study. Questionnaires with more than three unanswered questions were eliminated from the study. The Riso–Hudson Enneagram Type Indicator, the Perception of Risk of Heart Disease Scale (PRHDS) by Ammouri and Neuberger,[22] and

the Questionnaire on Readiness to Lifestyle Modification by Gillespie and Lenz[23] were used as data gathering tools.

Participants were 190 individuals. Since in this study linear regression analysis is used, the sample size was estimated based on the number of predictive variables.[24] Since there are nine predictive variables (Enneagram personality types), and it is said that for each variable, 15 samples are needed ($9 \times 15 = 135$); therefore, we evaluated 190 participants. At the data gathering stage, one member of the research team would visit Boustan outpatient clinic on a daily basis to randomly select a number of people present in the waiting room of the clinic. After checking the inclusion criteria and the willingness of participants, the informed consent form would be given to them. At this stage, the necessary guarantees would be given to the participants to ensure them of the confidentiality of their personal information. Then, the questionnaires would be given to the participants. The researcher would provide the necessary explanations on how to complete the questionnaire and the participants would individually fill out the questionnaire in the presence of the researcher. After filling out the questionnaire, which would normally take about 20–30 min, the study questionnaires would be collected. This study has been approved by the Ethical Committee of the Medical University of Kermanshah (IR. KUMS.REC.1396.409).

Tools

The Riso–Hudson Enneagram type indicator

This questionnaire was developed in 1999 by Don Richard Riso and Hudson. In this questionnaire, there are 36 items with two options for the answer, where each option is related to a single personality type and the participant is required to select one of the two options which better reflects their personality characteristics. Therefore, each one of the nine personality types is evaluated using eight items. This scale evaluates nine personality types; therefore, we can add up the scores for each one of the types separately and determine the ranking of the personality types. Selecting more items related to a single personality type indicates the intensity of the characteristics of that particular personality type.[16] Newgent *et al.*[25] reported the Cronbach's Alpha coefficient for this scale between 0.70 and 0.82. The concurrent validity of Enneagram and NEO personality test was reported satisfactory ($P < 0.005$). Hoseinian *et al.*[26] suggest that the validity and reliability of the Persian version of this questionnaire in Iran are satisfactory. Moreover, this questionnaire has been successfully used among the cardiovascular and noncardiovascular populations in Iran.[21]

The perception of risk of heart disease scale

This scale is a pencil–paper questionnaire which was developed and standardized in 2008 by Ammouri and Neuberger.[22] This scale has 20 items and measures the risk perception of heart disease. This scale has three

subscales which include worried about the risk (items 1, 2, 4, 5, 7, 8, and 9), risk (items 3, 11, 12, 14, 15, and 16), and unaware of risk (items 6, 10, 17, 18, 19, and 20). The scoring of the questionnaire is based on a Likert spectrum (completely disagree = 1, disagree = 2, agree = 3, and completely agree = 4). Moreover, items 6 and 10–20 are scored in reverse. Ammouri and Neuberger reported Cronbach's Alpha coefficients of 0.80, 0.72, and 0.68 for the subscales of worried about risks, risk, and unaware of risks, respectively. The correlations of the subscales through a retest method with a 2-week interval were 0.76, 0.70, and 0.61, respectively. The construct validity of this scale and its correlation with health-promoting lifestyle profile II subscales were positive and significant.[22]

The questionnaire on readiness to lifestyle modification

This tool is a pencil–paper questionnaire which was developed and standardized by Gillespie and Lenz in 2011.[23] This scale includes 10 items and measures the individual's readiness to modify lifestyle. This tool has no subscales. The scoring for this scale is based on a five-option Likert spectrum (continuing the current lifestyle for more than 6 months = 1, continuing the current lifestyle for 6 months = 2, planning for modifying lifestyle in the next month = 3, contemplating a new lifestyle within a few months = 4, and not willing to change the current lifestyle = 5). The reliability of this scale was evaluated and confirmed using the retest method. In 2011, Gillespie and Lenz reported the correlation of the items during a 6-month period in the retest method between 0.02 and 0.90. Therefore, the scholars believe that the validity and reliability of this scale are satisfactory.[23]

Data analysis

All the statistical analyses were carried out using SPSS-20 (IBM Corp., Armonk, NY, USA) software application. All the tests had two-tailed and the statistical significance was defined as $P < 0.05$. The data related to continuous variables were reported as means and standard deviation (SD), and the discontinuous data were reported as value and percentage. To perform the main analysis, lack of violation of statistical assumptions such as normality, outliers, collinearity, multicollinearity, and correlations was examined.[24] Given the presence of continuous variables as predictive factors, Pearson correlation and multiple regression analysis were used for identifying correlates of perceived heart risk and readiness to lifestyle modification, separately. Personality types only entered into the regression model that had a significant correlation with the criterion variables. All the personality types were simultaneously entered into the model (Enter Method). Finally, the results of the regression model summary were reported.

Results

The range of age was 18–80 years with the mean (±SD) 42.3 ± 14.1 years for all participants. Demographics and

risk factors and medical history of the samples are visible in Table 1.

In conjunction with the main analysis, the results of the correlation between types of personality and lifestyle modification readiness and PRHDS are specified in Table 2. As can be observed, the personality types of giver ($P = 0.024$), performer ($P = 0.001$), and challenger ($P = 0.006$) significantly associated with lifestyle modification readiness. Considering that higher score in lifestyle modification readiness questionnaire indicates unhealthy lifestyle, it has a direct relationship with types of giver and performer and an indirect relationship with the type of challenger. Thus, these components were only able to enter the regression analysis model. The results of Table 2 also revealed that there is a significant direct relationship between the personality type of loyalist and PRHDS ($P = 0.002$). In addition, there is a significant indirect relationship between the type of challenger and PRHDS ($P = 0.036$).

The results of linear regression analysis for criterion variables are specified in Table 3. In the regression model for lifestyle modification readiness, P values related to the personality types of performer ($\beta = -0.244$, $P = 0.001$) and challenger ($\beta = 0.170$, $P = 0.019$) are statistically significant. Thus, these components are the most powerful predictors of lifestyle modification readiness. In total, the model summary shows that these types of personality are significantly able to predict lifestyle modification readiness (F = 7.742, $P < 0.0005$) and generally can explain 11.1% of its variance. The results of Table 3 also

Table 1: Demographics and risk factors and medical history of the samples

Variables	Total (*n*=190)
Sex, female (%)	158 (83.2)
Marital status (%)	
Single	33 (17.4)
Married	137 (72.1)
Divorced	20 (10.5)
Job (%)	
Employee	18 (9.5)
Self-employed	23 (12.1)
Housekeeper	128 (67.4)
Retired	4 (2.1)
Student	17 (8.9)
Risk factors and medical history (%)	
Smoking	22 (11.6)
Substance abuse	5 (2.6)
Alcohol drinking	9 (4.7)
Hypertension	32 (16.8)
Diabetes	15 (7.9)
Hyperlipidemia	44 (23.2)
Myocardial infarction	4 (2.1)
Overweight (BMI >25)	77 (40.5)

BMI: Body mass index

Table 2: The correlation between the types of personality and criterion variables

Variable	Mean±SD	Lifestyle modification readiness		PRHDS	
		r	P	r	P
Enneagram personality					
Type 1, perfectionist	3.1±1.6	0.042	0.567	−0.043	0.556
Type 2, giver	5.6±1.6	−0.163	0.024	0.060	0.410
Type 3, performer	4.7±1.4	−0.238	0.001	0.136	0.061
Type 4, romantic	3.9±1.4	−0.004	0.957	−0.049	0.503
Type 5, observer	3.2±1.4	0.110	0.129	−0.059	0.420
Type 6, loyalist	4.7±1.3	0.071	0.329	0.224	0.002
Type 7, enthusiast	3.3±1.6	0.003	0.967	−0.096	0.187
Type 8, challenger	3.6±1.5	0.197	0.006	−0.153	0.036
Type 9, mediator	3.9±1.2	0.022	0.763	0.001	0.984
Lifestyle modification readiness	25.2±7.9	-	-	-	-
PRHDS	46.2±6.9	-	-	-	-

PRHDS: Perception of risk of heart disease scale, SD: Standard deviation

Table 3: The results of linear regression analysis for criterion variables

Enneagram personality	Lifestyle modification readiness[a]				PRHDS[b]			
	B	β	t	P	B	β	t	P
Type 2, giver	−0.566	−0.119	−1.649	0.101	-	-	-	-
Type 3, performer	−1.336	−0.244	−3.530	0.001	-	-	-	-
Type 6, loyalist	-	-	-	-	1.004	0.195	2.524	0.012
Type 8, challenger	0.912	0.170	2.356	0.019	−0.365	−0.077	−1.003	0.317

[a]Summary of the model for readiness to lifestyle modification: $R=0.333$, $R^2=0.111$, $F=7.742$, $P<0.0005$; [b]Summary of the model for PRHDS: $R=0.236$, $R^2=0.055$, $F=5.490$, $P=0.005$. PRHDS: Perception of risk of heart disease scale

revealed PRHDS that *P* value related to the personality type of loyalist is statistically significant (β = 0.195, *P* = 0.012). Overall, the model summary shows that this type of personality is significantly able to predict PRHDS (F = 5.490, *P* = 0.005) and generally can explain 5.5% of its variance.

Discussion

Main findings

- There is a direct relationship between the "giver" and "performer" personality types and readiness to lifestyle modification. However, there is a reverse relationship between the "challenger" personality type and readiness to lifestyle modification
- Only the "performer" and "challenger" personality types can predict readiness to lifestyle modification
- There is a direct relationship between the "loyalist" personality type and perceived risk of heart disease. However, there is a reverse relationship between "challenger" personality type and perceived risk of heart disease
- Only the "loyalist" personality type can predict the perceived risk of heart disease.

Studying personality traits and patterns is important in adopting healthy behaviors. In this regard, a number of effective research approaches have been proposed so far. However, the Enneagram model can effectively determine the internal desires, conscious and unconscious motivations, and emotional-perceptual-behavioral patterns of individuals.[16] In Enneagram system, the balance among nine personality patterns, as the underlying indicator of health, is emphasized. Therefore, an imbalance in each one of these personality patterns can prevent an individual from reaching physical and mental health as the ultimate objective of the Enneagram system.[16]

The results of the current study show that there is a direct relationship between "giver" and "performer" personalities (Types 2 and 3) and readiness to lifestyle modification. Particularly, the higher scores for the "performer" personality can predict a higher readiness to lifestyle modification. People with a performer personality (Type 3) are in the emotional triad of the Enneagram system. Performers are usually energetic, active, excited, flexible, decisive, and extrovert people.[27] Extroversion directly affects adopting healthy lifestyle and behaviors, which can reduce mortality rate up to 14%.[28] The people with this personality type define clear goals for themselves and do their best to reach these goals.[27,29] If these goals are focused on personal health, they will have a higher level of readiness to modify their lifestyle.

Another finding of the study indicates a direct relationship between the "loyalist" personality (Type 6) and the perceived risk of heart disease. People with a loyalist personality are categorized in the cognitive triad of the

Enneagram system and their emotional focus is fear. They are usually responsible and stable, attractive, justice-seeking, emotional, pessimistic and skeptic, and cautious and conservative individuals. They are afraid of acting on their desires and are often very conservative. Loyalists always feel that they are exposed to potential health threats and risks and believe that people must always be prepared and cautious.[16,29] This type of personality attitude results in increased perception of risk in these individuals. These people often successfully detect potential health hazards; however, in contrast to "performers," they are not ready enough to modify their lifestyle since they are more focused on their thoughts instead of their actions.

Another finding of the study shows that there is an indirect and reverse relationship between the challenger personality (Type 8) and the perceived risk of heart disease as well as readiness to lifestyle modification. Challengers are categorized in the instinctive triad of the Enneagram system and their main emotion is anger. They are leaders, and decisive, controlling, headstrong, and stubborn individuals. These people are usually arrogant and do not accept their mistakes. Challengers are highly risk-taking and adventurous and are very excessive in many regards.[27,29] The weak attitude of these individuals with regard to personal issues, including health behaviors, and their inflexibility for adopting new adaptive behaviors can lead to weak risk perception and lack of readiness for modifying lifestyle. In general, weaker psychological flexibility will result in more serious health consequences.[30]

Finally, it was found that there is no relationship between some personality types such as "perfectionist," "romantic," "observer," "enthusiast," and "mediator" with perceptions of cardiac risk and readiness to lifestyle modification. In a single position, each personality pattern with unique subjective mechanisms results in different behaviors. For example, a loyalist pessimist personality understands the health threat, while an enthusiast optimistic personality may ignore health threats using reframing it. On the other hand, unlike the performer personality, the romantic imaginary type and the mediator negligent type have fewer tendencies for any action. Lack of understand of the disease as a serious threat by these types probably not likely to affect the level of readiness to lifestyle modification.

While our study in this field can be considered a pioneering study and the current model was able to predict 5.5%–11.1% of the variance in the criterion variables, it was also faced with a number of limitations. Our samples were only selected among the patients of one outpatient clinic in western Iran. Selecting larger sample sizes from various locations in the country or other countries can reduce the potential bias in the results and increase the usefulness of the study. Furthermore, in this study, the short form of the Enneagram questionnaire was used where there are only eight items for measuring

each personality type. In the long form of this scale, which includes 144 total questions, each personality type is measured using 32 items. Using the long form of this scale can provide more accurate scores. Regarding the fact that participants included outpatients without any heart disease, their readiness to improve their lifestyle was relatively weak. Repetition of this study in cardiac patients is likely to be associated with higher scores in readiness to lifestyle modification. Finally, in this study, the raw scores of the personality types were used for the statistical analysis. A comprehensive interview with the participants by an expert psychologist with expertise in the Enneagram system can contribute to the determination of the main personality types of individuals. Therefore, future studies can exclusively use the dominant personality type of participants for predicting health behaviors.

Conclusions

The Enneagram personality system can provide opportunities for evolution and personal and social health of patients because it can define the unique mental and emotional defenses of each personality type. This comprehensive system can provide a new map of the health behaviors of outpatient. Unique personality types possess unique risk perception and readiness to adopt healthy behaviors. The results of the current study can provide valuable information for healthy lifestyle programs professionals with regard to preventing CVDs.

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Conflicts of interest

There are no conflicts of interest.

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