

The Relationship between Perceived Social Support and Self-Care Behaviors in Patients with Ischemic Heart Disease

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Abstract

Aims: Investigators have identified sufficient self-care as an important factor in reducing health-care costs and improving health outcomes in cardiac patients. Therefore, the purpose of the present study was to determine the relationship between perceived social support (PSS) and self-care behaviors (SCBs) in patients with ischemic heart disease. **Materials and Methods:** The present work was a cross-sectional study. Patients with ischemic heart disease were selected using the convenience sampling method. Data gathering tools used in this study were questionnaires of Zimet multidimensional social support and Miller self-care. The data were analyzed in SPSS 18 software using Spearman's correlation and Mann-Whitney tests by significant coefficient <0.05 . **Results:** It was revealed that income, ethnicity, gender, and the type of employment had significant effects on the scores of PSS and SCBs. The mean score of PSS was 44.60 ± 14.30 and that of SCBs for all the patients was calculated at 67.12 ± 17.04 . The majority of the patients had a high score of PSS, while, in case of SCBs, the score showed an undesirable condition. The results revealed a direct and significant relationship between PSS and SCBs in patients with ischemic heart disease ($P < 0.05$). **Conclusion:** The score of PSS was in a satisfactory range; the unsuitable score of SCBs showed an urgent need of providing education for myocardial ischemia patients to improve the level of their self-care affairs. In addition, the caretakers of the patient should be trained to pay attention to all the important aspects of PSS.

Keywords: Ischemic heart disease, myocardial ischemia, perceived social support, self-care behaviors, social support

INTRODUCTION

The epidemic of cardiovascular disease (CAD) is a global problem, which is associated with high rates of morbidity, mortality, disability, and economic loss. This disease is speculated to be the most important cause of morbidity and mortality by 2020.^[1,2] According to a report by the World Health Organization published in March 2014, 22% of deaths worldwide and 35% of deaths in Iran (about 91,000 cases) were due to CADs. Recent statistics show that about 16% of all deaths in developed countries and 12% of all deaths in developing countries are caused by ischemic heart disease.^[3,4] The clinical spectrum of coronary artery disease ranges from asymptomatic ischemia to chronic stable angina, unstable

angina, myocardial infarction, and sudden cardiac death, and this disease is identified as the most common cause of hospitalization.^[5,6]

Self-care, as a physiological process, involves the monitoring of symptoms as well as adherence to treatment (self-care maintenance) and proper diagnosis and response to symptoms (self-care management).^[7,8] Researchers have identified self-care as an important factor in reducing the cost of health care (including hospitalization) and promoting health outcomes

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in patients with heart failure.^[9] According to previous studies, social support is a socio-psychological phenomenon that facilitates self-care behaviors (SCBs).^[10] It has been asserted that increased social support is associated with lower rates of hospitalization, better acceptance of treatment, and reduced risk of mortality in chronic diseases.^[11,12] The term “social support” refers to sources of support that a person receives through official groups or unprofessional people and involves one’s beliefs about access to different sources of support through communication networks.^[13] On the other hand, social support is defined as the feeling of acceptance by others (emotional dimension) and represents the level of affection, companionship, and attention of family members, friends, and others.^[14]

Social support includes emotional, instrumental, informational, and evaluation support. Perceived social support (PSS) is the subjective judgment that a person thinks that his or her family and friends will help him or her in the face of stress or stressors.^[15] Some studies have reported that there is a relationship between social support as an environmental and psychological factor and SCBs and adherence to treatment regimens.^[16,17] Owing to the fact that social support can play a facilitating role in the SCBs of patients with heart disease, the purpose of this study was to determine the relationship between PSS and SCBs in patients with ischemic heart disease so that the present findings can be used for appropriate planning to promote SCBs in these patients.

MATERIALS AND METHODS

The present investigation was a cross-sectional correlational study performed in 2019. The participants were selected using the convenience method, from patients with ischemic heart disease in the coronary care unit (CCU) (Sayyad Shirazi Hospital in Gorgan city) who had been hospitalized during the morning and evening shifts, and 48 h had passed since their admission (sampling was performed from March to May 2019). To calculate a more detailed number of participants, a pilot study was performed in Sayyad Shirazi Hospital. Using the results of the pilot study, the authors were able to calculate the number of the participant of the study.

The appropriate number of patients was determined using the convenience sampling method at 95% confidence level and 80% power, based on the following formula:

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{C_1 - C_2} \right)^2 + 3 = 136$$

As we considered a dropout rate of 10%, the final sample size was obtained to be 150. The participants of the study were selected based on the inclusion criteria including (1) informed consent to participate in the study, (2) age ≥ 30 years, and (3) patients with ischemic heart disease or individuals with a history of ischemic heart disease.

The patients’ sociodemographic characteristics were collected by self-report questionnaires. All the participants were asked

questions about age, sex, marital status, educational level, place of residence, ethnicity, monthly income, occupation, smoking and drug use, and underlying diseases.

The Miller Self-Care Behavior Scale

The Miller Self-Care Scale (1982), which was primary used by Conn *et al.*^[18] and Coyle,^[19] is a standard tool to ascertain SCBs in cardiac patients. This scale consists of 20 items rated on a five-part Likert scale and examines appropriate diet, smoking cessation, physical activity, medication use, and moderation of the effects of stressors. The minimum score in this scale is 20, and the maximum score is 100. In this five-point Likert scale, the score of each item ranges from one (“strongly disagree”) to five (“strongly agree”). Scores 1–4 indicate low likelihood of SCBs, and a score of five indicates high likelihood of SCBs. A total score of 20–79 represents undesirable SCB, while a score ranging from 80 to 100 represents favorable SCBs. The Miller’s Scale was validated in 2013 by Niakan *et al.* for the Iranian population, and its validity and reliability were confirmed. The reliability of this tool based on Cronbach’s alpha coefficient for adherence to regimen, nonsmoking, physical activity, use of prescribed medications, and moderation of the effects of stressors after hospital discharge was 0.95, 0.98, 0.81, 0.92, and 0.80, respectively.^[20]

Perceived Social Support Scale

The PSS Scale was developed by Zimet *et al.*^[21] in 1988 to measure PSS from family, friends, and other possible caretakers for a heart failure patient. PSS possesses 12 items and 3 subscales on a five-point Likert scale, ranging from one (“strongly disagree”) to five (“strongly agree”). Items 3, 4, 8, and 11 are designed to evaluate the family subscale, items 6, 7, 9, and 12 are used to evaluate the friends subscale, and items 1, 2, 5, and 10 are applicable for the evaluation of other important caretakers. The minimum score is 12, and the maximum score is 60. Scores 12–20 represent a low level of PSS, scores 20–40 represent a moderate level of PSS, and scores above 40 represent a high level of PSS. (TMPSS) The Multidimensional Scale of Perceived Social Support has been validated by Salimi *et al.* (2009) via principal component analysis. Moreover, Cronbach’s alpha was measured to determine the reliability of the scale, which was estimated at 0.86, 0.86, and 0.82 for the three subscales of PSS by family, friends, and others, respectively.^[22]

Descriptive and analytical tests were used to analyze the data. Descriptive statistics for qualitative variables are presented as frequency tables (number and percentage) and for quantitative variables as mean and standard deviation. Normal distribution of the data regarding the subscales of PSS and SCBs was assessed using the Shapiro–Wilk test. Spearman’s correlation coefficient was also measured to investigate the relationship between these two variables due to the nonnormal distribution of data. In addition, Mann–Whitney test was used to compare the mean scores of PSS and self-care in the groups due to the nonnormal distribution of data. Moreover, the Kruskal–Wallis

test was performed to compare the mean scores of PSS and self-care in more than two groups. The significance level in the analyses was considered to be 0.05.

RESULTS

The mean age of the patients was 59.66 ± 11.01 years. Overall, 58.7% ($n = 88$) of the patients were female, and only 41.3% ($n = 42$) were male. Most of the patients (52.7%) were homemakers.

In total, 82% of the participants were married and most of them ($n = 82$) were homemakers. In terms of education, most

of the participants had less than a high school diploma (88%). The findings showed that 84.21% of the participants lived with their family and the others live alone. The biggest fraction of the participants was Fars (68%), and other ethnicities included Sistani (21.3%), Turkmen (6%), and other uncommon races (4.7%). Regarding economic statute, a big proportion of the participants (65.4%) faced financial shortcoming, and 32% of them had middle income, and only 4% of the participants had no economical difficulty.

Based on the descriptive analysis depicted in Table 1, PSS was significantly higher in men compared with women ($P < 0.05$).

Table 1: Descriptive analysis

	Frequency	Perceived social support (mean±SD)	P	Self-care behaviors (mean±SD)	P
Gender*					
Male	62 (41.3)	49.77±11.15	0.000	68.47±17.52	0.694
Female	88 (58.7)	40.96±15.22		66.03±16.44	
Marriage status*					
Single	26 (17.3)	38.38±17.68	0.034	69.57±19.70	0.347
Married	123 (82)	46.07±13.13		66.54±16.53	
Co-existence*					
Family	126 (84.21)	48.27±12.55	0.000	66.94±17.01	0.93
Single	24 (15.79)	32.00±16.82		67.88±18.32	
Drug use*					
Yes	49 (32.7)	43.02±16.22	0.530	55.18±16.00	0.000
No	101 (67.3)	45.37±13.28		72.91±14.35	
Diabetes*					
Yes	63 (42)	41.73±14.58	0.023	70.84±17.02	0.019
No	86 (58)	47.01±13.01		64.61±16.64	
Hypertension*					
Yes	101 (67.3)	42.08±14.84	0.004	66.67±17.52	0.007
No	49 (32.7)	49.79±11.62		68.04±16.15	
History of open heart surgery*					
Yes	27 (18)	40.96±14.24	0.14	66.25±17.43	0.879
No	123 (82)	45.40±14.25		67.30±17.02	
Ethnicity**					
Fars	102 (68)	44.76±14.20	0.209	69.37±16.64	0.000
Turkman	9 (6)	52.88±8.97		83.55±11.69	
Sistani	32 (21.3)	41.06±15.78		56.78±14.32	
Others	7 (4.7)	47.85±10.43		60.42±136.95	
Occupation**					
Employee	6 (4)	49.66±11.89	0.021	87.5±8.16	0.006
Worker	19 (12.7)	42.84±13.55		64.1±15.32	
Farmer	14 (9.3)	48.42±13.80		59.57±15.65	
Homemaker	79 (52.7)	41.44±14.82		67.73±17.89	
Retired	12 (8)	51.00±12.65		73.13±58.37	
Others	20 (13.3)	50.75±11.79		62.14±85.96	
Degree of education**					
Under the diploma	132 (88)	43.39±14.59	0.03	65.95±16.62	0.08
Diploma	13 (8.7)	53.15±8.31		73.69±15.51	
Bachelor's degree	4 (2.7)	56.00±5.65		78.25±28.31	
Income**					
Low	98 (65.4)	41.21±14.76	0.000	63.38±16.64	0.001
Medium	48 (32)	50.95±11.17		74.02±15.71	
High	4 (2.7)	51.50±8.66		75.75±16.91	

Statistical tests used for study variables: *Mann-Whitney test, **Kruskal-Wallis test. SD: Standard deviation

In addition, the patients who were living with their families and those with a history of hypertension received better level of PSS ($P < 0.05$). With regard to different types of workers, homemakers reported significantly higher levels of PSS. Interestingly, low-income patients received more support from their families, friends, and other caretakers ($P < 0.05$). Regarding SCBs among heart failure patients, those who did not use drugs had a significant better SCB score. Turkmens and homemakers had a better score of SCB than other ethnicities and other types of employments, respectively. By sharp contrast to PSS, high-income patients got a better score of SCBs in comparison with low- and middle-income ones.

The mean score of PSS in patients with ischemic heart disease was 44.60 ± 14.30 , while the score of SCBs was 67.12 ± 17.04 [Table 2]. Moreover, Spearman's correlation coefficient was measured to examine the relationship between PSS and SCBs. Spearman's correlation coefficient showed that there was a direct relationship between PSS and SCBs in the patients ($P = 0.04$, $r = 0.16$) [Table 2].

The results presented in Table 3 with respect to different PSS groups showed that the least support was provided by friends (12.52 ± 6.79) and the highest level of social support was provided by other caretakers such as nurses or neighbors. Among all the domains of PSS, the participants were more concerned about medicine and the least important domain of PSS was diet [Table 3]. Categorization of SCBs showed that most of the patients (70%) had poor SCBs, while 62.7% of the participants received high levels of PSS [Table 3].

Different levels of perceived social support in the ischemic heart patients indicated that most of the participants in the study experienced high social support (62.7%). However, the scoring of self-care behaviors of the patients showed that the majority of them (70%) have not had appropriate self-care behavior [Table 4].

Finally, aiming at evaluating the relationship between PSS and SCBs in ischemic heart disease patients, a significant direct relationship was shown between PSS and self-care subscales of physical activity and medication use [Table 5].

DISCUSSION

The aim of this study was to evaluate two important behavioral and support-related factors in the patients admitted to Sayyad Shirazi Hospital of Gorgan city. PSS and SCBs were the main assessed factors in this study. According to the descriptive analysis and the comparison between different groups in the study, male patients and patients living with their families had significantly higher scores of PSS ($P < 0.05$). According to previous works such as the studies conducted by Chung *et al.* and Chamberlain, gender and marital status were two determining factors related to the PSS score.^[23,24] In the case of SCBs, the socioeconomic and historical variables including income, job, ethnicity, and history of drug use were effective determinants. These

Table 2: Mean and standard deviation of perceived social support and self-care behaviors in ischemic heart patients

Variable	Mean±SD	Minimum level	Maximum level	R	P
PSS	44.60±14.30	12	60	0.16	0.04
SCBs	67.12±17.04	18	100		

PSS: Perceived social support, SCB: Self-care behavior, SD: Standard deviation

Table 3: Mean and standard deviation of groups providing perceived social support and different domains of self-care behaviors in ischemic heart patients

Parameter	Mean±SD	Minimum level	Maximum level
Support groups of PSS			
Family	15.94±4.90	4	20
Friends	12.52±6.79	4	20
Other ones	16.14±5.10	4	20
Domains of SCBs			
Diet	11.36±4.91	4	20
Cigarette and drugs	15.26±6.94	4	20
Activity	11.47±4.61	4	20
Medicine	17.21±4.36	4	20
Stress	11.80±6.16	4	20

PSS: Perceived social support, SCB: Self-care behavior, SD: Standard deviation

Table 4: Different levels of perceived social support in ischemic heart patients

Parameter	n (%)
Levels of PSS	
Low	10 (6.7)
Moderate	46 (30.7)
High	94 (62.7)
Levels of SCBs	
Favorable	45 (30)
Unfavorable	105 (70)

PSS: Perceived social support, SCB: Self-care behavior

Table 5: Relationship between perceived social support and domains of self-care behaviors in ischemic heart patients

Domains of SCBs	Diet	Smoking	Activity	Drug	Stress
PSS	0.60	0.95	0.00	0.01	0.08

PSS: Perceived social support, SCB: Self-care behavior

variables were reported as effective ones in other studies. Access to education, availability of services, and supports that are related to socioeconomic levels could be significantly varied in different societies. In addition, PSS and SCBs can be affected by several cultural norms and traditions. Supporting practices by companions and governments can alter the scores of PSS and SCBs in local or national scales.^[24]

In this study, the mean PSS of the participants was 44.60 ± 14.30 . According to the Zimet's Scale, scores above 40 represent a high level of PSS. Therefore, most of the patients participating in this study had high social support. Comparison of the mean score of PSS in different support groups showed that the least amount of support was provided by friends (12.52 ± 6.79), while the highest support was provided by family members (15.94 ± 4.90) and spouses (16.14 ± 5.10). However, it should be noted that most of the participants lived with their families. This finding can be justified since family is considered the first and most important source of support for individuals, and clearly, the important role of parents, siblings, and spouse/partner as the first source of support in times of conflict and stress is palpable. This finding was in line with the results of a study by Fivecoat *et al.* (2018).^[10] Glasgow *et al.* introduced family support as the strongest determinant of adherence to treatment regimen in type II diabetic patients. They reported that patients who received higher levels of social support from their partners and relatives showed greater adherence to SCBs.^[25] In the present study, the mean score of SCBs was 67.12 ± 17.04 . According to the Miller's Scale, in which the scores of 20–79 are considered as unfavorable SCBs, the majority of the patients showed unfavorable SCBs. One of the reasons for inadequate SCBs in these patients, despite the high level of social support, may be the inadequate education level of the patients; as reported in Table 1, only a few participants had higher education. The results of this study were in line with those of the study by Esmailpour *et al.* (2017),^[5] in which SCBs were inadequate among the participants before the educational intervention.

The mean score of SCBs was the highest regarding medication use (17.21 ± 4.36). This finding was similar to the results of the study by Niakan *et al.* (2013), which showed that from the patients' point of view, the easiest way to control their disease was to use the medications prescribed by their physician. Since patients probably believed that by adherence to the medication regimen, they could achieve full recovery sooner, other domains of self-care, such as diet, physical activity, moderation of the effects of stressors, and nonsmoking were neglected.^[17]

There was a significant direct relationship between PSS and SCBs in patients with ischemic heart disease ($P = 0.04$, $r = 0.16$). Although the mentioned relationship was rather weak, it seems that this correlation could be improved via educational interventions for the patients and their families. This finding was in agreement with the reports issued by Khaledi *et al.* (2015)^[26] and the study by Hammash *et al.* (2017).^[27]

The present results showed that there was a direct relationship between PSS and SCBs, including physical activity ($P = 0.00$, $r = 0.22$) and medication compliance ($P = 0.01$, $r = 0.20$). In other words, by strengthening social support, one can expect an improvement in SCBs. This finding may be attributed to the families' emphasis on the importance of medication use and changes in the level of physical activity during the recovery process. In this regard, Osokpo *et al.* (2019) reported that in

family life, children, spouses, and family members provide tangible and effective emotional support for cardiovascular patients to adhere to their drug regimen;^[28] it also can be true about lifestyle-related behaviors such as physical activity. In addition, in the study by Alizadeh *et al.* (2013) and in the study by Adra *et al.* (2018), it has been reported that increased PSS was associated with the improvement of SCBs. It seems that social support leads to healthy behaviors. Conversely, patients who are socially isolated may barely change their behavioral patterns, which makes them more vulnerable and leads to readmission and ultimately death.^[11,22] The limitation of this study was that the samples were selected from limited wards and sampling was focused only on the CCU, which restricted the generalizability of the results to other wards in other hospitals.

CONCLUSION

Despite the fact that the patients with ischemic heart disease who were referred to Shahid Sayad Shirazi Hospital had high social support, their self-care score was not satisfactory, which may indicate the need to implement educational programs for patients and their families and other caretakers. Moreover, it seems that caretakers, especially family members, believed that only the timely use of medication plays a role in the patient's recovery, and they neglected the role of other factors. This should also be corrected by appropriate education for the patients and their caretakers.

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Conflicts of interest

There are no conflicts of interest.

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