

Risk factors associated with depression among chronic heart failure patients in Pakistan; A Systematic Review

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Abstract

Objective: The existing pool of knowledge on depression in CHF patients indicating risk factors has not been summarized as a guiding note for researchers and practitioners. The aims of this systematic review were therefore set to identify the pooled risk factors of depression among CHF patients in Pakistan. Therefore to systematically review the number of studies carried out to find the risk factors associated with depression among chronic heart failure patients in Pakistan.

Material and Methods: A systematic and methodological search strategy was established by using keywords i.e., depression, heart failure, Pakistan, risk factors on databases such as Science Direct, PubMed, Research Gate, Pak Medinet, JSTER, and Emerald Insight. Data screening for a period of ten years i.e., 2010 to 2020 identified 771 studies while only 59 met the inclusion criteria. Only 6 out of 59 studies were declared eligible for meticulous review.

Results: Out of the total search result of 771 articles, 59 (8%) full-text Pakistani articles were found. Altogether 06(10%) studies met the inclusion criteria and were selected for systematic review.

Conclusion: Depression among chronic heart failure patients in Pakistan is predominately linked with lack of social support, lower socioeconomic status, sedentary lifestyle, sleep disturbance, and old age. Furthermore, severity and duration of the disease, prior history of acute myocardial infarction, repeated hospitalization, and comorbidities were also reported as disease-linked depression risk factors. The other risk factors associated with depression in heart failure were diabetes mellitus, renal diseases, stroke, duration of heart failure, and prior history of acute myocardial infarction.

Keywords: Depression, Chronic heart failure, risk factors, Pakistan.

Introduction

Chronic Heart Failure (CHF) is a clinical condition characterized by dyspnea, exhaustion, and symptoms of congestion. CHF may lead to recurrent hospitalizations, poor quality of life, and shortened life span. It is suggested as a final route of different heart diseases.¹ CHF is a disease that is linked with a high risk of the frequency of morbidity and mortality, and severely affects patients' quality of life. CHF may arise from coronary artery diseases such as myocardial infarction, valvular heart diseases, uncontrolled hypertension, different inherited heart diseases, and cardiomyopathies. Frequent hospitalization for heart failure patients is also related to other co-morbid conditions rather than only related to heart failure.² A simple functional classification of CHF patients was first suggested by New York Heart Association (NYHA) and is being used clinically for almost a century. NYHA classification is a foundational instrument for risk stratification of CHF patients and regulates clinical experimental suitability and its application for pharmacotherapy and devices.³

A plethora of medical research has established heart failure to extremely threaten the patient physically and bring serious mental and psychological complaints. Prolonged disease, psychological burden, and poor prognosis of the patients had been reported to anticipate the poor quality of life.⁴ Rate of the prevalence of heart failure is dramatically rising 5-10 years earlier among the Asians when compared with the adults from other parts of the World.⁵

Depression—a major depressive disorder is a common but neglected medical problem that negatively affects a person's sense of feeling and reaction. Fortunately, this depressive disorder has been declared treatable. Depression causes feelings of sadness and loss of interest in activities once enjoyed. The disorder may lead to a variety of emotional and physical problems and can decrease the patient's ability to perform at work and home. Depression is one of the most prevalent psychological conditions in CHF patients, and 48% of the patients with chronic heart failure had been reported with some level of depressive symptoms.⁶ Depression is linked with personal, social, and economic morbidity, loss of efficiency and function, excessive rate of use of health-care services, and affects more than 300 million people.⁷

The onset of depression, its duration, and severity are associated with negative effects in HF.⁸ Depression and HF have bidirectional effects on human health through both biological and psychosocial

mechanisms.⁹⁻¹² Generally, impairment in physical functioning is closely connected with the severity of depression.¹³⁻¹⁵ Moreover, HF symptoms greatly limit patients in their ability to take part in daily bodily activities.¹⁶⁻¹⁸ In comparison with other cardiac patients, HF patients have reported more depressive symptoms and significant mood disturbances.¹⁹ Patients with HF have reported the lowest physical and social functioning in the context of chronic illnesses.²⁰ HF and depression are highly prevalent diseases. The rate of depression is high among Pakistani patients with HF while the severity of the depressive disorders has also been correlated with increased risk of mortality.²¹ HF is a chronic syndrome affecting more than 5.7 million adults in the United States and 26 million adults worldwide.^{22,23} Depression is a leading cause of disability and premature mortality, affecting roughly 350 million people worldwide.²⁴

With the recent updates, depression is one of the major treatable risk factors associated with the severity of CHF. Global researchers and health practitioner's communities have directed their efforts to report depression prevalence, its diagnosis, and management strategies to improve the quality of life of CHF patients. Unlike economies with developed health care systems, studies on the prevalence of depressive symptoms in Pakistani HF patients are scant. Furthermore, the existing pool of knowledge on depression in CHF patients indicating risk factors has not been summarized as a guiding note for researchers and practitioners. The aim of this systematic review was therefore set to identify the pooled risk factors of depression among CHF patients in Pakistan.

Materials and Methods

Search strategy

Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines were followed for the systematic sequence.²⁵ Systematic and Methodological search strategy was established by defining keywords such as depression, chronic heart failure, Pakistan, risk factors, and selecting relevant databases for our literature search. Different relevant databases for the search of literature such as Science Direct, PubMed, Research Gate, PakMedinet, JSTER, and Emerald Insight were explored.

Google Scholar was used to searching for grey literature.²⁶ Other search strategies like snowballing and manual literature search were used to identify other articles.²⁷

Key Terms Used

The key terms ‘Chronic Heart Failure’, ‘depression’, ‘patients’, ‘Pakistan’ in addition to the synonyms ‘CHF’, ‘psychological risk factors were used to identify relevant studies. A large amount of data was generated on this screening criteria and a majority of the data retrieved were not relevant to the study. The scope of the search was kept wide to include the complete range of the topic. For this purpose synonymous terms with Boolean Operator ‘OR’ were used. In this regard iterative search strategy combining different key terms to find the most relevant studies was used. Boolean Operator ‘AND’ was used to increase the relevance of results and to narrow them down.

Boolean operators in series of multiple keywords as in: (“Chronic heart failure” OR “CHF” OR “HF” OR “Heart failure”) AND (“depression” OR “depressive disorder” OR “depressive syndrome” OR “depressive symptoms” OR “Psychological Risk Factors” OR “Psychosocial risk factors”) AND (“Pakistan” OR “Pakistani”)) were used.

Studies selected

The selection process of articles was based on:

1. Identification.
2. Screening.
3. Determining eligibility.
4. Final inclusion of articles in the systematic review.

At first 771 articles were identified after a literature search for all articles whose titles, abstracts, and keywords were matched. Inclusion criteria and exclusion criteria were subsequently followed in the phase of screening (Table 1). After screening, 59 full-text articles were selected. Full-text articles were excluded in which “Risk factors of CHF” data was not provided (n-12) and repeated studies were also excluded (n-41).

The articles published only in the English language, conducted in Pakistan, from 2010 to 2020 were selected. Finally, after a systematic revision process, a total of 6 articles were selected which best served the study criteria (Figure 1). The main themes were organized through thematic analysis and reported as the findings of this review.²⁸

Table 1: Inclusion & Exclusion criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Original research studies • Studies found 	<ul style="list-style-type: none"> • Abstracts only • Citations only • The Editorials • Conference reports • Letters to the editor

<ul style="list-style-type: none"> • Studies published in last 10 years (from 2010 to 2020) • English language published articles • Grey literature • Manual search and snowballing strategy to find other articles 	<ul style="list-style-type: none"> • Position papers • Book chapters • Conceptual papers
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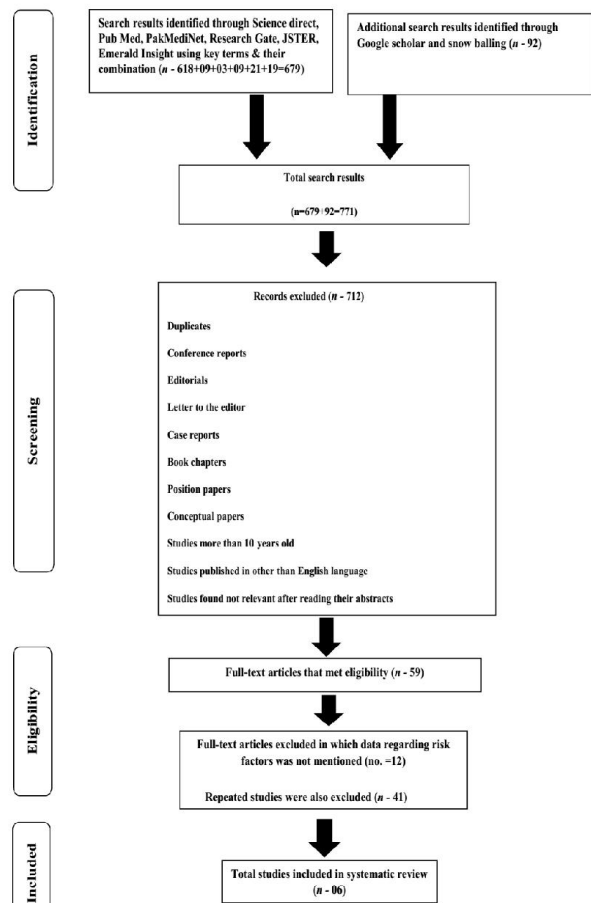


Figure 1: Filtering process of articles by PRISMA flow chart

Results

Out of the total search result of 771 articles, 59 (8%) full-text Pakistani articles were found. Altogether 06 (10%) studies met the inclusion criteria and were selected for systematic review (Figure 1). Based on

these 06 cross-sectional and prospective cohort studies main themes were generated. These themes were showing a prevalence of various risk factors associated with depression in heart failure of Pakistan (Table 2).

Table 2: Selected articles with their sources & important findings

Sr. No.	Source Articles	Classification of Study Design	Findings of the respective studies
01	Ibrahim Zahid et al.(2018)29	Cross-sectional study	<ul style="list-style-type: none"> Depression was associated with higher NYHA-class, prior history of acute myocardial infarction. In heart failure patients, sedentary lifestyle, living alone, and old age were also associated risk factors with depression.
02	Abdul Sattar Ghaffari et al.(2019)30	Sectional survey study	<ul style="list-style-type: none"> Depression is higher among unmarried, living single, and with lack of family care & social support. In this study, it was concluded that female gender, poor patients, and younger individuals are associated with higher levels of depression.
03	Muhammad Irshad Hussain et al.(2019)31	Prospective cohort study	<ul style="list-style-type: none"> This study showed a significant relationship between higher depression scores and lower-income and less literacy levels. Diabetes mellitus, renal diseases, stroke, and mortality were associated with higher depression. Patients with high depression scores were having higher NHYA classes.
04	Shahsawar Khan et al (2012)32	Cross-sectional study	<ul style="list-style-type: none"> Herat failure patients in this study were having higher depression scores. Males, old-aged patients, and people living in urban areas were associated with a higher level of depression among CHF patients. Duration of heart failure was also correlated with a higher depression score.
05	Usama-bin-Nasir et al. (2015)33	Cross-sectional study	<ul style="list-style-type: none"> In this study, a researcher observed that females are having more depression as compared to males in heart failure patients. Higher NYHA Class, old age patients, and poor sleep quality were more common factors in patients with higher depression levels. Several repeated hospitalizations were frequent in heart failure patients with depression.
06	M-Hussain et al.(2016)34	Cross-sectional study	<ul style="list-style-type: none"> In this study, researchers determined that poor quality of life correlates with higher depression among heart failure patients. Male gender was commonly associated with depression in heart failure.

Discussion

Out of the total search result of 771 articles, 59 (8%) full-text Pakistani articles were found. Altogether 06 (10%) studies met the inclusion criteria and were selected for systematic review (Figure 1). Based on these 06 cross-sectional and prospective cohort studies main themes were generated. These themes were

showing the prevalence of various risk factors associated with depression in heart failure of Pakistan (Table 2).

1. NYHA

There was a common finding in the chosen studies that patients with heart failure with depression were having a higher class of heart failure (NHYA).^{29,31,33} In

the Pakistani population, depression in heart failure affects the symptoms of the patients more.

2. Quality of life

There was a consensus in Pakistani relevant studies that depression in heart failure patients badly affects their quality of life. Disturbance of sleep, sedentary lifestyle, repeated hospitalization, and poor living conditions were common findings in the Pakistani population.^{29-31,33,34}

3. Family care & social support

The existing pole of knowledge indicated a higher rate of depression prevalence in Pakistani heart failure patients with poor family support, lack of family care and social support, being unmarried, and those living single.^{29,30}

4. Age and gender

Aging was identified as a common risk factor toward high depression levels in CHF older patients.^{29,32,33} A few of the Pakistani studies showed that the male gender than its counterpart was prone to high rate of depression prevalence.^{32,34} While some other data showed females association with depression.^{30,33}

5. Other factors

Other risk factors associated with depression in heart failure were diabetes mellitus, renal diseases, stroke, duration of heart failure, and prior history of acute myocardial infarction.^{29,33} People living in urban areas and lower literacy level were other findings of association with depression among heart failure patients.^{3,4}

Limitations

The studies selected for the review process were of cross-sectional study design and cannot be considered as in-depth researches. So, it is suggested that a more exhaustive literature search with other study designs may be carried out.

Conclusion

This systematic review suggests that depression is strongly related to the severity of heart failure, lack of family care and social support, sedentary lifestyle, lower socioeconomic status, living single, disturbance of sleep, repeated hospitalization, and old age. The other risk factors associated with depression in heart failure were diabetes mellitus, renal diseases, stroke, duration of heart failure, and prior history of acute myocardial infarction.

Future recommendations: According to our findings risk factors associated with depression among chronic heart failure patients is high and should not be underestimated in clinical practice. It is recommended that further researches on the management of depression in heart failure patients in clinical practice should be carried out.

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