

Predicting Mental Health Based on the Locus of Control and Hardiness in People with High Blood Pressure¹

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ABSTRACT

This study was conducted to predict mental health based on the locus of control and hardiness in people with high blood pressure. The statistical populations of this study were all men and women aged 30 to 50 years with Hypertension referred to Aria Hospital in the first half of 2019 were. The sampling method was available. According to the formula ($N > 50 + 8M$), the number of samples was 144 people. General health questionnaire, Rutter locus of Control questionnaire, and Kobasa hardiness questionnaire were used to measure the research variables. Pearson correlation coefficient and multiple regression were used to analyze the data. The regression analysis results showed that hardiness and locus of control together could predict 30% of the variance in mental health. According to the present study's findings, hardiness and locus of control have a significant role in patients' mental health with Hypertension. It is recommended to hold short-term and intensive workshops on the importance of the components of hardiness and the source of internal control for psychologists, therapists, and family members of people with Hypertension.

Keywords: Mental Health, Locus of Control, Hardiness, Hypertensive.

Introduction

One of the most common chronic health problems is Hypertension.

Hypertension is asymptomatic and often indistinguishable and directly affects the incidence of cardiovascular disease, stroke, heart failure, renal failure, and death due to this disease (Miri, Vaziri, Ahi, Shahabzadeh and Mahmoudi Rad, 1400). Blood pressure is the force that blood uses on the walls of the

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arteries where it flows based on the World Heart Association. Two indicators of diastolic (expansion) and systolic (contraction) measure blood pressure. High blood pressure is diastolic blood pressure above 90 mm Hg or systolic blood pressure above 120 mm Hg (Zodieh, Rainer, AJ, Scott, Tuagiromozica, and Damasno et al., 2018). It is estimated that the prevalence of Hypertension in the ages of 30 to 35 and over 55 years in Iran is respectively about 23 and 50 percent. In addition, it is estimated that the prevalence rate in men is 1.3% lower than in women (Saeidian, Sohrabi, and Zemstani, 2018).

Like most other chronic diseases, this disease is closely in line with patients' lifestyles, mental health, and quality of life (Khalundi and Fatehi, 2020). Mental health is defined as communicating harmoniously with others, changing and modifying the unique social environment, and resolving conflicts and personal inclinations logically, just, and appropriately (Choi, Park, and Cha, 2017). Mental health means having emotional, mental, and social health, which affects how we think, feel, and act (Ganji, 2020). Among the consequences of high blood pressure, psychological symptoms such as depression and anxiety are more common because they aggravate and prolong the disease and delay its recovery (Miri et al., 1400). If high blood pressure is not controlled in a timely and appropriate manner, it leads to unpleasant side effects due to its close relationship with lifestyle and mental health. It will finally reduce these patients' quality of life and mental health (Tahman, Kalhernia Golkar, and Haji Alizadeh, 2020).

The locus of control is one of the effective psychological factors for adaptation and mental health of heart patients with Hypertension. Locus of control is usually used to predict medical complications and adaptation to various health threats because, conceptually, it is a cognitive variable (Sahranvard, Ahadi, Taqdisi, Kazemi, and Kraskian, 2017). Rutter first introduced the concept of the locus of control which refers to the perception that human has causality as a result of their behavior. According to place control theory, humans receive a set of beliefs about individuals or objects that have a restraining role in rewarding and punishing themselves. Some people believe that hard work and responsible behavior lead to positive outcomes because they have an inner orientation. In addition, those people who have an external exposure believe that events are determined by chance, the power of others, and unknown and uncontrollable factors and the consequences of any action are beyond personal control (Rutter, 1966, quoted in Khanzadeh, Amini Manesh, Hadian, And Ali Asgari, 1398). The source of internal control reduces stress and makes people feel in control. Some traits for patients believe that they effectively control and prevent their disease, such as having fewer emotional problems, becoming less alcoholic, coping better with mental disorders, being less prone to anxiety and depression, and being less likely to commit suicide. They also engage in behaviors to improve their chances of survival and quality of life, such as prayer and reasoning, diet change, exercise, and social interaction. (Afshahi and Kachuei, 2020). In this case, Afshahi and Kachuei (2020) found that the locus of control could significantly predict people's health with Hypertension. Cord (2018) also conducted a study to show the locus of control's role in predicting mental health in university employees.

Hardiness is another component that measures mental health (Hashemiannejad, Mostafa Pour, Olumi, and Madahinejad, 2020). Hardiness has different definitions. For example, it is a combination of beliefs about oneself and the world that has three components: militancy, commitment, and control (Maddi, Kobasa, 1994; quoted by Hashemiannejad et al., 2020). People are more resistant to problems when they have higher hardiness. People can use effective strategies in the face of failures and crises due to components of hard work that include Challenging, commitment, and a sense of control. These strategies increase self-esteem, control, and struggle and consequently improve mental health (Peymbari, Sadeghifard, Rashidi, and Tahoor Soltani, 2019). Studies investigated that the mean changes in systolic and diastolic blood pressure in the group with high stiffness are significantly lower than those with low hardiness. On the other hand, the person's cardiovascular changes in stressful conditions will be different based on the level of hardiness of the person (Peymbri et al., 2019). In addition, there is a significant relationship between psychological toughness and the health of patients with Hypertension, according to Keshavarzi (2013).

It is necessary to identify more effective factors in the mental health of patients with Hypertension due to the increasing statistics of this disease in Iran, economic problems and high costs of treatment of this disease, inability to perform various activities and job loss in patients, the impact of psychological factors in aggravating the symptoms of this disorder. In addition, there is a gap in this case because no research has been conducted to investigate the role of the source of control and stubbornness in the mental health of patients with Hypertension. Therefore, the present study examines this question: Do hardiness and the locus of control predict mental health in people with Hypertension?

Method:

The method used in the present study was descriptive-correlational. The statistical population was all men and women aged 30 to 50 years with Hypertension who were referred to Aria Hospital in the first half of 2019. The sampling method was available. Tabaknik and Fidel (2007) proposed a formula to estimate the sample size. The minimum sample size in correlation studies based on their proposed procedure is calculated from the formula ($N > 50 + 8M$). This formula used 72 men and 72 women, obtaining N as the sample size and M as the number of independent variables. The participants were given the questionnaires after obtaining informed consent and explaining the purpose of the research. The subjects were taught how to answer the questions and were asked to study the questions carefully, choose the answers appropriate to their characteristics, and not leave the question unanswered as much as possible. The Entry criteria included high blood pressure, knowledge of the research objectives, and interest in participating in the study. The Exit criteria also included remaining more than 30% of unanswered questions, using a specific answer pattern (identical answer to actual questions or marking an option in consecutive questions that the researcher examined by reviewing each questionnaire), and lacking honesty in completing the questionnaire.

The following questionnaires were used to collect data:

General Health Questionnaire (GHQ):

The general health questionnaire has 28 questions. In this test, a high score represents the presence of disease, and a low score means the absence of illness or general health. This questionnaire is compiled from four subscales, and each subscale includes seven questions in the field of physical symptoms, anxiety, social functioning, and depression. Five scores are obtained from the questionnaire that four of which are related to the subscale above, and the last subscale is related to the whole questionnaire. The maximum and minimum accessible score for a person in this questionnaire is 84 and zero. This questionnaire scoring system is based on the Likert scale, which is given a score of (0-1-2-3) for each of the four situations (Goldberg & Hiller, 1979). Cheung & Spears (1994) used the retest method and obtained the reliability coefficient of the general health questionnaire as 0.47. In addition, the alpha coefficient for the whole scale was 0.88, and for the subscales of physical symptoms, anxiety, social dysfunction, and depression were 0.66, 0.72, 0.79, and 0.85, respectively. Malakouti, Mirabzadeh, Fath Elahi, Salavati, Kahali, Ebrahimi, et al. (2006) conducted a study in which this questionnaire's Cronbach's alpha coefficient was obtained 0.94 and the average correlation of questions with each other was 0.35. The factor analysis and diagnostic validity were used to investigate the instrument's fact that. Cronbach's coefficient of four factors of depression was 0.89, the social function was 0.89, anxiety was 0.85, and physical symptoms were 0.71.

Rotter's Locus of Control Questionnaire)

Rotter (1966) developed this questionnaire to evaluate a person's generalized expectations for internal or external reinforcement control. Social learning theory is used as a theoretical framework to make this measurement tool. This questionnaire has 29 items, and each item has a pair of questions (a and b). Each person's score shows the type and degree of locus of control. Therefore, subjects will have an external locus of control who score nine or higher, and individuals who score lower will have an internal locus of control (Rutter, 1966; quoted by Weiner, 1984). Based on Rotter's (1966) studies, the retest coefficient was between

0.40 and 0.83 (Rutter, 1966; quoted by Osweiler, 1984). The validity of the criterion at the same time as the Newick Stricklander locus of control as a standard was used in this questionnaire so that Mowaffaq (1996) (quoted by Yaryari et al., 2007) obtained the validity of this scale 39 / 0 by standardizing the R Otter locus of control scale on high school students in Mashhad. In addition, the Cronbach's alpha of this questionnaire was reported 0.76.

Cubasa Hardiness Questionnaire:

Cubase Hardness Questionnaire (1982) is a tool to measure hardiness. This questionnaire has 50 questions that include subtests of challenge, commitment, and control. A Likert scale of four (never (3), sometimes (2), rarely (1), often (0)) is used to score the questionnaire questions. These scale scores are calculated on three levels of commitment (including 16 items), control (17 items), and challenge or struggle (17 items). The sum of the total scores of these questions is considered the score of the hardiness of the respondent. The respondent has higher hardiness if he scores more. The scores of the questions are then added together to measure the score for each factor. Students who show a better performance in the hardiness trait can score higher on this questionnaire (Kobasa and Madi, 1992). Cubasa and Madi (1992) consider this questionnaire to have appropriate construct validity. Three factors were extracted after seven replications based on principal component analysis and varimax rotation. These three factors determine 50.16% of the total variance of the test. Cubasa and Madi (1992) found Cronbach's alpha for the commitment component was 0.75, control 0.84, and combat 0.71. In Iran, Zare and Aminpour s study (2011) proves this questionnaire's appropriate internal consistency. The Cronbach's alpha coefficient is estimated for the commitment component 0.84, 0.82 for control, and 0.75 for combat. In addition, Ghorbani (1995) confirmed the face and content validity of this questionnaire scale. Descriptive statistical methods (mean, standard deviation) and inferential statistical methods (Pearson correlation coefficient and multiple regression) were used in Spss-24 software to analyze the data.

Findings:

The information about gender, age, and education of the research sample is shown in Table 1

Table 1: Gender, age, and education of the research sample

variable		Frequency	Percentage
Gender	Man	72	%50
	Female	72	%50
	Total	144	%100
Age	30-40	62	%43.5
	41-50	82	%56.95
	Total	144	%100
education	Diploma	65	%45.14
	Postgraduate Degree	21	%14.58
	Bachelor	58	%40.28
	Total	144	%100

The following results are obtained based on Table 1: Half of the subjects were male, and the other half were female. Sixty-two patients (43.05%) were in the age range of 30-40 years, and 82 patients (56.95%) were 41-50 years. Sixty-five patients (45.14%) had a diploma, 21 (14.58%) had a postgraduate degree, and 58 (40.28%) had a bachelor's degree.

Table 2 shows the mean and standard deviation of the scores of the research variables

Table 2: Mean and standard deviation of the score of research variables

Variable	Average	Standard deviation
Physical symptoms	15.12	4.06
Anxiety	11.84	3.58
Social function	9.05	2.31
Depression	14.34	4.62
Overall mental health score	49.37	7.13
Obligation	22.96	4.48
Control	26.28	5.18
Fighting	29.45	6.02
Overall hard score	58.42	11.23
Locus of Control	7.61	2.72

The results of Table 2 show that the overall score of mental health was (49.37), the overall score of hardiness was (58.42), and the overall score of locus of control was (7.61). Multivariate regression analysis was used to analyze the research data.

The "normality" of the data is one of the most important presuppositions of regression analysis. The Kolmogorov-Smirnov test was used in the present study to evaluate the normality of the data. According to the results, all variables have a level of significance greater than 0.05. Therefore, it is concluded that with 95% confidence, the distribution of these variables was normal and parametric tests are allowed to use. Based on hardiness and locus of control, the regression analysis results for predicting mental health are shown in Table 3.

Table 3: Results of regression analysis to predict mental health based on hardiness and locus of control

Criterion variable	Predictive variable	R	R ²	F	Beta	T	P
Overall mental health score	obligation	0.54	0.30	11.07	-0.21	-3.11	0.001
	Control				-0.28	-4.33	0.001
	Fighting				-0.25	-3.87	0.001
	Overall hard score				-0.41	-5.04	0.001
	Locus of Control				0.35	3.61	0.001

The results of Table 3 show a negative and significant relationship between the overall mental health score and the hardiness components. In addition, there is a positive and meaningful relationship between the overall score of mental health and the locus of control. Hardiness and a locus of control can predict a 30% variance in mental health.

Conclusion:

This study was conducted to predict mental health based on the locus of control and hardiness in people with high blood pressure. Based on results, 30% of the variance of mental health is predicted by locus of control and hardiness. This study finding is consistent with the findings of Afsahi and Kachuei (2020), Kurd (2018), Peymberi et al. (2019), Karimi (2018), and Agriculture (2013). According to the relationship between mental health and hardiness, it can be concluded that people with high levels of mental health have higher hardiness, and it is a protective shield against stressors. People with mental health disorders (physical symptoms, anxiety, social dysfunction, and depression) have low hardiness. To deal with stressful events, this group of people uses regressive coping strategies. For example, these individuals are possibly passive and reluctant and withdraw cognitively and behaviorally. This strategy cannot change the situation and solve the problem, but it causes incompatibility and increases emotional problems (Peymberi et al., 2019). Challenging is one of the characteristics of hard-working people. Therefore, this trait makes stressful events seem controllable and not important. Hardiness makes people more resistant to unpleasant and unexpected

events. There are some traits for hard-working people. For example, they are purposeful and progressive, consider adversity and life changes as a natural part of life, choose the problem-solving attitude towards life, and use social systems effectively. Active coping strategies improve a person's confidence in their ability to cope with stressful situations, improve self-esteem and commitment, control and combat mechanisms, and finally increase mental health. To deal with problems, hard-working people usually do not rely on self-blame, willing thinking, or avoidance as strategies. People with this feature have higher mental health (Agricuture, 2013).

According to the relationship between mental health and locus of control, it can be concluded that people with an internal locus of control are better adapted and less worried than outsiders. People with an external locus of control are more stressed in interpersonal relationships, have lower job satisfaction, and lower mental health. People are privileged more health when they feel they can influence what is happening in their lives compared to people who believe that their efforts do not affect the outside world (Soleimani Hesar and Agham Mohammadian) Sharabaf, 2013). People with an internal locus of control believe in empowerment, influence, and control. In addition, they consider themselves as the rulers of their destiny. They believe in their ability to control life events, the internal locus of control, and supervise. People with an inner locus of control believe that they have enough control over their lives and events. Therefore, they behave based on their belief. They are more conscious of peripheral corneas, which can guide their behavior. People with an inner locus of control are more interested in taking responsibility for their actions than those with an external locus of control.

Moreover, people with an inner locus of control have better mental health, according to research. These people have a better performance in laboratory tasks and are less exposed to attempts to influence them. This group of people has more mental health because they have less anxiety and more self-esteem and are more interested in taking responsibility for their actions (Karimi, 2013).

The present study was conducted in the behavioral sciences like most studies, which was accompanied by limitations, including the limited nature of the research sample and the reliance on questionnaire tools. In addition to the assessment tools used in the present study, it is suggested to use other tools such as interviews and psychological tests to increase the richness of the findings and ensure more results. Future research should be conducted on a larger sample to increase the power of generalized research findings. The present study findings indicated the significant role of hardiness and locus of control in the mental health of patients with Hypertension. Therefore, it is suggested to hold short-term and intensive workshops on the importance of hardiness components and an internal locus of control for psychologists, therapists, and family members of people with high blood pressure.

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