The Relationship between Emotional Intelligence and adherence to treatment regimens in Patients with Cardiovascular Disorders, Iranshahr, Iran

[1]Fatemeh Darban, [2]Enatollah Safarzayi*, [3]Edrisa Kouhsari and [4]Reza Karamzehi

[1]*MSc in Psychiatric Nursing, Faculty Member, Nursing and Midwifery School, Iranshahr University of Medical Sciences, Iranshahr, Iran*
[2]*Master Student of Medical- Surgical Nursing, Zahedan University of Medical Sciences, Zahedan, Iran*
[3]*Technician of Medical Emergencies, 115 Emergency Center, Iranshahr University of Medical Sciences, Iranshahr, Iran*
[4]*BSc of Nursing, Zahedan University of Medical Sciences, Zahedan, Iran*
*Corresponding Email: E.safarzai@gmail.com

_____

ABSTRACT

Cardiovascular disease is one of the main causes of death in the world and one of the major difficulties of optimal control of this disease is the lack of adherence of patients to the therapeutic diet. Several factors such as emotional intelligence influence the patients' motivation for changing behavior. The aim of this study is to determine the relationship between emotional intelligence and adherence to treatment regimens in patients with cardiovascular disorders in Iranshahr. This study was of cross-sectional correlation type; its research units were 100 patients with cardiovascular disorders admitted in ICU department of hospital Khatam Alanbiain Iranshahr. They were selected as available subjects. Data collection tool was Brad Graves' emotional intelligence questionnaire and a researcher-constructed questionnaire of the therapeutic diet compliance by heart patients; their validity and reliability had been confirmed. For analyzing the data, the statistic software SPSS was used. The findings showed that the average score of emotional intelligence of research units was80.6±15.0and their average score for therapeutic diet compliance was 58.0±9.7. There was a direct relationship between the emotional intelligence and the amount of compliance; this relationship was significant (p<0.000). Based on the findings of this study, with increasing the emotional intelligence of patients the amount of their therapeutic diet compliance is increased. Since there is a direct relationship between emotional intelligence and therapeutic diet compliance, it is recommended that the working procedures are used for enhancing the emotional intelligence of patients with cardiovascular disorders.

Key words: emotional intelligence, compliance, cardiovascular disorder
_____

INTRODUCTION

Today, the cardiovascular diseases have been considered as the most basic health problems, so that according to the report of World Health Organization the causes of 22% of death in the world and 35% of it in Iran are the cardiovascular diseases [1, 2]. According to statistic of the Ministry of Public Health, Medical Care and Medical Education, the cause of about 39% of the whole individuals referring to health care centers is the blood circulation diseases [3, 4].

High blood pressure, high cholesterol, diabetes, smoking, unhealthy lifestyle and psycho-social factors are the adjustable risk factors that in more than 90% of the cases cause to become more critical the situation of heart patients and progress of their disease [5]. Confronting the adverse effects of these factors will be associated with changes in the needs of the self-care that makes necessary to adjust the life style and therapeutic diet compliance [6]. The therapeutic diet compliance is a wide range of individual's behaviors that may be prescribed in accordance with the recommendations presented by the of health cares in the field of therapeutic diet compliance that in heart diseases signifies the cases such as nutritional and medicinal diet, stopping smoking, taking off weight, changes in lifestyle etc. [7].Despite the importance of this subject, the results of various studies have shown that at least 50% of the patients with cardiovascular disorders do not comply with their therapeutic recommendations; this leads to accept patients again at the hospital as a result of suffering from the heart failure effects [8]. The factors such as restriction because of the agedness, suffering from other serious chronic diseases, inadequate knowledge of the methods of therapy and diet are of impact in not complying with the therapeutic diet [9]. In addition to the cases mentioned, not having the necessary motivation to change behavior and adherence to prolonged consumption of prescribed medicines are some important factors that makes the therapeutic diet of these patients to be failed.

Various factors such as age, culture, severity and the side-effects of the disease and social environment affect the amount of patients' motivation [10]. In the meantime, one of the most impressive factors is the individuals' emotional intelligence. Emotional intelligence is a concept that for a first time was introduced at the beginning of the decade of 1990 by Mayer &Salovey and then quickly was used commonly in 1995 by Goleman [12]. This concept is constituted of a collection of emotional, cognitive and integrated abilities that help an individual with perceiving, evaluating and expressing precisely the emotions to be informed from feelings that will facilitate the thoughts and to have the wise and responsible decision-makings with establishing a balance between their emotions and thoughts [13]. In fact, emotional intelligence is a proper processing of information that has an emotional load and using it for thinking and communicating [14]. Pellitteri believes that the emotional intelligence is associated with the psychological compatibility, success and its prediction and the overall satisfaction of life [15]; low emotional intelligence may be of risk factors including creating difficulties with environmental adaptation and self-care behaviors [16], because in these individuals have the ability to problem solving is significantly lower; these individuals do not have much abilities in utilizing the confrontational skills for coping with the mental pressures of life [17].

Considering the extensive search, the studies that measure the relationship between emotional intelligence and the therapeutic diet compliance, were not found; regarding the importance of following up the therapeutic diet of cardiovascular patients for reducing the side-effects and health promotion, researchers tend to investigate whether exists a relationship between emotional intelligence and adherence to treatment regimens in patients with cardiovascular disorders.

MATERIALS AND METHODS

This research was done as a cross-sectional correlation in 2014 on patients with cardiovascular disorders referring to the hospitals of Iranshahr. The study inclusion criteria were a tendency to participate in research, diagnosing the cardiovascular disease by a heart specialist, traversing at least 6 months after the diagnosis of disease, being vigilant, having reading and writing literacy or lack of difficulties in speech and hearing; its exclusion criteria were the reluctance to the presence in research and facing with a major stress (death of family members, divorce etc.) during the implementation of the research.

Sample size according to the following formula Z (1-a/2)=1.96, d=5, s=25/6, $n = \frac{z\,(1-a/2)2s2}{d2}$ with confidence coefficient 95%, precision 5% and test power 80% was determined by100 individuals. In this research the sampling method had the form of available sampling. After taking the letter of introduction from the faculty of nursing and midwifery and providing it to the office of hospital nursing of Khatam Alanbiya of Iranshahr and referring to the head nurse of CCU, the researcher made a move of gathering the information. The time of sampling was on the morning shift and the time of admitting patients was new.

The tools used in this study included demographic profile form, Brad Graves' emotional intelligence questionnaire and researcher-constructed questionnaire of the therapeutic diet compliance in heart patients. Demographic profile questionnaire had 25 questions about personal information and disease; it had been prepared with regard to the objectives of the research and studying the latest related articles and resources. Brad Graves' emotional intelligence

_____

questionnaire measures the emotional intelligence in four dimensions. It includes four dimensions of self-consciousness, self-management, social awareness and relationship management; any one is studied with 7items. Lowest score of this questionnaire is zero and its highest score 112. More the achieved score from this questionnaire is higher it indicates a higher emotional intelligence. Validity of the Persian version of the questionnaire has been confirmed by Ganji (2005). For determining the validity, the validity of criterion whose correlation coefficient was 0.68,was used [18]. In this research also, its content validity was confirmed by 10 professors of the University of Medical Sciences of Zahedan and Iranshahr. Reliability of this questionnaire was confirmed by Ganjibe of the way of internal consistency; its correlation coefficient for the self-consciousness dimension was obtained0.73, for the self-management dimension 0.78, for the social awareness dimension0.76, and for the relationship management 0.76 [18]. The therapeutic diet compliance questionnaire is a researcher-constructed tool that has been provided according to the objectives of the study and studying the newest resources and related articles and consulting with consultant professors; it contains 21 items that measure the rate of therapeutic diet compliance of patients with cardiovascular disorders in four pharmaceutical (4 questions), food (8 questions), activity (5 questions) and lifestyle (4 questions)dimensions. For completing it the subject should read each item and then specify the amount of conformity of his/her current status with its content on Lickertoptions spectrum between 0 (never) and 4 (always). Lowest score of this questionnaire is zero and its highest score 80. The more is higher the obtained score, higher compliance it shows. To determine the validity of this tool the content validity was used in the following way: this form has been given to 10 experts and CVR = 0.78 and CVI = 0.89 were obtained. To determine its reliability the method of internal consistency was used whose Cronbach's alphacoefficientwas0.87.

To analyze the data, the SPSS software of version 14 and the analytical and descriptive statistics were used. To describe the demographic information, the mean, standard deviation, frequency distribution table (relative, absolute) were utilized. Study of the relationship of the variables related to the individual specifications and disease with the emotional intelligence and the amount of therapeutic diet compliance was done by Spearman and Pearson correlation tests. Finally, to determine the relationship among qualitative variables, the Chi-square test was used.

RESULTS

The average age of research units was 56.3 ± 8.6 years and 59% of research units were male and the rest female. 30% were homemakers,20% retired, 17%free and 33% unemployed. 70% of the research units were married,5% divorced and 25% of them were widow. Average times of hospitalizing of research units were 5.3 ± 2.6 times. 34% of research units consumed the tobacco and 63% of them were overweight. Their average systolic blood pressure was 159.4 ± 28.4 mm/Hg and their average diastolic blood pressure was 89.4 ± 16.2 mm/Hg.

The average score of emotional intelligence of research units was 80.6 ± 15.0 and that for their therapeutic diet compliance 58.0 ± 9.7. The average score of self-consciousness dimension of emotional intelligence was 18.6 ± 4.1,self-management dimension 23.6 ± 5.3, social awareness dimension 13.8 ± 3.5 and relationship management dimension 23.8 ± 7.0 (table 1).

The average score of the nutritional dimension of therapeutic diet compliance was 23.8 ± 5.4, activity dimension 12.3 ± 2.2,drugdimension 13.8 ± 2.8 and the lifestyle dimension was 6.6 ± 2.7 (table 2).

The test results of Pearson correlation coefficient showed that there was a direct relationship between emotional intelligence and the amount of the therapeutic diet compliance in patients with cardiovascular disorders; this relationship was significant (p = 0.000). Based on the findings of this study, the patients who had the higher emotional intelligence, higher was their therapeutic diet compliance (table 3).

There was also a significant direct relationship between all dimensions of emotional intelligence (self-consciousness, self-management, social awareness and relationship management) and overall score of the therapeutic diet compliance, (p = 0.000) (table 3). The findings of this study showed that patients who had a higher score in dimensions of self-consciousness, self-management, social awareness and relationship management, the amount of their therapeutic diet compliance was more.

Based on the findings of this research, there was a direct relationship between all dimensions of the therapeutic diet compliance (drug, food, activity and lifestyle) and the overall score of the emotional intelligence; this relationship was significant (table 4).

_____

Based on the findings of this study, there was not observed any significant relationship between the demographic variables and the amount of emotional intelligence and therapeutic diet compliance.

DISCUSSION AND CONCLUSION

Based on the findings of this study, the emotional intelligence and all of its components are directly associated with the therapeutic diet compliance in patients admitted to ICU department and the patients who have higher emotional intelligence, are of higher adherence to the therapeutic diet. High emotional intelligence is associated with components such as the health-related behaviors, increase in empathy and reduction of depression and distress [19-21]. The research findings of Samar (2001) also indicated that there is a significant correlation between emotional intelligence and self-management and control of glucose in patients with diabetes type 1 and patients with higher emotional intelligence were of higher self-management [22]; this finding is consistent with our study.

The findings of the study of Willard (2003) showed that was not any significant difference between emotional intelligence and none of its dimensions and complying with medicinal diet in patients with virus HIV; this finding is inconsistent without study [23]. The cause of this difference is probably due to difference in the study tool and research units. The study tool in the research of Samir was the emotional intelligence scale of Salvi and Meyer, while the tool of this research was the emotional intelligence questionnaire of Brad Graves. There search units of Samir's study were the individuals infected to virus HIV; virus resistance to the drugs affected negatively their therapeutic diet compliance. On the other the duration of filling out questionnaires in the study of Samir was 45 minutes; the fatigue and depression have been effective probably on answering the questionnaire.

In a study Yalcin et al investigated the impact of the emotional intelligence training program on quality of life and psychological wellbeing of patients with diabetes. Findings of this study indicated that with an increase in emotional intelligence, increased the quality of life and psychological wellbeing of the patients [24]. From the viewpoint of the relationship of the social intelligence with the individual's understanding of life and his/her performance, this study is consistent with our study. Through being improved the confrontational skills, stress management, effective expression of the anguish and anxiety, strengthening the problem-solving skills and improvement of the personality patterns, the high emotional intelligence is of effect on the individuals' life style and consequently on amount of patients' therapeutic diet compliance [25]. Emotional intelligence helps individuals to express and manage their emotions, understand the relationship between emotions and thoughts and behavior and create the empathetic communication [26].

The findings of the research of Soltani Shal et al (2013) showed that the emotional intelligence affects directly and indirectly the quality of life of cardiovascular patients; in this case the results are consistent with our findings [27]. In fact, individuals of higher emotional intelligence can confront more successfully the environmental difficulties of their life and have more health.

In a research Schutte et al (2007) investigated the relationship between emotional intelligence and individuals' mental health; the results indicated that higher emotional intelligence has a significant relationship with better health [17]. Research findings of Alipour et al (2012) also indicated that all of the components of emotional intelligence have a considerable predicting role in creating the cardiovascular disease. This meant that the increasing and improving the skills of emotional intelligence correspond with decreasing the probability of suffering from cardiovascular disease [28]. Resorting to health-related behaviors (non-smoking, healthy diet, physical activity etc.), individuals with high emotional intelligence reduce to minimum the unpleasant effect of stress on their physical health. Bahrami et al (2008) examined the relationship between emotional intelligence and general health in female managers. The results of the research showed that there is a reverse relationship between some factors of emotional intelligence and the existence of physical and mental symptoms and women who have higher emotional intelligence come to terms better with the physical and psychological disorders [29]. Emotional intelligence creates the ability to predict the behaviors and controls individuals' feels and emotions in relation to environment. Emotional intelligence skills allow a person to assist is/her health with managing his/her morale and temper before the person's emotions are uncontrollable [30].

Direct relationship between emotional intelligence and good and healthy life show much is important paying attention to emotions, being aware and staying aware of them and using them for guiding the behavior and consequently it influences the therapeutic diet compliance in cardiovascular patients. The important principle of

_____

compliance is participation and accepting responsibility on behalf of the patient so that by doing correctly the behaviors related to that, many of the side-effects of disease are controlled [18]. By increasing the motivation in patients and causing their behavior change, the emotional intelligence improves the patient's abilities in promoting the health condition.

This study had some limitations whose most important ones are: 1-the available sampling method; 2- the low sample size and selection of the research units from a city that has caused a limitation in the generalization of results. 3-The individual differences, mental features and personality and family characteristics affecting the answer to the questions whose full control is not possible. So carrying out the complementary investigations with larger sample groups is recommended to those interested in research on this subject.

Table 1: Table of mean scores of emotional intelligence and its dimensions in patients admitted to CCU

statistic indicators therapeutic diet compliance	frequency	Significance level	Correlation coefficient
emotional intelligence		0/022	0/231
Self-awareness	100	0/000	0/43
Self- management	100	0/001	0/32
Social consciousness	100	0/000	0/49
Relationship management		0/021	0/21

Table 2:Table of mean scores of therapeutic diet compliance and its dimensions in patients admitted to CCU

Statistic indicators of emotional intelligence	frequency	Significance level	Correlation coefficient
Nutritional compliance	100	0/002	0/31
Drug compliance	100	0/000	0/53
Activity compliance	100	0/000	0/50
Life style compliance		0/018	0/24

Table 3:The correlation of emotional intelligence and its dimensions with the therapeutic diet compliance in patients admitted to CCU

Variable	number	deviation criterion±average
Total therapeutic diet compliance	100	58/0±9/7
Nutritional compliance	100	23/8±5/4
Drag compliance	100	13/8±2/8
Activity compliance	100	12/3±2/2
Life style compliance	100	6/6±2/7

Table 4: Correlation between the therapeutic diet compliance and its dimensions and emotional intelligence in patients admitted to CCU

Variable	number	
Total emotional intelligence	100	80/6±15/0
Self-awareness dimension	100	18/6±4/1
Self- management dimension	100	23/6±5/3
Social consciousness dimension	100	13/8±3/5
Relationship management dimension	100	23/8±7/0

CONCLUSION

The results of various studies have shown that at least 50% of the patients with cardiovascular disorders do not adhere to their therapeutic recommendations; this leads to accepting patients again at the hospital as a consequence of suffering from the side-effects of heart failure [12]. In this study also it was emphasized on the importance of emotional intelligence as one of the determinant factors of the adherence to the therapeutic diet; therefore, it seems that paying attention to emotional intelligence and thinking about working procedures to increase that is of high importance and planners and officials should pay special attention to this matter.

_____

REFERENCES

[1] Leonardi M, Raggi A, Pagani M, Carella F, Soliveri P, Albanese A, et al. Relationships between disability, quality of life and prevalence of nonmotor symptoms in Parkinson's disease. Parkinsonism & related disorders. 2012;18(1):35-9.

[2] Barzin M, Mirmiran P, Afghan M, Azizi F. Distribution of 10-year risk for coronary heart disease and eligibility for therapeutic approaches among Tehranian adults. Public health. 2011;125(6):338-44.

[3] Bajenaru O, Antochi F, Tiu C. Particular aspects in patients with coronary heart disease and vascular cognitive impairment. Journal of the neurological sciences. 2010;299(1-2):49-50.

[4] Robertson L, Rogers A. Guide-line for cardiac rehabilitation and secondary prevention programs.. 4th, editor. United States: Human Kinetics; 2004.

[5] Assmann G, Cullen P, Schulte H. Simple scoring scheme for calculating the risk of acute coronary events based on the 10-year follow-up of the prospective cardiovascular Munster (PROCAM) study.

[6] Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A ,Lanas F, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004;364(9438):937-52.

[7] O'Donohue W, Levensky E. Promoting treatment adherence: A practical handbook for health care providers. London: Sage Publications, Inc:. 2006.

[8] Lupon J, Gonzalez B, Mas D, Urrutia A, Arenas M, Domingo M, et al. Patients' self-care improvement with nurse education intervention in Spain assessed by the European Heart Failure Self-Care Behaviour Scale. European journal of cardiovascular nursing : journal of the Working Group on Cardiovascular Nursing of the European Society of Cardiology. 2008;7(1):16-20.

[9] Carlson B, Riegel B, Moser DK. Self-care abilities of patients with heart failure. Heart & lung : the journal of critical care. 2001;30(5):351-9.

[10] Takaki J, Yano E. Possible gender differences in the relationships of self-efficacy and the internal locus of control with compliance in hemodialysis patients. Behavioral medicine (Washington, DC). 2006;32(1):5-11.

[11] Jensen AR, Wright AS, Lance AR, O'Brien KC, Pratt CD, Anastakis DJ, et al. The emotional intelligence of surgical residents: a descriptive study. American journal of surgery. 2008;195(1):5-10.

[12] Ciarrochi J, Forgus J, Myer J. Emotional intelligence in everyday life. London:Psychology Press. 2001.

[13] Mayer JD, Salovey P, Caruso DR. Emotional intelligence: new ability or eclectic traits? The American psychologist. 2008;63(6):503-17.

[14] Bar-on R. The Bar-on model of emotional intelligence: A valid, robust and applicable EL model. Organizations & People. 2007;14:27-34.

[15] Pellitteri J. The relationship between emotional intelligence and ego defense mechanisms. The Journal of psychology. 2002;136(2.94-182:(

[16] Frederickson N, Petrides K, Simmonds E. Trait emotional intelligence as a predictor of socioemotionaloutcomes in early adolescence. J Personality and Individual Differences. 2012;52(3):323-8.

[17] Schutte N, Malouff J, Thorsteinsson E, BhullarN, Rooke S. A meta-analytic investigation of the relationship between emotional intelligence and health. PersIndividDif. 2007;42:921-33.

[18] Ganji H. Emotional intelligence. Tehran: Savalan Publication; 2005.

[19] Hill E, Maggi S. Emotional intelligence and smoking: Protective and risk factors among Canadian young adults. J Personality and Individual Differences. 2011;51(1):45-50.

[20] Homayouni A, BaniHashemi S, Golzadeh E. Emotional intelligence and its relation to human abnormal behaviour: comparison between addicted and nonaddicted people. J European Psychiatry. 2010;25(2):281.

[21] Davis SK, Humphrey N. The influence of emotional intelligence (EI) on coping and mental health in adolescence: divergent roles for trait and ability EI. Journal of adolescence. 2012;35(5):1369-79.

[22] Samar A. The relationship among emotional intelligence, self-management and glycemic control in individuals with Type 1 Diabetes.Unpublished doctoral dissertation. University of Massachusetts, Worcester and Amherst: Unpublisheddoctoral dissertation; 2001.

_____

[23] Willard S. Relationship of emotional intelligence and adherence to combination antiretroviral medications by individuals living with HIV disease. The Journal of the Association of Nurses in AIDS Care : JANAC. 2006;17(2):1.26-6

[24] Yalcin BM, Karahan TF, Ozcelik M, Igde FA. The effects of an emotional intelligence program on the quality of life and well-being of patients with type 2 diabetes mellitus. The Diabetes educator. 2008;34(6):1013-24.

[25] Marani M. Standardizationof Petridze and Farenham emotional intelligence questionnaire in university and high school students of Isfahan city Isfahan: University of Isfahan 2003.

[26] Summerfeldt L, Kloosterman P, Antony M, Parker J. Social anxiety, emotional intelligence, and interpersonal adjustment..2006; 28: 57-8. J PsychopatholBehav. 2006;28:57-8.

[27] Soltanishal R, MohamadianSherbaf H, Kareshky H. The role of D personality type and emotional intelligence, perceived stress mediation and coping strategies on the quality of life in heart patients. Journal of Kermansha University of Medical Sciences. 2013;7(68):449-59.

[28] Alipour A, AhmadiAzghandi A, Mahabadi Z. The Predictive Role of Emotional Intelligence in Cardiovascular Disease:Considerations in Prevention area. Health Psychology. 2012;1(2):32-45.

[29] Bahrami F, Jokar M, Ghaderpour R. The assessment of emotional intelligence and public health in Isfahan city female managers. Women SocPsychol Stud. 2009;7(1):55-68.

[30] Salguero J, Extremera N, Fern?ndez-Berrocal P. Emotional intelligence and depression: The moderator role of gender. J Personality and Individual Differences. 2012;53(1):29-32.