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Review Article

The Effect of Anxiety and Depressive Symptoms on Quality of Life among Patients with Heart Failure: An integrative literature review

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Abstract

Background: Anxiety and depressive symptoms interfere with physical and psychological status, worsening symptoms and quality of life (QoL) among patients with heart failure (HF). **Objective:** The purpose of this review was to explore the effect of anxiety and depressive symptoms on the QoL among patients with HF. **Methods:** The research strategy was done using the following search engines: PubMed, CINAHL, ProQuest, Science Direct, and Google Scholar. The key words used in this research included: Heart failure, QoL, Anxiety & depression/ depressive symptoms, and the combination of these words. The research targeted articles in English language during the period from 2009 to 2020. The inclusion criteria included all study types. **Results:** The results of this search ended up with 150 articles. After reviewing the abstract of these articles, irrelevant articles were excluded. When the full text articles were reviewed, 129 articles were excluded ending with 21 articles which constitute the base of this literature review. **Conclusion:** Patients with HF usually suffer from poor QoL. Anxiety and depressive symptoms negatively affect the QoL for this population.

Key Words: Anxiety, Depressive symptoms, Heart failure, Quality of Life.

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1. INTRODUCTION

This literature is composed of four major sections as the following: (1) a review of studies about Quality of Life (QoL) among patients with Heart Failure (HF); (2) a review of studies about anxiety and depressive symptoms among patients with HF; (3) a review of studies about the effect of anxiety and depressive symptoms on QoL among patient with HF; and (4) a summary of these studies.

2. QUALITY OF LIFE AMONG PATIENTS WITH HF

Heart failure negatively impact not only the physical aspects of the patients' wellbeing, but also the social, psychological, emotional and economical aspects as well as the patient's QoL [1]. People with HF have shown to have a lower QoL when compared with the general population due to progressive symptoms, disability, and recurrent hospitalization [2]. Furthermore, poor QoL among HF patients is a common predictor of negative outcomes such as, mortality, hospital stay and hospital re-admissions [3]. Also, patients with HF self-reported that their QoL may be worse in comparison with patients diagnosed with other serious chronic medical disorder [4].

A study done by Juenger et al, (2002)[5] found that the QoL of a patient is associated with the New Yourk Heart Association (NYHA) classification (progression of the disease). They study showed that patients suffering from heart failure have a poor QoL. It was also shown that patients suffering from severe impairment of functional capacity—as evaluated by the six-minute walk test

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and peak oxygen uptake— have in general significantly lower SF-36 values which indicates a poor QoL [5]. On the other hand, another study found that the QoL is associated with the distance covered in the 6 minutes' walk test, therefore the longer the distance, the better the QoL [6].

Studies have shown different results regarding the association between the QoL and EF. Parajón et al. (2007) found that there is no relationship between the QoL and Left Ventricular Ejection Fraction (LVEF) [7], while Quittan et al. found that there is a weak relationship between the QoL and LVEF [8]. Moreover, another study showed that the LVEF is an independent factor on the QoL among Saudis patients with HF [9]. Furthermore, a study conducted in Jordan reported that the LVEF is a strong independent factor affecting all domains of QoL negatively [10].

A recent study was done at the cardiology outpatient clinics at the Royal Brampton tertiary care center in London, UK (Gallagher et al., 2019)[11]. The purpose of the study was to examine the QoL of patients with HF. A convenience sample of 163 patients completed three HR-QoL assessments: The Minnesota Living with Heart Failure Questionnaire (MLHFQ); the EuroQoL 5D-3L (EQ-5D-3L); and the Kansas City Cardiomyopathy Questionnaire (KCCQ). Data were collected either via medical records review or through face to face interviews. A strong relationship between NYHA and QoL scores was found, especially for NYHA class II and III. However, the major limitation of the study was the use of a single site, which was a tertiary care center, and this has limited the generalization of these results.

Another study done by Pour et al., (2016)[12] in the critical care unit (CCU) of a general hospital in the city of Ahvaz, Iran. This was a descriptive study among 126 patients diagnosed with chronic HF. The purpose of the study was to evaluate the QoL and how HF as a disease impacts the QoL for these patients. Data were collected through the Minnesota Living with Heart Failure Questionnaire (MLHFQ). Most of the patients reported poor QoL (77.7%), 18.2% had a moderate QoL, and only 3.2% had a high QoL. Moreover, the results indicated that younger patients, men, married and single patients (in comparison with widowed and divorced patients), patients with a high-school diploma and higher education and patients with lower numbers of admissions had a better QoL compared to the other groups. The study also showed that QoL is poor among most of their sample due to the nature of the disease which requires conducting periodic examinations and recurrent tests and visits to the hospital with high rates of readmissions. The limitation of the study was the lack of ejection fraction, which is an objective measure of the heart function [12].

Chu et al (2014) [13]conducted a study at an outpatient HF clinic of a cardiovascular center in a tertiary hospital in Korea. This was a cross-sectional correlational study of 114 patients with HF. The QoL was measured by the Minnesota Living with Heart Failure Questionnaire (MLHFQ) and the World Health Organization's Quality of Life Instrument – Short Version (WHOQOL-BREF). The major purpose of the study was to identify the factors affecting the QoL and to determine which instrument is better in measuring the QoL considering the affecting factors. The results designated that the perceived economic status, functional status, and gender, were identified as factors influencing the QoL. Specifically; lower socioeconomic status, poor functional status, and females were associated with more severe illness on admission and a poorer QoL. Moreover, the study showed that there was a significant correlation between the two instruments regarding the total scores of the QoL. However, there were differences in the subscales. Based on these results, the authors concluded that MLHF was better in measuring the QoL. Some limitations of this study can be noted. One is that the economic status was obtained by self-reported questionnaires, not by objective measures. Second, the results cannot be generalized on other populations because only Korean patients were included in this study [13].

In Nigeria; a comparative analysis of the quality of life of HF patients using two instruments was done at the cardiology clinic of the Lagos University Teaching Hospital, by using the Kansas City Cardiomyopathy Questionnaire (KCCQ) and a generic one, the WHOQOL-BREF[14]. The sample consisted of 190 patients. The study found a positive correlation between the QoL score and the four domains (physical health, psychological, social relationships, and environment). On the other hand, it was found that the QoL, as realized by the patients, was substandard in about 27% of the patients. However, there are some limitations to this study such as; the use of disease specific instrument developed for a Caucasian population. Furthermore, direct comparison of the scores could not be done because the item's questions for each instrument were worded differently [14].

Another study was conducted in Korea in 2012 [15] aiming to describe and check the relationship of the QoL of elderly Korean patients and other factors (sociodemographic, clinical factors, functional status, and depression). The authors used a descriptive cross-sectional design and enrolled 134 HF patients from outpatient cardiology clinics at an academic-affiliated hospital and a tertiary care academic referral medical center in Cheonan, South Korea. The QoL was measured using the MLHFQ. In addition, sociodemographic, psychosocial variables, and clinical variables were obtained from the medical records of the patients. The hierarchical multiple regression analysis and after controlling the sociodemographic and clinical factors has shown that the most important predictors/factors associated with the QoL are depression, functional status, and NYHA classifications. Moreover, there were weak to moderate relationships between the sociodemographic factors (age, gender, and educational level) and the QoL. However, in the hierarchical regression model, only the educational level was shown to be a significant determinant of the QoL. In addition, the results showed that EF, which is an important factor for assessing the stage of the disease, had no significant relation with the QoL, while the NYHA classification was a significant predictor for QoL. Finally, it is worth mentioning that women were more depressed and had worse functional status and QoL than men [15].

Finally, Hung et al. compared the QoL for patients with HF in US and Taiwan. The study used a cross-sectional design and enrolled 175 patients (American =87 and Taiwanese =88). Data were obtained by face to face interview using the MLHFQ to assess the QoL. Data were analyzed using SAS (Statistical Analysis Software), and the results showed that the QoL among patients in the U.S. was more impaired than in Taiwanese patients, particularly in the physical dimension. Regarding the factors associated with the QoL, it was found that symptoms severity was the most important predictor of the QoL in both Taiwanese and American patients. The major limitation of the study was the inability to determine why the QoL was worse in the U.S than in Taiwan [16].

In Arab counters, AbuRuz et al. conducted a study on a convenience sample of 103 patients with HF from Saudi Arabia, using a cross-sectional correlational design. The study was conducted at a tertiary care hospital in the eastern province. The purpose of the study was to examine the QoL for Arab patients with HF. Specifically, the study was designed to check the following purposes; (1) to identify the demographic and clinical characteristics associated with the QoL; (2) to examine the relationships of social support dimensions with the QoL in patients with HF; and (3) to identify variables that explain the greatest amount of variance in physical component summary (PCS) and mental component summary (MCS) of the QoL [17]. The results of the study showed a strong correlation between the LVEF and the QoL. On the other hand, it has been found that age and physical activity were independent predictors of the QoL. the study found that patient aged ≥ 65 years had poorer QoL compared to those aged < 65 years. The major limitation of this study was the use of the cross-sectional design.

In Jordan, three studies were conducted to assess the QoL for patients with HF. The first one is a cross-sectional correlational study by AbuRuz & Alaloul et al., (2018) aimed to compare the QoL of patients with HF in Jordan with HF patients in Saudi Arabia. Data were collected through face to face interviews using SF-36. The sample consisted of 202 patients (99 from Jordan and 103 patients from Saudi). These patients were recruited from outpatient clinics of a nonprofit hospital and teaching hospital in Jordan and one tertiary care hospital in the Eastern province in Saudi Arabia. The study reported that Saudi patients had significantly more mental impairment ($p< 0.01$) and lower level of fatigue ($p< 0.01$) than the Jordanian patients. The Jordanian patients' scores for all QoL domains, PCS, and MCS were lower than 50 except for mental health. The scores for Saudi patients for all QoL domains were lower than 50 except for vitality. Left ventricular ejection fraction, gender, and the history of diabetes were predictors of the PCS and left ventricular ejection fraction and the history of diabetes were predictors for MCS in Jordanian patients. In addition, Left ventricular ejection fraction and tangible support were predictors of the PCS and age, LVEF and emotional support were predictors for MCS in Saudi patients. The main limitations of the study is the use of a cross-sectional design that may limit the QoL factors studied. Moreover, the severity of HF (stages) was not considered in the study due to the lack of information in the medical records [18].

The second study conducted by Alaloul et al. in 2017 enrolled 99 patients with a confirmed diagnosis of HF from a nonprofit hospital and an educational hospital in Amman, Jordan. Short Form-36 questionnaire was used to measure the QoL. The purpose of the study was to examine the relationships of demographic characteristics, medical variables and the QoL using a cross-sectional design. Patients reported poor QoL among all 8 domains of the instrument. In addition, LVEF and NYHA had the strongest correlation with most QoL domains. Most patients with HF reported having a significant disrupting pain and fatigue which interfered with social activities, impaired psychological status, and limited the performance of activities associated with their usual role. The major limitation of this study was the use of a cross-sectional design [10].

The last study was a qualitative study done by Abu Hayeah et al., (2017)[19]. This descriptive study used semi-structured interviews with 25 HF patients. The general objective of the study was to examine the QoL of patients with HF in Jordan from their perspectives. The data were analyzed using NVivo after reading the transcripts of the interview many times. The results revealed three major themes with subthemes as described in table1.

The study concluded that, the patient's QoL is a multi-dimensional concept, different from one patient to another, and influenced by multiple factors. The study also showed that HF negatively affects the QoL of

Subthemes	Themes
1. Patients' understanding of QoL. 2. Knowledge about HF as a disease. 3. The first response when receiving the diagnosis of HF.	Awareness of QoL and perceptions about HF.
1. Physical ability. 2. Psychosocial life. 3. Spirituality. 4. Cognitive aspects. 5. Economic status.	Influence of HF on patients.
1. Take a short walk and obtain fresh air. 2. Health related behaviors. 3. Housing adjustments. 4. Social support. 5. Spiritual activities. 6. Job reconsiderations regarding health status.	Suggestions and interventions to improve QoL from HF patient's perspectives.

Table1: Identification of Themes

the patient, especially in the physical domain [19].

3. ANXIETY AND DEPRESSIVE SYMPTOMS AMONG PATIENTS WITH HF

HF can affect more than one domain in patients' life. The most important domains are physical, psychosocial, cognitive, and psychological life. Patients may have changes in the social activities and relationships; at the same time, they may experience negative emotions such as anxiety and depression [20]. Some patients may think about the deterioration of their condition and death due to physical limitation, severity of the disease, hospitalizations, re-hospitalization, and financial burden on their families [19, 20]

Anxiety and depression are considered among the most common factors affecting patients with HF in general, and the most important among psychological factors [21]. The prevalence rates of anxiety and depression in patients with HF are 4–5 times higher than that in the general population [21]. Anxiety and depression can affect the QoL in patients with heart failure by two different mechanisms: (1) Physiologically, anxiety and depression stimulate the sympathetic nervous system, reduce heart rate variability, impair platelet functioning, motivate inflammatory process, and lead to hypocholesteremia; (2) Behaviorally, anxious and depressed patients will neglect their self-care and dietary regimen. Furthermore, they fail to follow the prescribed medications [22, 23].

The relationship between depression and HF has been studied well in the literature. However, the situation is not the same for anxiety. There is a lack of studies on the effect of anxiety on HF patients. However, studies linking anxiety with cardiac health are available. The following section will provide a description of these variables.

Hiriscau et al. conducted a review on the impact of depression and its effects on clinical outcomes and prognosis in frail patients with HF. This review was done according to the preferred reporting items for systematic reviews (PRISMA) guidelines. The prevalence of depressive symptoms among patients with HF were 36% and the prevalence of major depressive disorder was 20%. In addition, 13.9% to 77.5% patients with HF in hospital had higher depression than out patients with HF [24].

Some studies showed that depression is an independent factor that affects patients with HF and is associated with cardiac-related deaths and re-hospitalization. Patients who reported severe depressive symptoms were at four times higher risk to die within two years compared with the non-depressed patients [20, 25]. Other studies showed that depression and anxiety were significant only when they are combined with each other [26, 27]. Moreover, in elderly people, depression was associated with cognitive decline and dementia.

Anxiety is usually accompanied with depression in patients with HF. High levels of anxiety symptoms have been reported in 50% of HF patients. Moreover, 13% of cases met the criteria for an anxiety disorder [24]. Other studies reported that the prevalence of anxiety in patients with HF ranges from 6.3% to 72.3%. Studies have also shown that anxiety symptoms are higher in females in comparison to males [28]. Moreover, depression and anxiety are considered strong factors for hospitalization and re-hospitalization in patients with chronic HF. When depression and anxiety are combined together the morbidity, mortality and health care utilization are increased [29].

Despite the high prevalence rate of anxiety (63%) among patients with HF, it has not been studied as a factor affecting patients with HF. Moreover, the relationship between anxiety and HF as a disease was not well studied. Anxiety might be a cause for job loss among patients with HF within one year of discharge, while it is not a reason to increase the number of deaths or re-admissions to hospitals for the HF patients [30]. Other research findings showed that anxiety is associated with a higher incidence of adverse cardiac events and cardiac death over the subsequent 6–10 year in patients with recent acute myocardial infarction and depressed left ventricular function [24, 31].

Celano et al. (2018) reviewed the relationships between depression, anxiety, and HF. The study showed that anxiety and depression were common in patients with HF. These factors negatively impact the outcomes of treatment leading to poor functional status, increased hospitalizations and elevated mortality rates. Moreover, both depression and anxiety are associated with the progression of HF as a disease through both physiological and behavioral mechanism. The limitations of the study were that the literature on depression and anxiety in HF is highly variable, with studies using different criteria for diagnosing depression, anxiety disorders, and HF. Second, studies examining the associations between psychiatric symptoms and cardiovascular health may have included different covariates in their analyses, which adds to the heterogeneity of the literature [32].

A systematic review and meta-analysis done by Sokoreli et al. in 2016, aimed to evaluate the effect size of anxiety and depression in all-cause mortality in patients with HF. The search resulted in 26 studies about the depression effects and 6 studies about the anxiety effects. The prevalence of depression among the 26 studies were 29% ranging from 10-79%. The prevalence of anxiety among the six studies were 29%, ranging from 9–45%. The results showed that depression has a significant and moderately heterogeneous effect on all-cause mortality (HR = 1.57; 95 %CI 1.30–1.89, p<0.001). On the other hand, the effect of anxiety on mortality outcome was small and not conclusive given the low number of studies (n = 6), (HR = 1.02; 95 % CI 1.00–1.04, p<0.05), unless the anxiety was associated with another factor, such as depression, which means that depression is a significant and independent factor of all-cause mortality [33].

A retrospective cohort study was done by Garfield et al., (2014), on 236,079 patients aged between 50 and 80 years old, free of cardiovascular diseases (CVD). The purpose of the study was to check if anxiety, depression, or their co-occurrence are associated with incident HF. Cox proportional hazards models were computed to estimate the association between anxiety disorders alone, Major Depressive Disorders (MDD) alone, and the combination of anxiety and MDD, with incident HF before and after adjusting for sociodemographic.

The result of the study showed, by comparing to unaffected patients, that those with anxiety only, MDD only, and both disorders were at increased risk of incident HF in age-adjusted models (HR=1.19, 95% C.I., 1.10–1.28; HR=1.21 95%C.I., 1.13–1.28; HR=1.24, 95%C.I., 1.17–1.32, respectively). One limitation of the study is that the medical record data have inherent limitations as compared to prospective clinical assessments. Another limitation is that the results may not be generalized beyond the Veterans Affairs (VA) population and additional research in other populations is still needed to determine if the effect of MDD and anxiety on risk of HF is similar to that observed in the present VA patient population [30].

A cross-sectional study conducted by Dekker et al. in 2014, aimed to describe the coexistence of anxiety and depressive symptoms, and to determine the predictors of anxiety symptoms in patients with HF. The sample consisted of 556 outpatients with HF among which there were 34% female, 62±12 years, and 54% NYHA class III/IV. They were recruited from academic medical centers and community-based clinics in three Southeastern and Midwestern states in the USA. Anxiety and depressive symptoms were assessed through The Brief Symptom Inventory-anxiety subscale and the Beck Depression Inventory-II (BDI).

The study showed that one-third of patients reported signs of both depression and anxiety. There was a dose-response relationship between depressive symptoms and symptoms of anxiety; higher levels of depressive symptoms were associated with increased levels of symptoms of anxiety. Moreover, younger age had a protective effect against anxiety (OR = 0.97, p=0.004, 95% CI 0.95–0.99). However, depressive symptoms were independent predictors of increasing the symptoms of anxiety (OR=1.25, p<0.001, 95% CI 1.19–1.31). [34]

The last study was conducted in Miami by Shen et al. in 2010. The purpose of the study was to examine whether depression, anxiety, social support, and their changes predicted the decline of physical functioning in HF patients over 6 months. Two hundred thirty-eight patients with HF enrolled from the cardiology outpatient clinic of the University of Miami Medical Center. Physical health functioning was measured by the physical dimension of the (MLHFQ). Anxiety was measured by the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS), while depressive symptoms was measured by the Center for Epidemiologic Studies Depression (CES-D) scale.

Multiple regression analyses were performed to determine whether depression, anxiety and social support were correlated with physical health functioning at baseline and 6 months after controlling for demographic and clinical covariates. Upon monitoring the baseline physical function and demographic and clinical covariates, the baseline depression and its rise, as well as the baseline anxiety and its increase, led to a decrease in physical functioning at 6 months. Moreover, there was no connection between social support and its change with either simultaneous or physical follow-up tasks [20].

4. ANXIETY, DEPRESSIVE SYMPTOMS AND QOL AMONG PATIENT WITH HEART FAILURE

Anxiety and depression are common among patients with HF, and they are one of the psychological factors that may affect and deteriorate the QoL among these patients [24]. The coming section is going to review related article on this topic. The first study was conducted in Jordan by AbuRuz, et al. (2018), with a purpose of assessing the effects of anxiety and depression on the QoL for patients with HF in Jordan. The study utilized a descriptive, cross-sectional design among123 men and 77 women. The QoL was measured by the Arabic version of SF36, while anxiety and depression were measured by the Arabic version of the Hospital Anxiety and Depression Scale (HADS)[21].

The results showed that patients with HF have poor QoL in both Physical Component Summary (PCS) and Mental COmponent Summary (MCS). In addition, anxiety and depression are prevalent among patients with HF. Anxiety scores, depression scores, age, LVEF, and NYHA class were predictors for PCS. While anxiety scores, depression scores, age, LVEF, NYHA class, and job status were predictors for MCS. The main limitation of this study were the use of the cross-sectional design and the convenience sampling technique. In addition, patients were recruited only from one major city (Amman). Lastly, anxiety and depression were measured at onetime point, and this could possibly be a transient episode[21].

A prospective observational study was conducted at Cardiology Department of Tokyo Women's Medical University Hospital between June 2006 and April 2008 by Aggelopoulou et al., (2017)[35]. The purpose of the study was to evaluate the impact of clustered depression and anxiety on mortality and re-hospitalization in hospitalized patients with HF. Two hundred twenty-one patients completed two questionnaires to assess the level of depression (Zung Self-Rating Depression Scale index score of ≥60 (SDS)), and anxiety (anxiety State-Trait Anxiety Inventory score of≥40 (male) or≥42 (female) (STAI).

The results indicated that among the 221 patients, 29 (13%) had depression alone, 80 (36%) had anxiety alone, and 46 patients (21%) had both depression and anxiety. During an average follow-up of 41±21 months, patients with depression alone and those with clustered depression and anxiety were at an increased risk of the primary outcome [hazard ratio (HR) 2.24, 95% (CI): 1.17–4.28, p=0.01 and HR 2.75, 95% CI: 1.51–4.99, p=0.01, respectively] compared to patients with no symptoms. Multivariate analysis after adjusting for age, gender, NYHA, B-type natriuretic peptide, device implantation, renal dysfunction, and LVD showed clustered depression and anxiety, but not depression alone or anxiety alone, was an independent predictor of the primary outcome (HR 1.96, 95% CI: 1.00–3.27, p=0.04)[35].

The study concluded that psychological distress resulting from anxiety and depression might affect the treatment adherence behavior in patients with HF. Poor adherence to treatment is associated with increased morbidity and mortality in patients with HF. The study concluded that the clustered depression and anxiety together were a strong independent factor with of poorer quality outcomes in patients with HF. However, the limitations of the study were; the use of a single center cohort and therefore, the characteristics of the participants might not reflect those of general cardiovascular patients with HF. Second, the patients admitted to the hospital were not consecutively enrolled and many patients who received emergent or intensive care were not enrolled because they could not complete the questionnaires. and finally, the questionnaires were not completed prior to discharge[35]

Another study was conducted in Poland by Uchmanowicz et al., (2015) to assess the relationship between frailty, anxiety and depression with QoL in patients with HF. The study involved 100 patients (53 men and 47 women), non-frail aged 62.3±6.2 years; frail, 67.9±10.7 years, with a majority of unmarried (widowed or divorced). The quality of life was assessed by the 36-Item Short Form Medical Outcomes Study Survey. Hospital Anxiety and Depression Scale was used to assess anxiety and depression.

The study found that the percentage of frailty among patients is 89%. In addition, there were significant negative relationships between frailty and the QoL (PCS and MCS). Moreover, a positive relationship was found between frailty and anxiety, and between frailty and depression. This means when frailty increases, the anxiety and depression will increase resulting in a poor QoL (PCS, and MCS). The average value of HADS-anxiety in the group with high frailty was 9.5±4.5, while in the group of non-frails was 3.9±3.3 (P<0.001). The average value of the HADS-depression in the group with high frailty was 8.8±4.9 and in the non-frail group was 3.4±2.8 (P<0.001). However, the sample of the study was relatively small and was recruited from a single center with an 89% frailty [36].

Serafini et al. (2010), conducted a cross-sectional analysis on 240 outpatients from the Department of Cardiology, Sant'Andrea Hospital (Rome, Italy). The study assessed depression, anxiety, suicidality, and QoL for patients with HF with or without hypertension and compared them to patients with hypertension alone. The patients were asked to complete Hamilton Depression Rating Scale

(HDRS) to evaluate depressive symptoms. The SF-36 questionnaire was used to assess the QoL, and the Satisfaction with Life Scale (SWLS) to assess the suicidality.

The results indicated that patients with HF are more likely to be men (65.8% vs 51.7%; P < .02), have more previous hospitalizations (6.34 ± 1.67 vs 1.79 ± 1.12; t208.04 = 24.75; P < .001), have higher scores on the depressive symptoms (26.31 ± 3.98 vs 13.59 ± 4.71; t238 = 22.59; P < .001). They also have poor QoL compared to patients with hypertension alone in the PCS. In addition, the results indicated that depressive symptom level is a significant predictor of lower physical health (PCS) (P = .012). Furthermore, higher anxiety predicted lower satisfaction with life both in patients with CHF and with hypertension, which negatively affects the QoL, especially MCS [37].

Another study done by Cully et al., (2010), aimed to check the contribution of HF severity, depression, and comorbid anxiety on the QoL. Ninety-six participants were enrolled from a large Veterans Affairs (VA) hospital. Geriatric depression scale (GDS) was used to assess depressive symptoms and geriatric anxiety inventory (GAI) was used to check anxiety symptoms. Disease severity was assessed using the NYHA functional class. The most important domains that might be affected by the QoL were assessed using the Kansas City Cardiomyopathy Questionnaire (KCCQ). Quality of life was linked to physical and social limitations, physical symptoms, symptom stability and self-efficacy.

The findings of the study showed that depression is one of the main and important factors that greatly decreases the QoL of the patients, followed by patient's age and degree of disease. Younger patients were more subjected to retirement and stopping their work compared to older patients. Therefore, they are exposed to higher levels of depression and thus leading to poor QoL. Patients with higher NYHA complained from lower levels of QoL [38].

The last study was carried out in the USA (Kentucky) by Chung et al., (2009) and was aiming to examine the effect of patients' and partners' depressive symptoms and anxiety on the QoL in patient-spouse dyads. Fifty-eight patient-spouse dyads participated from outpatient cardiology practices associated with a major academic medical center in Central Kentucky. The questionnaires were given to patients during their visit to the clinic, or by sending them via email. The QoL of patients was assessed using the MLHFQ, anxiety and depression were assessed using the depressive symptom and anxiety subscales of the Brief Symptom Inventory (BSI), using a cross-sectional design.

The study showed that depression and anxiety were considered as major psychological symptoms associated with HF patients. Moreover, patients with HF who were suffering from depression, were also suffering from anxiety at the same time. This means that depression and anxiety are linked together as psychological symptoms experienced by an HF patient. Together depression and anxiety could be an independent factor negatively reflecting the QoL for patients with HF. This effect on the QoL may end in increasing mortality and re-admission rates. It is worth mentioning that no gender differences were found in this study. The major limitation of the study was the use of a cross-sectional design [29]

5. SUMMARY

This literature summarized most of the studies that discussed HF as a disease in general, and as it was shown, it is an incurable and untreatable diseases that affects patients in all aspects, physiologically, motor and psychological. This literature has also discussed how HF reflects on the QoL of the patient, as previous studies showed that patients with HF suffer from a poor quality of their lives. Moreover, this literature focused on the effects of depression and anxiety on the QoL of the patients, as previous studies have shown that the factors of depression and anxiety were associated with each other, and that the presence of depression in patients was accompanied by the presence of anxiety, which negatively affects the QoL, resulting in a deterioration health status and an increased number of deaths.

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