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Effects of the self-care interventions on the sense of coherence and well-being of patients with acute coronary syndrome: A Quasi-experimental study

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ABSTRACT

Objectives: Acquiring a sense of coherence and well-being seems necessary to improve the patient's health. Thus, this study determined the effect of self-care interventions on the sense of coherence and well-being of patients with acute coronary syndrome (ACS). **Methods:** This quasi-experimental study was conducted on 40 patients with ACS who were hospitalized in the cardiac care unit of Iranmehr Hospital in Saravan, Iran. The eligible samples were randomly assigned into intervention and control groups. The intervention was including three 60-minute educational sessions and three months of follow-up for the intervention group while the control group sustained with routine care program. Beliefs, Attitudes, Subjective Norms and Enabling Factors (BASNEF) model were used for self-care interventions. Data were collected through a questionnaire of demographic information, sense of coherence and well-being (health index). **Results:** The sense of coherence and well-being scores increased significantly after self-care intervention program in the intervention group. **Conclusions:** The interventions based on the BASNEF model improved the sense of coherence and well-being of patients with ACS.

Keywords: Acute coronary syndrome, BASNEF model, Self-care, Sense of coherence, well-being, patients

1. INTRODUCTION

Acute coronary syndrome (ACS) as a cardiovascular disease causes more than 250,000 deaths annually (Shahriari et al., 2018). In Iran, ACS has increased significantly in recent years. The prevalence of this disease in Iran is

45%, which is higher than that in western countries (Moghadamnia et al., 2018). ACS is an important health challenges in Western and Eastern societies (Moradi et al., 2017) and it refers to a group of diseases in which the blood flow to the heart is reduced, leading to the death of the heart muscle and myocardial infarction if it is not treated quickly and accurately. ACS includes unstable angina, non-ST elevation myocardial infarction and ST-elevation myocardial infarction that have limitations in the patients such as complete changes in family relationships, work, values and physical and psychosocial abilities (Hadadzade et al., 2020).

Acquiring a sense of coherence plays a role in the mental health of cardiovascular patients (Boeckxstaens et al., 2016). The sense of coherence assists people to understand the world and cope with high levels of stress and stay healthy (Einipour et al., 2021). The sense of coherence includes three components as comprehensibility (the ability to understand the world is predictable and understandable), manageability (the ability to manage oneself to access coping strategies and manipulate facts) and meaningfulness (the ability to find emotional meanings and challenges in oneself life) (Boeckxstaens et al., 2016). Studies have indicated that a strong and developed sense of coherence can lead to higher behavioral conformity, coping and adaptation, increase self-management to control stress, improve self-care behaviors, promote quality of life and increase satisfaction with life (Fernández-Martínez et al., 2019). Additionally, it is one of the factors playing a role in the mental health of cardiovascular patients (Nasehi et al., 2020). Research has shown that a sense of coherence is also associated with psychological and social well-being (Del-Pino-Casado et al., 2019). Well-being is one of the main concepts related to cognitive and affective health (Alilou et al., 2016). Studies have shown that positive psychological well-being is strongly related to reducing the risk of cardiovascular problems (Levine et al., 2021). Cardiovascular diseases reduce vitality and psychological well-being (Eyni et al., 2020).

Literature reports a positive and significant relationship between self-care and a sense of coherence (Colomer et al., 2022) and well-being (Rupert and Dorociak, 2019). Self-care plays a significant role in cardiovascular patients' behavioral changes and adherence to treatments (Chew et al., 2019). Learning self-care activities leads to health maintenance, well-being, adaptation and treatment cost reduction (Zareipour et al., 2021). Self-care activities are usually below the optimal level in cardiovascular patients. As the important role of nurses in promoting health, a planned intervention is necessary for improving patients' self-care.

One of the comprehensive educational frameworks for improving knowledge and attitudes and changing behavior is the Beliefs, Attitudes, Subjective Norms and Enabling Factors (BASNEF) model (Mohebbi et al., 2017). Considering the high prevalence, complications and mortality rates in ACS patients, self-care activities for maintaining health and promoting a sense of coherence and well-being are necessary. Thus, this study determined the effects of the self-care interventions based on the BASNEF model on ACS patients' sense of coherence and well-being.

2. MATERIALS AND METHODS

This Quasi-experimental study determined the effect of self-care interventions based on the BASNEF model on ACS patients' sense of coherence and well-being. The study population was ACS patients who were hospitalized in the cardiac care unit of Iranmehr Hospital in Saravan, Iran from January 2022 to January 2023. Inclusion criteria were a definite diagnosis of ACS by a cardiologist, being fully conscious, ability to communicate effectively and not participating in an educational program on ACS at the same time. Overall, 40 eligible patients who were interested in participating were randomly assigned to the intervention (20 people) and control (20 people) groups. The minimum sample size estimation based on (Ahmadzadeh-Tori et al., 2019) and mean difference equation (Abdollahimohammad and Firouzskouhi, 2019), with 99% confidence, 80% test power and 30% attrition were at least 13 patients for each group:

$$n=[10.5*((\sqrt{(7.95^2)+6.75^2})/(75.1-61.4))^2]*30\%=13$$

The data was collected using three questionnaires: 1) demographic questionnaire with 12 questions including, gender, age, marital status, job, income, source of income, education level, history of underlying disease, history of hospitalization, duration of illness and history of receiving educational interventions to change behavior; 2) sense of coherence questionnaire which was developed by Antonovski in 1998 and includes 13 questions scored using a 7-point Likert scale and consists of three subscales of comprehensibility, manageability, and meaningfulness. The total score for this questionnaire ranges from 13 to 91 and a higher score indicates a stronger sense of coherence (Eriksson and Lindström, 2005). The well-being questionnaire or health index measures general well-being through 9 questions using a 4-point Likert scale, ranging from 9 to 36. A higher score indicates better well-being (Sjöström et al., 2004). The above tools have been validated in domestic studies (Rohani et al., 2010).

In the present study, ethical issues were considered by providing clear explanations about the study's objectives, the confidentiality of gathered data and the freedom to withdraw from the study at any stage. Written consent was obtained from the participants. The ethical approval was achieved by Zabol University of Medical Sciences, Iran (Code: IR.ZBMU.REC.1400.128).

Before the interventions, the questionnaires of demographic information, sense of coherence and well-being were completed by each patient. Then, self-care interventions were provided for patients individually with the present one of their family caregivers at the bedside in a 60-minute session over three consecutive days (Table 1). Additionally, every four weeks after the last intervention session, the researcher phoned the patients to emphasize on taught materials and answered the possible questions. Finally, the questionnaires were distributed again three months after the third session as follow-up measurements. For the control group, only routine care was performed and the researcher had no role in providing the care. In the post-test phase, all materials taught to the intervention group, including booklets and pamphlets were transferred to the control group over the internet and through the communication channel provided by the patient at the beginning of the study.

Data analysis was done using SPSS 23. First, the normality of the data was assessed using the Shapiro-Wilk test. After determining the normality of the data, descriptive statistics (mean, standard deviation, percentage and frequency) and inferential statistics (independent t-test) were applied.

Table 1 Structure of the sessions and the content of the self-care intervention

Session	Content of the educational intervention
First	Acquaintance and introduction, establishing effective communication, presenting materials related to acute coronary syndrome, risk factors and causes of disease, drug therapy, prescribed diet and the importance of following the prescribed treatment after release from the hospital.
Second	A review of the materials presented in the previous session, empowerment or enabling factors on changing behavior and attitude, important obstacles to care and adherence to treatment in chronic diseases.
Third	A review of the materials presented in the previous session, educating self-care practices, for example, how to take medications, suitable diet and social activities and self-care behaviors.

3. RESULTS

The analysis of demographic data showed that the average age in both groups was about 58 years. In terms of gender, both groups were mostly male (55%) and married (80%). Most of the patients were housewives (45%) and mostly illiterate in terms of education (50-55%). Before the intervention, the two groups were similar in terms of the variables of gender, marital status, education level, employment status, income and the history of hospitalization and underlying disease (Table 2).

Table 3 shows independent t-test was used to compare the scores of senses of coherence and well-being between the intervention and control group before, immediately and after three months of the interventions. The mean score for the sense of coherence and well-being before the intervention was not significantly different between groups ($p>0.05$). However, the mean score for the sense of coherence and well-being after the interventions was significantly different between the groups ($p<0.05$).

Table 2 Demographic profile of intervention and control group

Variable	Group n (%)	
	Intervention	Control
Gender		
Male	11 (55)	16 (80)
Female	9 (45)	1 (5)
Marital status		
Married	16 (80)	3 (15)
Divorced	0 (0)	10 (50)
Widow	4 (20)	4 (20)
Job		
Unemployed	11 (55)	6(30)
Employed	9(45)	15 (75)
Education level		
Illiterate	10 (50)	5 (25)
Elementary	4 (20)	10 (50)

High school and Higher	6 (30)	5 (25)
Income		
Low	10 (50)	11 (55)
Medium	4 (20)	9 (45)
High	6 (30)	0 (0)
Income source		
Personal	8 (40)	6 (30)
Family	12 (60)	14 (70)
Hospitalization history		
No	4 (20)	5 (25)
Yes	16 (80)	15 (75)
Underlying disease		
No	5 (25)	20 (100)
Yes	15 (75)	0 (0)

Table 3 Comparison of the mean score for the sense of coherence and well-being before, after and follow-up between two groups

Variable	Session	Mean (Standard deviation)		95% confidence interval difference	t	P
		Intervention group	Control group			
Sense of coherence	Before	54.35 (12.81)	53.95 (13.80)	8.92 & - 8.12	0.09	0.925
	After	64.15 (11.73)	56.60 (10.99)	14.83 & 0.26	2.09	0.042
	Follow-up	64.45 (11.55)	57.15 (10.70)	14.43 & 0.16	2.07	0.045
Well-being	Before	19.80 (5.08)	20.40 (5.07)	2.65 & -3.85	- 0.37	0.711
	After	24.80 (4.02)	21.40 (4.72)	6.20 & 0.59	2.45	0.019
	Follow-up	25.30 (3.74)	21.40 (4.01)	6.38 & 1.41	3.17	0.003

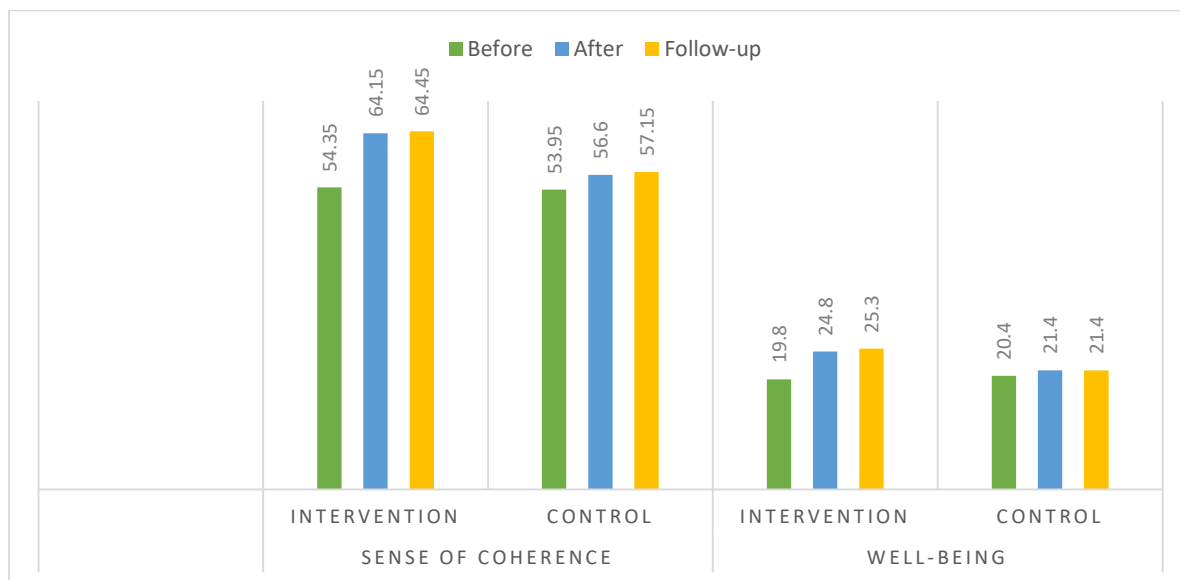


Figure 1 Comparison of the mean score for the sense of coherence and well-being before, after and follow-up between two groups

4. DISCUSSION

The results show the sense of coherence and well-being in ACS patients was improved after receiving educational self-care intervention based on the BASNEF model. Considering that the intervention and control groups were homogeneous in terms of underlying and confounding variables. Applying the BASNEF model, as a behavior change model, can improve the well-being and sense of coherence through providing self-care education. In line with this point, Shahnazi et al., (2016) argued that the BASNEF

model, as a powerful model, is relevant for the development of educational interventions and the promotion of self-care and it could strengthen health and well-being in the long term.

Rupert and Dorociak, (2019) concludes self-care could improve well-being by reducing stress. Colomer-Pérez et al., (2022) also argue if people learned how to take care of themselves coherently, their self-management ability increases, leading to promoted sense of coherence and health. Literature highlights the positive effect of BASNEF model interventions on improving the quality of life of myocardial infarction, hypertension and diabetes patients (Hatami et al., 2022; Villarino et al., 2021), improving the adherence to therapeutic diet in patients with high blood pressure (Baghaee et al., 2016) and increasing knowledge of healthy diet in middle-aged women. Although the mentioned studies are different from the present study in terms of the research community, they have been mentioned due to the confirmation of the effectiveness of this educational model.

However, there are inconsistent studies with the present study in terms of results. For example, Hatami et al., (2022) show that the implementation of BASNEF model interventions did not affect the lifestyle of heart failure patients. The difference in the education method (not individual education), sample size, duration of education and research community and setting was effective in obtaining this different result. The education received possibly by the patients from other sources that were beyond the control of the researcher has been one of the limitations of the present research.

5. CONCLUSION

Applying BASNEF model interventions is necessary for ACS patients and can improve the physical and mental condition of these patients and consequently improve their well-being and sense of coherence. Therefore, considering the increasing rate of patients with ACS and the complications caused by the disease, as well as the ease of application and low cost of this educational intervention to promote physical and mental health and improve the well-being and sense of coherence of patients with the ACS, it is recommended that proper plans and policies should be considered by relevant authorities for this issue.

Abbreviations

ACS: Acute coronary syndrome

BASNEF: Beliefs, Attitudes, Subjective Norms and Enabling Factors

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Authors' contributions

Anise Mollazehi-Dashtuk conducted the program, collected the data and wrote the manuscript; Ellahe Asadi-Bidmishki, Mozghan Rahnama and Mahin Badakhsh supervised and edited the original manuscript; Abdolghani Abdollahimohammad analyzed the data and performed professional editing.

Ethical approval

This paper has been extracted from a Master thesis in Medical-Surgical nursing, which was approved by the Faculty of Nursing of Zabol University of Medical Sciences, Iran with a code of ethics IR.ZBMU.REC.1400.128.

Informed consent

Formal and oral informed consent was obtained from all individual participants before conducting the study.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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