Review article

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Social support in predicting CVD patients' quality of life

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ABSTRACT

Cardiovascular diseases are one of the most serious chronic diseases worldwide and are considered to be the leading cause of death. They have significant effects on physical, mental and psychosocial condition, which seems to worsen patients' quality of life. Chronic stress, post-traumatic stress disorder, depression and anxiety have been scientifically identified as risk factors for cardiovascular disease, but they also affect the severity and progression of the disease. Social support, especially perceived social support is a multidimensional concept related to the symptoms and prognosis of cardiovascular disease. It plays a fundamental role in the quality of life of patients with cardiovascular disease, as it facilitates adherence to treatment, active engagement and is associated with better health outcomes, lower cardiovascular morbidity and mortality. It is determined by the characteristics of the individual, the severity of the cardiovascular disease, as well as the degree and type of social support provided by significant others.

KEY WORDS: *CVD patients, social support, perceived social support, quality of life*

INTRODUCTION

Cardiovascular diseases (CVDs) represent one of the leading causes of death worldwide[1]. According to the World Health Organization (WHO), an estimated 18.6 million people lose their lives every year from this chronic disease[2]. More than four out of five CVD deaths are due to heart attacks and strokes and one-third of them occur in people under 70 years of age[2]. In 2019, the vast majority of premature deaths (85%) were due to heart attack and stroke[3]. Clinical studies have demonstrated that women have higher mortality rates and maybe poorer prognosis than men after an acute cardiovascular event[4]. Specifically, CVD is considered to be responsible for about 1 in every 5 female deaths[5]. The severity of these diseases and the high rates of premature deaths make the identification of the populations who are at high risk for CVD and their treatment essential[1]. Patients with CVD self-report that their Quality of life (QoL) was significantly more impaired when compared with non-CVD patients[6]. WHO defines QoL as 'an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns'[7]. Therefore, the enhancement

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of QoL has been one of the major treatment goals for patients with CVD[8]. Social support is generally known to influence QoL[9]. It has been described as "support accessible to an individual through social ties to other individuals, groups, and the larger community"[10]. It is associated with age and gender and is generally thought to be a major determinant, which improves the prognosis of CVD patients[9].

QOL, SOCIAL SUPPORT & CVD

Surveys demonstrate that positive social support is linked to improved QOL and better outcomes in patients with CVD[11,12]. The social support theory suggests that social support serves as a buffer to prevent or decrease the harmful long-term health effects related to encountering stressful circumstances and traumatic events[13]. Also, social support plays a key role in the occurrence and progression of chronic diseases and is one of the most significant factors which influence mental health and treatment follow-up in those patients[9].

Most of the studies demonstrate that the presence of social support is associated with well-being enhancement, longevity and a reduction in mortality rates in people with CVD[14]. CVD patients who receive high social network support have more possibilities of survival and a good disease prognosis than those who have very few social contacts, who are at the greatest risk for early mortality[15]. Additionally, it seems that there is an inverse relationship between the quality of social relationships and urinary levels of epinephrine and resting heart rates[16]. The presence of social support reduces blood pressure and heart rate responses to stressful stimuli in women and cortisol reactivity in men, decreasing the risk for CVD incidence, whereas lack of social support is responsible for adverse outcomes[16].

TYPES OF SOCIAL SUPPORT

Social support is categorized as structural and functional support. The first refers to the network of people surrounding an individual and the interactions they have with them[13]. The second refers to the type of support the individual receives from the network[13]. Functional support includes emotional (the offer of empathy, concern, affection, love, trust, acceptance, encouragement, or caring), instrumental/tangible (financial assistance, provision of material goods, or services) and informational (the provision of advice, guidance, suggestions, or useful information) support from the others[13]. Prognostic studies show that low functional and emotional support negatively affect cardiac and all-cause mortality[11].

PERCEIVED VS ACTUAL SOCIAL SUPPORT

The way people perceive social support may activate different self-evaluations and adjustment to illness[17]. Perceived social support refers to "how individuals perceive friends, family members and others as sources available to provide material, psychological and overall support during times of need"[18] . High perceived social support is associated with well-being and the enhancement of self-esteem of the person who receives it, which leads to positive mental health outcomes[17,19]. However, the quality or adequacy of social support from a subjective perspective may differ from the actual, objective provision of social support[19]. It seems that perceived social support is more predictive of mental health outcomes than actual social support. The actual size of social support sources is not the only predictor of satisfaction but people's beliefs about the quality and quantity of support they receive from important others[15,18]. On the other hand, greater perceived social support predicts better social and work adjustment[20]. Scientific data demonstrate that perceived social support has mediating effect over time on symptom improvement in people with anxiety and other mental disorders[21]. Evidence on schizophrenic patients suggests that greater perceived social support is predictive of better subjective QoL and social functioning[20,22].

SOCIAL SUPPORT, CVD AND PSYCHOLOGICAL DISTURBANCES

Surveys have reported that there is a bidirectional relationship between CVD and psychological disorders[23], such as depression[19], anxiety[24] and posttraumatic stress disorder (PTSD)[25]. In addition, anxiety, depression and stress are among the most important risk factors for coronary heart disease (CHD), stroke and myocardial infarction, while pessimism appears to be a significant predictor of CHD mortality[24,26,27].

Depression

Depression is an independent risk factor of CVD, which seems to promote biological changes, such as inflammation or endothelial dysfunction that can contribute to the disease, while is also considered as a consequence of CVD[23,28]. Prevalence of depression in patients with CVD is twice than in the general population and predicts physical health vulnerability, low QoL, recurrence and mortality[28]. Notably, patients with depression are often very likely to think that they receive inadequate social support and feel emotionally lonely[20]. In these patients, poor subjective social support was predictive of poor outcomes at follow-up, including poor recovery and life satisfaction one year later, greater symptom severity and worse functional outcomes[20].

Stress

Evidence suggests that the presence of social support is a major determinant of the reduction of stress and the promotion of well-being, while is associated with positive health outcomes among people with CVD[14].

Type D Personality

Furthermore, the distressed personality type (Type D), which has been described as a combination of negative affectivity and social inhibition, is related to poor CVD prognosis and unhealthy behaviors[29,30]. Type D individuals tend to be pessimistic about their future, experience negative emotions under difficult circumstances and find many daily activities stressful[29]. CVD patients of Type D personality experience symptoms of depression and anxiety and report less perceived social support compared to non-type D individuals with CVD[29]. It appears that they interpret social support more negatively and feel insecure in social interactions[30]. They are also more vulnerable to addictive behaviors, like extensive use of smoke and alcohol consumption and are more likely to eat unhealthy food compared to non-type D individuals with CVD[29].

Other psychological aspects

Social Isolation and Loneliness

Social isolation, lack of social support and loneliness are thought to be predictors of CVD[31]. Socially isolated CVD patients appear to be at high risk for premature death from CVD and bad prognosis[9]. Data show that social isolation predicts heart failure (HF) hospitalization, whereas low social support and loneliness predict a major adverse cardiac event (MACE)[32]. Moreover, surveys have found that social isolation and loneliness are associated with health risk behaviors such as reduced physical activity, reduced sleep quality, and smoking[33]. Old socially isolated CVD patients reported less social support and were less pleased with the quality of their relationships with network members but did not report less satisfaction with the number of their social contacts[15]. Loneliness also has been associated with depression, anxiety and social withdrawal[33].

Self-esteem

Evidence suggests that perceived social support may include a risk of a possible threat for self-esteem as while many individuals interpret social support as an indicator of social acceptance, others interpret it as a sign of weakness and low coping ability, which in turn deteriorates mental health[17].

Social support and different types of CVD

CHD

Low social support is a risk factor for the development of CHD in previously healthy individuals, while it deteriorates the prognosis of patients with established CHD[11]. It is also associated with high levels of emotional stress, depression and anxiety, leading to more expressed progression of symptoms of CHD and the reduction of the QoL either directly, via physiological mechanisms, or through health behaviors[9,11,34]. Depression appears to increase chronic low-grade inflammation and coagulation activity both involved in CHD and its thrombotic complications, while it also affects the endocrine and autonomic nervous system function as it is associated with hyperactivity of the hypothalamic-pituitary-adrenal (HPA) axis and elevated catecholamine levels[11]. Patients with CHD and depression refer to higher hospitalization reports, a higher chest pain incidence and a greater impact on cardiac prognosis[28]. As regards its influence on health behaviors, it seems that depression due to lack of social support is associated with smoking habits, unhealthy eating and physical inactivity[11]. By contrast, positive social support is linked to improved QoL and better health outcomes in patients with CHD, as it is related to better blood pressure control and decreased cardiac responses to acute stress[11,12]. Individuals with high social support are less likely to smoke, more likely to be physically active and have better adherence to medical recommendations[34], while social support reduces the CHD risk in depressed individuals[23]. Moreover, it has been found that social support in patients with coronary artery disease (CAD) after percutaneous coronary intervention positively affects their prognosis within 1 year after surgery[9,34].

Myocardial infarction (MI)

In patients with MI who are mild to moderately depressed or have PTSD, the prevalence of high social support seems to decrease or mediate the effects of depression on cardiac mortality[35]. It has also been identified as an important predictor of health outcomes in the recovery process, after acute myocardial infarction (AMI)[36]. AMI patients with low social support at hospital presentation have worse health outcomes during the first year after their AMI than patients with high social support, including greater risk of angina and frequent hospital readmission, poor disease-specific QoL, poorer general mental functioning than before and more symptoms of anxiety and depression[37]. It appears that patients with low levels of social support have poorer outcomes than those with continued high support levels, whose outcome prognosis is better than that of the first ones[37].

Heart Failure (HF)

HF is the most common disease among the different types of CVDs and is associated with QoL deterioration, depression comorbidity and high mortality risk[38]. Depressive symptoms and inadequate social support are well-known independent predictors of poor QoL, increased HF severity and mortality in HF patients[12,39]. Specifically, patients with HF and depression have a 3-times higher risk of hospital admission and 2-times higher risk of death at 1 year follow up, compared to those without depressive symptoms[12]. Furthermore, anxiety symptoms predict greater declines in physical functioning over six months[39]. Social support is associated with a positive impact on QoL, low risk of mortality, reduction in re-hospitalization and increase in the willingness to develop coping strategies and perform self-care behaviors among patients with HF[8]. It also seems to predict a reduction in depression levels over two years, meaning that high levels of social support may protect patients from the negative prognostic consequences of depression, whereas low social support at baseline is associated with increases in depressive symptoms in both outpatients and hospitalized patients with HF[39]. HF patients who have high levels of social support report better outcomes including self-care behavior, life motivation, more frequent consultation with a health professional, good adherence to medication, diet, and exercise than those with lower or medium levels of social support[39]. On the other hand, receiving less social support is linked to poor self-care behaviors and alcohol use among HF patients[38,39].

Stroke

Social isolation, absence of social support and loneliness are associated with comorbidity with depression and are thought to be predictors of ischemic stroke incidence[20,32]. The quality of social support plays a significant role in participation at 3–6 months post-stroke, with emotional support and instrumental support from family and friends alleviating functioning, while the extent of social networks plays a key role in social and leisure activities 10 years post-stroke[40]. It appears that the existence of a person to depend on, living with a partner or other individuals, having five different sources of social contact outside the household and social engagement in the community enhances QoL[40]. High levels of social support improve psychological well-being, which promotes participation post-stroke, self-esteem and hopeful thinking[40]. According to data, only if social support is established before stroke and on the needs and the profile of every individual, it has positive outcomes on participation post-stroke, which is affected by the time since the occurrence of stroke, degree of functional independence and marital status[40].

Comorbidities

Many studies have reported that the QoL of CVD patients is generally worse when co-existing with an increasing number of comorbidities[6]. For instance, patients with CVD with osteoarthritis comorbidity have poorer physical health than the others who do not suffer from the disease, while those with chronic obstructive pulmonary disease develop poorer physical fitness[6]. It has been revealed that increased risk for comorbidity is highly associated with depressive symptoms, low physical functioning, physical limitations and poor general health[6].

Sources of social support

Family and friends

Family members and significant others are the most important sources of perceived social support, compared to friends[34,41]. Receiving social support from the family accelerates the recovery period, encourages self-care behaviors and reduces the risk of recurrence of the disease in patients with HF[38,39,42]. Evidence refers that familial support provides safety and a secure base for emotion regulation in a more effective way than other types of social support[36,43]. Friends, family and social groups can offer actual emotional, instrumental and informational support and co-participation in health-enhancing behaviors, while they influence patients' interpretation of stressful events and help them develop coping strategies[38,34,39]. Peers often accompany their ill friends to medical appointments, inform them about new treatments or offer informal counseling[34]. They appear to encourage healthy behaviors like active engagement in social activities and adherence to healthy diets while seeming to predict treatment adherence[34].

Marriage &romantic relationships

Spousal support encourages and promotes rehabilitation of CVD patients[43], engagement in health-promoting behaviors[38] such as exercise, healthy eating, restricted tobacco use and alcohol consumption and better adherence to medical recommendations[34]. Being married has been associated with a lower risk of out-of-hospital sudden cardiac arrest among older adults and reports of fewer depressive symptoms compared to single patients[44]. Spousal support appears to have a positive effect on adjustment to illness, depressive symptoms and health prognosis[43]. It is widely known that CVD not only affects patients but also their partners, who play an important role in the progress of the disease and alter their daily habits, activities and roles due to the adjustment to the new reality[45]. Supportive couple relationships and communal coping with the

disease facilitate patients' health improvement and reduce couple's distress[46,47].

Partner's overprotection

However, many partners living in the fear of potentially losing their loved ones while trying to keep them healthy and prevent new cardiac episodes, tend to develop overprotective behaviors and become intrusive and overly nurturant[45,46]. Perceived overprotection by the partner is associated with conflicts, anxiety and depression and poorer QoL of CVD patients[45,48]. It also affects patients' self-efficacy, which predicts their self-management behaviors and rehabilitation[46,48]. Some CVD patients take on a more passive role towards their partners who have taken a controlling and caregiver role[46]. In a survey, CVD patients were interviewed and admitted having ambivalent feelings towards their partners who restrict them from performing activities[47]. Although they appreciated their support, they found them intrusive and admitted that overprotection caused them frustration, distress and guilt[45,47]. Data show that these individuals feel independent and are less likely to seek or benefit from the support of their relationship, while over-involvement in their illness management may increase the risk of recurrence and health deterioration[45,46].

Socio-demographic characteristics

The level of social support in older patients with heart disease varies across groups of women and men, living and financial situation and disease severity[8]. While disease severity seems to be the most important factor for social support among older patients, studies show that female gender, being married or living with somebody and having a high level of education are associated with high levels of social support[8]. By contrast, male gender, living alone, demonstrating a low level of education, perceiving a problematic financial situation and having high disease severity are associated with lower levels of social support[8] and low adherence to treatment[34]. High social support is associated with advanced mental and physical health in diverse populations, including students, unemployed, workers and the elderly, while women seem to be more benefited from social networks than men mentally[22]. Findings emphasize the importance of social support on mental and physical aspects of health of older CVD patients[8,12,32,41]. Strong social support among older people, especially women, contributes to their independence maintenance and is related to better health outcomes and higher QoL, compared to those who are socially isolated[8,22]. People of old ages, especially the elderly, are found to receive lower social support, compared to the young ones, implying that with advancing age, the ability to make social connections decreases[8,32,49].

Pathophysiological mechanisms linking social support with CVD outcomes

There is a two-fold explanation regarding potential pathways through social support affects CVD outcomes. First, social support can influence the extent to which someone engages in high-CVD risk behaviors such as smoking, unhealthy diet, excessive alcohol consumption[50]. Second, social support might promote atherogenesis through the activation of the autonomic nervous system (ANS) by exerting pathophysiological effects, like hypercortisolemia and urinary levels of epinephrine[50]. Elevated activation of the autonomic nervous system and activation of the HPA axis, can result in hormonal and neuroendocrine alterations, including hypercortisolemia or excess glucocorticoid secretion[16]. Increased resting heart rates may be a sign of altered autonomic arousal[50]. Even small increases in glucocorticoids over time can lead to hypertension, insulin resistance, coagulation changes and high lipid levels, all of which are precursors to CVD[16].

CONCLUSION

CVD is a chronic disease with significant effects on physical, mental and psychosocial status, which appears to deteriorate patients' QoL. Chronic stress, PTSD, depression and anxiety can have detrimental cardio-metabolic effects. They are thought to be risk factors for CVD incidence but also affect the severity and progression of the disease. Social support and particularly perceived social support is a multidimensional concept associated with CVD symptomatology and prognosis. It plays a fundamental role in CVD patients' QoL as it facilitates adherence to treatment, active engagement and is linked to better health outcomes, lower CVD morbidity and mortality. It is determined by the characteristics of the individual, the type of CVD and the degree and type of social support provided by the important others. Effective interventions for the rehabilitation and the improvement of life of CVD patients should be a priority of future research and health services, while should be based on a systemic approach.

ΠΕΡΙΛΗΨΗ

Η κοινωνική υποστήριξη στην πρόβλεψη της ποιότητας ζωής των ασθενών με ΚΑΝ

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Οι καρδιαγγειακές παθήσεις αποτελούν ένα από τα σοβαρότερα χρόνια νοσήματα παγκοσμίως και θεωρούνται η βασικότερη αιτία θανάτου. Έχουν σημαντικές επιπτώσεις στη σωματική, ψυχική και ψυχοκοινωνική κατάσταση, η οποία φαίνεται να επιδεινώνει την ποιότητα ζωής των ασθενών. Το χρόνιο στρες, η Διαταραχή Μετατραυματικού Στρες, η κατάθλιψη και το άγχος έχουν διαπιστωθεί επιστημονικά ότι αποτελούν παράγοντες κινδύνου εκδήλωσης καρδιαγγειακής νόσου, αλλά επηρεάζουν επίσης τη σοβαρότητα και την εξέλιξη της νόσου. Η κοινωνική υποστήριξη, ιδιαίτερα η αντιληπτή κοινωνική υποστήριξη είναι μια πολυδιάστατη έννοια που σχετίζεται με τη συμπτωματολογία και την πρόγνωση της καρδιαγγειακής νόσου. Διαδραματίζει θεμελιώδη ρόλο στην ποιότητα ζωής των ασθενών με καρδιαγγειακά νοσήματα, καθώς διευκολύνει την τήρηση της θεραπείας, την ενεργό συμμετοχή και συνδέεται με καλύτερα αποτελέσματα υγείας, χαμηλότερη καρδιαγγειακή νοσηρότητα και θνησιμότητα. Καθορίζεται από τα χαρακτηριστικά του ατόμου, τη σοβαρότητα της καρδιαγγειακής νόσου, καθώς και το βαθμό αλλά και το είδος της κοινωνικής υποστήριξης που παρέχουν οι σημαντικοί άλλοι.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ: *Ασθενείς ΚΑΝ, κοινωνική υποστήριξη, αντιληπτή κοινωνική υποστήριξη, ποιότητα ζωής*

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APPENDIX

Table 1. Synopsis of 14 research articles related to social support & CVD patients' quality of life.

Author and Year published	Study Design	Sample	Instruments	Findings
Arestedt et al. (2013)[8]	Cross-sectional	N=349 chronic HF patients, ≥65 years	Minnesota Living with Heart Failure Questionnaire, Short Form-12 Health Survey Questionnaire, Interview Schedule for Social Interaction	Social support was high, although being a man, living alone, perceiving a problematic financial situation, and high disease severity (NYHA) were associated with lower levels of social support. Social support was associated with HRQoL.
Pushkarev et al.(2019) [9]	Prospective	N=975 patients with CAD, 33- 86 years	Multidimensional Scale of Perceived Social Support	Social support level was associated with age and gender, and significantly and independently affected CAD patients' risk of death after percutaneous coronary intervention (PCI).
Chung et al. (2013)[12]	Prospective	N= 362 patients with HF, 60.6±11.5 years	Beck Depression Inventory-II, the Multidimensional Scale of Perceived Social Support, the Minnesota Living with Heart Failure Questionnaire	Less social support and greater depressive symptoms independently predicted poorer QoL. The relationship between social support and QoL was mediated by depressive symptoms.
Nekouei et al., (2014) [27]	Cross-sectional	N=398 patients with CHD 30-70 years	Coping with stressful situations questionnaire (CISS- 21), life orientation (LOT-10), general self-efficacy (GSE-10), depression, anxiety and stress (DASS-21), perceived stress (PSS-14), multidimensional social support (MSPSS-12), alexithymia (TAS-20), spiritual intelligence (SQ-23), quality of life questionnaire (WHOQOL-26).	Psychological factors such as social support had a very important role in the QoL of the CHD.
Bucholz et al., (2014) [36]	Prospective	N=3501 AMI patients, ≤55 years	ENRICHD Social Support Inventory, Short Form-12 physical and mental component scores, Patient Health Questionnaire (PHQ-9), Seattle Angina Questionnaire	Lower social support was associated with worse health status and more depressive symptoms 12 months after AMI in both young men and women.
Leifheit-Limson et al., (2012) [37]	Prospective	N= 1951 AMI patients, ≥18 years	Enhancing Recovery in Coronary Heart Disease (ENRICHD) Social Support Instrument (ESSI), Seattle Angina Questionnaire (SAQ), SF-12 Physical Component Summary (PCS), Mental Component Summary (MCS), 9-item Patient Health Questionnaire (PHQ-9)	Patients with worsened social support (vs. persistently high) had greater risk of angina, lower disease-specific quality of life, lower general mental functioning, and more depressive symptoms. Patients with improved support (vs. persistently low) had better outcomes, including higher disease-specific quality of life, higher general mental functioning, and fewer depressive symptoms. In separate analyses, low support at 1 month was significantly associated with poorer outcomes, independent of baseline support level.
Kähkönen et al., (2017)[34]	Cross-sectional	N= 416, patients with CHD, 63±2 years	Social Support of People with Coronary Heart Disease (self-report instrument)	Perceived informational support was primarily high, but respondents' risk factors were not at the target level. Gender, marital status, level of formal education, profession, physical activity, duration of CHD and previous MI associated with perceived social support.
Ginting et al., (2016)[29]	Case- control study	N= 386, patients with CHD, 36-75 years	The Type D Scale-14, the Beck Depression Inventory-II, the Beck Anxiety Inventory, MSPSS, Health Behaviors Inventory (HBI)	Compared with non-type D, Type D individuals reported more unhealthy behaviors, less healthy behaviors, and perceived less social support.

Table 1. Synopsis of 14 research articles related to social support & CVD patients' quality of life *(continued)*.

Author and Year published	Study Design	Sample	Instruments	Findings
Su & He, (2019)[30]	Interventional	N=102 patients with CAD, 64.4±13.6 years	Type D Scale, ENRICHD Social Support Inventory, and Patient Health Questionnaire-9	46.7% of participants who had Type D personality had lower social support and higher depression than did the remaining (non-type D) participants. Type D Taiwanese CAD patients showed lower perceived social support and higher depression during hospitalization than did non-type D participants. Furthermore, the more social support patients received at home, the lower was their depression.
Brummett et al., (2001)[15]	Prospective study	N=430 patients with CAD, non-isolated: 61.7±11.3 years & isolated: 63.9±11.4	Mannheim Social Support Interview (MOSS,) ISEL, Epidemiological Studies – Depression Scale (CES-D), SF-36 Health Survey, DASI, PSS, Cook-Medley Hostility Scale	The mortality rate was higher among isolated individuals. Higher hostility ratings, and higher smoking rates, isolated patients did not differ from non-isolated patients on demographic indicators, disease severity, physical functioning, or psychological distress. Isolated patients reported less social support and were less pleased with the way they got along with network members, but they did not report less satisfaction with the amount of social contact received.
Tuomisto et al., (2018)[43]	Cross-sectional	N= 169 CAD-patients hospital stays, the 55% were aged 61-74 years	The Family Involvement in Rehabilitation (FIRE) scale	Patients with coronary artery disease perceived that family promotes their rehabilitation significantly. Family relations before hospitalization were related to all subareas of family promoting rehabilitation and one subarea of issues encumbering rehabilitation in family.
Wilski & Wilowska, (2014) [42]	Cross-sectional	N=127 patients with MI, 39-81 years	The Inventory of Socially Supportive Behaviours (ISSB), the Self-care Questionnaire (KTS)	People receiving little support are characterized by lower level of self-care than people with medium and high level of support. This suggests that social support is of considerable importance for the changes in the level of self-care only in the case of people previously receiving little support. Informational support is related to higher level of self-care whereas instrumental support is related to lower level of self-care.
Friedmann et al., (2014)[39]	Longitudinal	N= 108 HF patients, 60.5±11.2 years	the Beck Depression Inventory-II, State-Trait Anxiety Inventory (STAI), Social Support Questionnaire-6	Social support amount contributed to changes in depression. Depression increased over time for patients who had lower initial social support amount.
Joekes, Van Elderen & Schreurs, (2007)[48]	Cross-sectional	N=82 congestive heart failure (CHF) patients (61.1±8.6) & MI patients (58.7±8.9)	Overprotection subscale, the Hospital Anxiety and Depression Scale (HADS), self-efficacy questionnaire, the MacNew Heart Disease Health-related Quality of Life Questionnaire	Perceived overprotection was associated with concurrent levels of anxiety and depression, and lowered QoL. Self-efficacy was related to psychological well-being in both patient groups but only associated with QoL in CHF patients. Self-efficacy predicted MI patients' self-management behaviors in the medium term.