DOI: http://dx.doi.org/10.22122/ijbmc.v7i4.238 *Published by Vesnu Publications*

International Journal of Body, Mind and Culture

The Effectiveness of Solution-Focused Therapy on Life Orientation, Mental Health, and Meaningfulness of Life in Patients with Cardiovascular Diseases

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Quantitative Study

Abstract

Background: Taking into account the possible role of psychological factors in cardiovascular diseases (CVDs) and the fact that they interfere with the biological factors that cause CVDs, this research was designed to evaluate the efficacy of solution-focused therapy on mental health, life orientation, mental health, and meaningfulness of life in patients with CVDs.
Methods: This was a quasi-experimental analysis with a pretest-posttest design, follow-up, and a control group. All cardiovascular patients who had referred to the Isfahan Cardiovascular Research Center, Isfahan, Iran, between January and March 2019 and had a history of heart attack or open-heart surgery in the previous month were included in the statistical population of this study. In this study, 30 patients with CVDs wishing to participate in the study were selected using convenience sampling from among patients who had the inclusion criteria and were randomly assigned to experimental and control groups (each group included 15 patients). Data were collected using Life Orientation Test (LOT), Meaning in Life Questionnaire (MLQ), and General Health Questionnaire (GHQ). The collected data were analyzed using repeated measures analysis of variance (ANOVA) and analysis of covariance (ANCOVA) in SPSS software.
Results: The results indicate that there was a significant difference between the solution-focused therapy and control groups in terms of the mean scores of physical symptoms ($F = 95.46$; $P < 0.0001$), anxiety ($F = 70.36$; $P < 0.0001$), social functional dysfunction ($F = 54.11$; $P < 0.0001$), depression ($F = 26.70$; $P < 0.0001$), life orientation ($F = 22.36$; $P < 0.0001$), and meaningfulness of life ($F = 68.21$; $P < 0.0001$).
Conclusion: The findings of this study have shown that solution-focused therapy is beneficial for mental health, life orientation, and meaningfulness of life in patients with CVDs and can be used in treatment centers to enhance the status of these patients.
Keywords: Solution-focused therapy; Mental health; Cardiovascular disease; Life orientation

Citation: Abdellahi SM, Sadeghi M, Roohafza H, Tavakoli M, Dadras H, Kouchakzadeh P. **The Effectiveness of Solution-Focused Therapy on Life Orientation, Mental Health, and Meaningfulness of Life in Patients with Cardiovascular Diseases.** Int J Body Mind Culture 2020; 7(4): 238-47.

Received: 25 Aug. 2020
Accepted: 15 Sep. 2020

Introduction

A healthy heart is necessary for human life, and cardiovascular disease (CVD) is not unique to any age or sex. However, appropriate interventions can reduce the risk of CVD or its complications (Burrows, Li, Geiss, & Gregg, 2018). Psychological factors can play a major role in the process of CVD and it is almost certain that these factors interact with biological factors to implement their effects on CVD (Rasquinha, 2013). CVDs include diseases of the vascular system that affect the heart, brain, and peripheral areas of the body's blood supply (de Souza et al., 2015). The most common cause of death in Iran with 39.3% of total deaths is CVD, of which 19.5% are related to heart attack, 9.3% to stroke, 3.1% to high blood pressure, and the remaining to other CVDs (Ettehad et al., 2016). By causing numerous crippling physical and psychological triggers such as pain, lack of health, loss of job, sensory deprivation, and imminent death, and varying degrees of mental reactions such as fatigue and anxiety, these diseases cause the patient to feel powerless and lose self-confidence (Gellis & Bruce, 2010). Owing to the duration and severity of the condition, the physical, social, cultural, and mental health of these patients vary significantly over time (Giedd, Raznahan, Alexander-Bloch, Schmitt, Gogtay, & Rapoport, 2015). Therefore, psychological factors can be said to play a central role in CVDs (Kruse, Bolton, & Freriks, 2015). The World Health Organization (WHO) has defined mental health as a state of complete physical, mental, and social well-being (Lawrence et al., 2015) that enables a person, despite adverse circumstances and negative consequences, to continue his/her adaptive growth and to sustain his/her mental health (Lonn et al., 2016). Mental health is recognized by Corrsini as a mental condition in which a person is relatively free of symptoms of anxiety, able to communicate constructively, and able to cope with stressful life-stimulus (Maljanen, Knekt, Lindfors, Virtala, Tillman, & Harkanen, 2016). Therefore, decreased mental health not only decreases personal and social adaptability in an individual, but also affects the protection of mental health of the family and other social groups (Melton et al., 2018).

Life orientation is one of the variables that play a key role in the lives of patients with CVD in resolving problems and their subsequent stress. Life orientation is a potentially influential factor in patient enhancement and compatibility (Moss, Howlin, Savage, Bolton, & Rutter, 2015). Physical and psychological wellbeing is positively associated with life orientation, which is assessed by different scales such as positive response to medical intervention, mental health, positive creation, traumatic life events avoidance, satisfaction and happiness in life affairs, problem-solving, and predicting problems. The orientation of life can be described as a healing, multi-dimensional and influential factor, in which incompatibility with life deprivations plays a vital role. Physiologists have also acknowledged that the orientation of life may have a psychological effect on disease (Nichols, Townsend, Scarborough, & Rayner, 2014). "Life orientation is very similar to life structure; life orientation is the willingness, amid present obstacles, to plan passages towards desired goals and the agent with the requisite stimulating factors to use these passages" (Rabinovich, 2016). According to this definition, life orientation is a powerful factor because it gives individuals valuable goals, and it may influence people through making their lives purposeful, despite daunting and non-resolvable barriers (Reddy, Thirumoorthy, Vijayalakshmi, & Hamza, 2015).

Smout (2012) found that people with CVD experience higher levels of stress and depression than others, and often lose their meaning of life. Meaning-seeking is the most important motivation of the human that distinguishes him from other beings (Hayes, 2016). In critical situations and incurable illnesses, meaning-seeking plays a very important role. Meaning-seeking makes life meaningful to the person, and thus, helps the

individual to cope with stressful situations. Meaningfulness of life can increase the ability to deal with problems in life by creating meaning and responsibility in the individual (Twohig & Crosby, 2010).

Different therapeutic approaches have been introduced to improve mental wellbeing in individuals with CVDs (Sabatine et al., 2017). Short-term solution-focused therapy is a non-pathological approach to treatment that emphasizes on finding solutions rather than focusing on issues and conditions (the problem-oriented view) (Salome et al., 2017; Frels, Leggett, & Larocca, 2009). In their research, Maljanen et al. (2016) concluded that short-term solution-focused counseling in annual follow-ups was successful in improving depression and anxiety disorders. The influence of short-term solution-focused therapy on improving mild symptoms of depression was studied by Reddy et al. (2015) They found that depression symptoms had been improved after short-term solution-focused therapy sessions. Given the growing number of patients with CVDs and their major problems in the mental health field and life orientation of patients with CVDs, it seems that many of these patients do not have adequate expertise and ability to handle such problems correctly. Using solution-focused therapy can reduce these issues for patients with CVDs. The present research was aimed at the examination of the efficacy of solution-focused therapy on mental health, life orientation, and meaningfulness of life in patients with CVDs.

Methods

This quasi-experimental study was conducted with a pretest-posttest design, follow-up, and a control group. The study's statistical population included all cardiovascular patients referred to the Isfahan Cardiovascular Research Center, Isfahan, Iran, between January and March 2019 with a history of heart attack or open-heart surgery in the previous month. In this study, 30 patients with CVDs who were willing to participate in the study were chosen using convenience sampling method. The participants of the study met the study inclusion criteria and were randomly allocated to experimental (n = 15) and control (n = 15) groups. In the pretest and posttest phases, the participants were asked to complete the Life Orientation Test (LOT), Meaning in Life Questionnaire (MLQ), and General Health Questionnaire (GHQ). The criterion for the diagnosis of CVDs was the diagnosis reported by a cardiologist in the patient's medical record. Patients referred to the rehabilitation unit of the Isfahan Cardiovascular Research Center were selected as the study participants. In addition, the strategy and aims of the research and care methods were explained to the participants. Finally, as a representative group, those who met the inclusion criteria participated in the analysis. The patients in the experimental group, in addition to receiving regular medical care, attended weekly solution-focused therapy sessions (n = 8) for 90 minutes. However, the subjects in the control group only received regular medical care. The study participants in both groups filled out the LOT, MLQ, and GHQ at baseline and immediately after the intervention.

All ethical principles were considered in the present study. The participants were informed of the intent of the research and its phases of execution and were asked to sign informed consent forms. They were also assured of the confidentiality of their information. In addition, they were permitted to leave the study whenever they wished, and if desired, they would have access to the results of the research. This research was reviewed at Isfahan University of Medical Sciences and approved with the ethics code IR.MUI.MED.REC.1399.093.

Life Orientation Test: In order to quantify individual differences in generalized optimism versus pessimism, the LOT was developed (Carver, Scheier, & Weintraub, 1989). The LOT is an 8-item test; 4 items are positively worded and 4 are negatively

worded. The items are scored based on a 4-point Likert scale ranging from 1 to 4. Adequate psychometric properties of the LOT have been reported in Iranian samples (Souri & Hasanirad, 2011). In the present study, the internal consistency coefficient of the scale was 0.84.

Meaning in Life Questionnaire: The MLQ was first developed by Steger, Frazier, Oishi, and Kaler (2006). The questionnaire consists of 10 questions scored on a 7-point Likert scale ranging from completely false to completely true. The questionnaire had 44 items, and then, based exploratory factor analysis, items were eliminated and the two factors of meaning in life and meaning-seeking in life reached a total of 17 items. Then, based on confirmatory factor analysis, 7 items were eliminated, and thus, the final questionnaire consisted of 10 items. The sum of the scores of questions 2, 3, 7, 8, and 10 indicates the extent of the individual's effort to find meaning, and the sum of the scores of questions 1, 4, 5, 6, and 9 determines the meaningfulness level of one's life. There was a slight negative correlation between the two factors of existence and the search for meaning in life (r = -0.19) (Kim & Franklin, 2015). The validity and reliability of this scale were 0.73 and 0.81, respectively.

General Health Questionnaire: The GHQ consists of 28 items scored based on a 4-point Likert scale (Never, Typically, Sometimes, Most often), and the lower the score, the lower the mental health. The GHQ was created in 1972 by Goldberg et al., and was translated into Persian and normalized in Iran. The overall test reliability coefficient was reported as 0.88 and the reliability coefficients of its subscales were reported as 0.77, 0.81, 0.50, and 0.58, respectively. The questionnaire has 0.84-88 and 0.77-93 sensitivity and specificity, respectively, and its error in classification is 8.2% (Baldwin, King, Evans, McDougall, Tucker, & Servais, 2013).

Descriptive statistics, including frequency tables and graphs, core indices, and scale dispersion indices (e.g., mean and standard deviations), and inferential statistics, including analysis of variance (ANOVA), multivariate analysis of covariance (MANCOVA), and the Kruskal-Wallis test, were used to analyze the data in SPSS software (version 22; IBM Corp., Armonk, NY, USA). Inferential statistics were used to compare age and gender between the 2 groups and to ensure that the baseline characteristics of the groups for these 2 variables were identical.

Results

In the solution-focused therapy (n = 15) and control (n = 15) groups, a total of 30 patients were studied. The mean age of the participants in the solution-focused therapy and control groups was 57.73 ± 9.39 and 53 ± 9.81 years respectively. The demographic features of the present study participants are tabulated in table 1.

The mean scores of mental wellbeing, life orientation, and meaningfulness of life in the experimental and control groups are presented in table 2.

Table 1. Frequency distribution and comparison of demographic characteristics

Variable		Solution-focused group		Control group		P-value
		Frequency	Percentage	Frequency	Percentage	
Gender	Woman	7	46.7	8	53.3	0.37
	Man	8	53.3	7	46.7	
Education	Pre-diploma	10	66.7	8	53.3	0.12
	Diploma and Associate degree	3	20	4	26.7	
	Bachelor's degree	1	6.7	2	13.3	
	Master's degree	1	6.7	1	6.7	
Marital status	Single	1	6.7	2	13.3	0.26
	Married	14	93.3	13	86.7	

Table 2. The mean and standard deviation of the study variables in the experimental and control groups

Variable	Group	Pretest	Posttest	Follow-up
		Mean± SD	Mean ± SD	Mean ± SD
Physical symptoms	Experimental	15.00 ± 3.07	12.60 ± 2.97	12.40 ± 3.08
	Control	13.73 ± 2.08	13.27 ± 2.08	13.27 ± 2.08
Anxiety	Experimental	15.40 ± 3.35	12.73 ± 3.34	12.60 ± 3.52
	Control	15.47 ± 1.55	15.00 ± 1.51	15.13 ± 1.76
Social Dysfunction	Experimental	15.27 ± 3.28	13.00 ± 3.44	12.87 ± 3.62
	Control	15.33± 1.75	14.67 ± 1.63	14.67 ± 1.63
Depression	Experimental	15.53 ± 3.46	13.13 ± 3.48	13.00 ± 3.66
	Control	15.93 ± 1.79	14.87 ± 1.80	14.73 ± 2.08
Mental health	Experimental	15.93 ± 1.79	14.87 ± 1.80	14.73 ± 2.08
	Control	74.40 ± 4.17	70.73 ± 3.53	70.53 ± 3.83
Life orientation	Experimental	20.33 ± 1.79	23.40 ± 1.72	23.40 ± 1.54
	Control	19.60 ± 1.76	20.00 ± 2.03	19.73 ± 20.12
Meaning-seeking	Experimental	2.16 ± 19.47	2.16 ± 18.67	2.29 ± 14.53
	Control	1.88 ± 15.47	1.92 ± 14.87	1.87 ± 14.67

SD: Standard deviation

The results of Box's M test, Mauchly's, and Levene's tests were tested. Since the Box's M test was not relevant for any of the study variables, the homogeneity of the variance-covariance matrices was correctly observed. Moreover, the non-significance of each of the variables in Levene's test confirmed inter-group variance equality and that the dependent variables' error variance was equal in all classes. The hypothesis of the equality of variances within subjects was therefore approved.

The scores of both tests were at the level of 0.0001, suggesting that the mean test scores differed significantly between the experimental and control groups, thus illustrating the efficacy of solution-focused therapy on life orientation and mental wellbeing (Table 3). It should be noted that a significant difference between the scores of life orientation in the experimental and control groups at a significant level of 0.0001 was shown by the Wilks' Lambda test with the same sum of 0.52 and test F of 12.2.

The results presented in table 4 indicate that there is a significant difference between the solution-focused therapy and control groups in terms of the mean scores physical symptoms ($F = 95.46$; $P < 0.0001$), anxiety ($F = 70.36$; $P < 0.0001$), social functional dysfunction ($F = 54.11$; $P < 0.0001$), depression ($F = 26.70$; $P < 0.0001$), life orientation ($F = 22.36$; $P < 0.0001$), and meaningfulness of life ($F = 68.21$; $P < 0.0001$).

Discussion

The purpose of this study was to determine the efficacy of solution-oriented therapy on mental health, life-orientation, and meaningfulness of life among CVD patients.

Table 3. Multivariate analysis of variance

Effect	Test	Value	F	Hypothesis df	Error df	P-value	Eta
Time	Pillai's Trace	0.70	32.53	2	27	0.0001	0.70
	Wilks' Lambda	0.29	32.53	2	27	0.0001	0.70
	Hotelling's Trace	2.41	32.53	2	27	0.0001	0.70
	Roy's largest Root	2.41	32.53	2	27	0.0001	0.70
Time*group	Pillai's Trace	0.47	12.20	2	27	0.0001	0.47
	Wilks' Lambda	0.52	12.20	2	27	0.0001	0.47
	Hotelling's Trace	0.90	12.20	2	27	0.0001	0.47
	Roy's largest Root	0.90	12.20	2	27	0.0001	0.47

Table 4. Comparison of pretest and follow-up scores of life orientation in experimental and control groups using repeated measures analysis of variance

Variables	Source of effect	SS	df	MS	F	P-value.	Eta square
Life orientation	Time	30.82	2	15.41	44.84	0.0001	0.61
	Time*Group	0.60	2	4.30	22.36	0.0001	0.30
	Error	19.24	56	0.34			
	Group	6.40	1	6.40	1.31	0.26	0.04
	Error	136.22	28	4.86			
Physical Symptoms	Time	184.02	1.44	126.98	276.69	0.0001	0.90
	Time*Group	160.68	1.44	110.88	95.46	0.0001	0.89
	Error	18.62	40.57	0.45			
	Group	613.61	1	613.61	7.88	0.009	0.22
	Error	2178.44	28	77.80			
Anxiety	Time	28.15	1.19	23.47	15.37	0.0001	0.35
	Time*Group	7.22	1.19	6.02	70.36	0.001	0.59
	Error	51.28	33.58	1.52			
	Group	401.11	1	401.11	2.84	0.10	0.009
	Error	3951.51	28	141.12			
Social Dysfunction	Time	11.75	1.49	7.88	23.14	0.0001	0.25
	Time*Group	8.02	1.49	5.37	54.11	0.0001	0.47
	Error	14.22	41.76	0.34			
	Group	236.84	1	236.84	2.04	0.16	0.06
	Error	3239.64	28	115.70			
Depression	Time	34.86	1.65	21.09	47.13	0.0001	0.62
	Time*Group	19.75	1.65	11.95	26.70	0.0001	0.48
	Error	20.71	46.28	0.44			
	Group	266.94	1	266.94	3.10	0.08	0.10
	Error	2409.82	28	86.06			
Meaning-seeking	Time	176.15	1.24	141.06	107.95	0.0001	0.79
	Time*Group	220.15	1.24	176.29	68.21	0.0001	0.82
	Error	45.68	34.96	1.30	-	-	-
	Group	100.27	1	100.27	0.91	0.34	0.03
	Error	3082.71	28	110.09	-	-	-

SS: Sum of square; df: Degree of freedom; MS: Mean of Square

The findings showed that solution-oriented care was effective on mental health, life orientation, and meaningfulness of life among patients with CVDs. The findings of Baldwin et al. (2013), Ime (2019), Koorankot, Rajan, and Ashraf (2019), and Zatloukal, Zakovsky, Bezdickova (2019) were consistent with these findings.

It can be said that solution-oriented therapy can help a person in the face of these crises and stressful situations with the right decision-making and communication skills to be less in need of support and to be successful in resolving interpersonal problems as this treatment has been proven to solve many psychological problems (Plosker & Chang, 2014). By drawing their attention to discovering different solutions rather than problems and changing their view of the disease, solution-oriented therapy changes patients' attitudes toward difficult situations, and in turn, gradually enhances their ability to deal with problems. Moreover, by creating miraculous situations and questions, it encourages them to act differently, and consequently, gives them satisfaction and hope, which in turn changes their sense of direction in life. With the belief that cardiovascular patients are able to identify goals and form effective solutions to problematic situations, short-term solution-oriented therapy is necessary to empower clients by discovering their previous solutions to problems and encouraging them to repeat useful and effective behaviors that form the basis of these solutions to achieve goals (Perel et al., 2015). Therefore, solution-oriented

treatment improved the mental health of cardiovascular patients.

In explaining the effectiveness of solution-oriented therapy on improving life orientation in people with CVDs, it can also be said that the solution-oriented treatment model refers to clients as competent specialists with the ability to solve their own problems. In this method, treatment is seen as a process by which clients and therapists reconstruct the desired facts. Furthermore, the focus of solution-oriented treatment sessions is on times when there are no problems (Switek, 2014). Therefore, patients become more conscious of their talents, capabilities, and feelings following solution-oriented therapy. In solution-oriented counseling, patients are helped to articulate their expectations in a constructive, definite, achievable, and observable manner, and a target is set and grievance strategies are evaluated for clients to learn about various behaviors that contribute to greater satisfaction. (Wichowicz, Puchalska, Rybak-Korneluk, Gasecki, & Wisniewska, 2017). By showing the client their strengths and successes, solution-oriented therapy directs the patient's focus from the problems and weaknesses caused by the disease to the existing solutions, and thus, helps the patient to become a healthy individual. Empowered to assess their strengths and successes, patients in turn are in a better mental condition and this improves their life orientation, because when they are in a better mental condition, hope to recover and strive for performing alternative activities strengthens them, and their life orientation increases as a result. Therefore, group-based solution therapy improved the meaningfulness of life in cardiovascular patients.

In explaining the effectiveness of solution-oriented therapy on improving semantics in people with CVD, it can be said that short-term treatment, due to the use of a predetermined time frame, clear treatment goals, purposeful sessions, and complete focus on client problems, has been favored by many therapists and clients and is used in a wide range of disorders (Gundogdu, 2019). In solution-oriented therapy, different solutions are considered for how to cope with problems and emphasize the strengths and abilities of patients, and patients learn that not only should they not give into problems and disabilities. They learn other skills to solve their problems and learn to take a new approach to dealing with their problems. This is very helpful in improving their self-esteem and satisfaction (Jabouin-Monnay, 2016). Another goal of solution-oriented therapy is to use the technique " insdead of" forcing people to look for the abilities they have not used recently and to use those unused skills to deal with their problems. In addition, exercise makes patients feel better and more satisfied, and consequently, improves and enhances patients' mental health.

This study was conducted in a population made up of only cardiovascular patient in Isfahan; thus, caution should be exercised when generalizing the findings to other populations and cities. It is suggested that this research be performed in other cities and that their findings be compared. In addition, it is proposed that the study be performed on a larger population of patients with CVDs in order to obtain more detailed results in the data analysis. It is also suggested that the effectiveness of this intervention program be evaluated on cardiovascular patients with physical illnesses and their important aspects of life, and health-related quality of life (QOL). It is also recommended that this research be followed up with individual counseling after group training. By implementing solution-focused therapy workshops the ministry of health, the State Welfare Organization, hospitals, and psychological and counseling organizations can provide opportunities for psychologists, physicians, and nurses to become more familiar with the concepts of education and solution-focused therapy.

Conclusion

The findings of this study have shown that solution-focused therapy is beneficial for mental health, life orientation, and meaningfulness of life in patients with CVD and can be used in treatment centers to enhance the status of these patients.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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