Prevalence of depression in patients with cardiac insufficiency and correlation with determinants

Argyriadis Alexandros  Assistant Professor, Nursing Department, Frederick University, Cyprus
Nestoros Despina  RN, MSc, General Hospital, Limassol
Gourni Maritsa  Professor, Nursing Department, Frederick University
Argyriadi Agathi  Lecturer, Department of Psychology, Frederick University
Bellou – Mylona Panagiota  Professor, Nursing Department, Frederick University

https://doi.org/10.12681/healthresj.20875

To cite this article:

Argyriadis, A., Nestoros, D., Gourni, M., Argyriadi, A., & Bellou – Mylona, P. (2019). Prevalence of depression in patients with cardiac insufficiency and correlation with determinants. Health & Research Journal, 5(2), 41-52.
doi: https://doi.org/10.12681/healthresj.20875
SYSTEMATIC REVIEW

PREVALENCE OF DEPRESSION IN PATIENTS WITH CARDIAC INSUFFICIENCY AND CORRELATION WITH DETERMINANTS

Alexandros Argyriadis¹, Despina Nestoros², Maritsa Gourni³, Agathi Argyriadis⁴, Panagiota Bellou–Mylonas³

1. Assistant Professor, Nursing Department, Frederick University, Cyprus
2. RN, MSc, General Hospital, Limassol
3. Professor, Nursing Department, Frederick University, Cyprus
4. Lecturer, Department of Psychology, Frederick University, Cyprus

DOI:

Abstract

Background: Depression is one of the major causes of morbidity and loss of productivity in the world. Regardless of age, ethnicity, and gender, it is known that its impact increases after major stressful events. Other major causes are chronic diseases, such as heart failure. The condition shows greater frequency and prevalence today, because of the aging population, the growth of population dispersion and other risk factors like hypertension and diabetes as well as the increase in the life expectancy of sufferers, due to current therapeutic interventions. Thus, depression has become chronic and the challenge of fighting inevitably incurs psychosocial effects.

Aim: This research paper (systematic review) aims to investigate the prevalence of depression in patients with heart failure in association with determinants.

Method & Material: This is a systematic review. In particular, a literature search was conducted in the electronic databases ProQuest, PubMed, EBSCO and Google Scholar, using the key-words: heart failure, prevalence and depression.

Results: A total of ten surveys met the selection criteria. According to the results on the prevalence of depression, a moderate to high prevalence among patients with heart failure is presented, as well as an increased risk of mortality and clinical manifestations. Depression increases in patients with heart failure, as age, gender and race affect it similarly compared to what has been observed in the general population. The NYHA class II and III in advanced age and people with a prior history of myocardial infarction show a strong positive correlation with depression, too.

Conclusions: Mental health problems affect the entire sphere of activities of a patient. Management is feasible and guaranteed only in a controlled living environment. Nurses, having the privilege of close contact with patients, can promptly diagnose depression symptoms and intervene as members of an interdisciplinary team. In Cyprus, no other research studies exist concerning the assessment of the prevalence of depression in patients with heart failure.

Key words: Heart failure, prevalence, depression.

Corresponding Author: Alexandros Argyriadis, Agiou Andreou 51, 1040, Nicosia, E-mail address: alexargiriadis@gmail.com

Cite as: Argyriadis, A., Nestoros, D., Gourni, M., Argyriadis, A., Bellou – Mylonas, P. (2019). Prevalence of depression in patients with cardiac insufficiency and correlation with determinants. Health and Research Journal (5(2)). - https://ajournals.epublishing.ekt.gr/index.php/HealthResJ
INTRODUCTION
Depression has become one of the major causes of morbidity and loss of productivity worldwide. Although it concerns individuals of any age, nationality and gender, its impact is known to increase in individuals experiencing major psycho pressuring events. In the last category chronic diseases are included according to the contemporary literature, like chronic heart disease. Cardiovascular diseases, especially chronic heart failure, have a higher incidence and prevalence due to the aging population, the increase in the population dispersion of risk factors (such as arterial hypertension and diabetes) and the increased life expectancy of patients due to improved therapeutic potential. Of course, there are other disease factors today, too. Consequently, depression as a condition has been linked to the cultural context and the modern trends of everyday life. According to empirical observation and new scientific data, an important correlation between depression and chronic heart failure, exists. Moreover, depression is one of the major mental health disorders, characterized by prolonged dysthymia and a reduced interest in daily activities. The disease has spread worldwide, with a prevalence estimated as close to 10% of the world’s population. There is considerable variation in the geographical frequency and distribution of depression diagnoses, reflecting both the health service organizations in each country and the differences in lifestyle and temperament of the people in various places of residence. There is great concern that depression significantly aggravates the quality of life of sufferers, both because of the organic manifestations (psychosomatic syndromes such as appetite disorders, dyspeptic complaints, informal abdominal pain, irritable bowel syndrome, fibromyalgia and chronic fatigue syndrome) and the effects on productivity and, therefore, the socio-economic sphere. For this reason, it is one of the priorities of the World Health Organization in the area of public and community health, with the aim of increasing the awareness of healthcare professionals in early diagnosis and the types of primary care treatment. In the context of scientific research efforts to understand the causes and mechanisms that promote and maintain depression, chronic diseases dominate with chronic heart failure playing an indisputable role. In particular, depression appears to occur at a different time point, depending on the nature, significance and individual characteristics of each disease. However, its occurrence is found to aggravate the general health of the individual and his or her response to treatment. This leads to feelings of failure, which in turn deepen the depressive psychopathology, forming an endless vicious circle.

In terms of heart failure, the incidence of depression appears to significantly increase in relation to the general population as shown in a series of epidemiological studies published over the last decade. Available epidemiological data cover a broad geographical range, with the center of origin in Europe, America and Asia, indicating that the phenomenon is universal and probably global. Indeed, depression seems to be a frequent problem, significant and independent of the main organic disease that is contributing to the deterioration of the heart failure sufferers’ quality of life. The appearance of depression, not only does chronic disease contribute, but also individual demographic, sociological, epidemiological and disease data. Recent studies also show the role of sex as a predisposing factor for depression. Among the general population, women with heart failure appear more prone to depression, with a frequency up to 50% higher than in men. This differentiation, in turn, reflects both endogenous hormonal changes and the inferior socio-economic position of woman over men in most countries of the globe. Interestingly, in studies at the United States, the frequency of depression in patients with heart failure is shown to be higher in the black population, running above 50%. A statistically significant finding in the United States, however, seems to reflect other constitutional parameters beyond income (e.g. religious tradition and family organization) that are likely to be protective against the occurrence of depression in blacks with heart failure.

In the case of age, there is an unexpected finding, that the incidence of depression is greater in younger patients with heart failure than in older patients. This reversal in relation to the observed trend in the general population may reflect the difficulty of younger people to accept the serious socio-economic impact of heart failure compared to older people. In addition,
it is likely that a supportive family environment and financial security in older people contributes to the better management of the disease.11,26 Published studies about heart failure show a high incidence in Cyprus, roughly comparable to that described for most countries.12 However, there are particular public health challenges that relate to significant delays in diagnosis and establishing barriers to health services, resulting in a significant increase in morbidity and a decrease in patient quality of life.13 The available data offer limited to safe generalizations. There is no information about the extent and characteristics of this problem in Cyprus though, where both the organization of health services and the socio-economic environment are significantly different from Greece.22-25

AIM
The aim of the present review was to assess the prevalence of depression in patients with chronic heart failure and its correlation with determinants. More specifically, to highlight the problem of depression in chronically ill patients as a major challenge for public health and to investigate the possible existence of risk factors predictive of depression in the population to be used for the development of targeted prevention programs.

MATERIAL AND METHODS
This study is a systematic review in the electronic databases ProQuest, PubMed, Ebsco and Google Scholar with the keywords heart failure, prevalence and depression. The main research questions that have been addressed in the context of the proposed study are:
• Which NYHA I, II, III, IV classes are more vulnerable to developing severe depression in a heart failure patient?
• What variables affect the occurrence or absence of depression in heart failure patients?
What are the roles of sex, age, duration of illness, nationality, type of treatment, and co-occurrence?
• Is there a difference in the prevalence rates of depression between hospital and non-hospital patients with heart failure.

Selection Criteria
• Participants in the surveys should be over 18 years of age.
• The articles refer to depression of people with heart failure.
• The articles chosen should be open access written in Greek or English.
• The articles should also be peer reviewed.
• Inclusion of articles published within the timeframe of 2000 to 2015.

Exclusion Criteria
Articles not evaluated by a scientific committee and articles written in a language other than Greek and English.

Expected Benefits
This systematic review has as primary objective to bring to light the key public health issues related to a disease with an ever-increasing incidence in Cyprus due to the aging of the population and the increase in the incidence of metabolic syndrome components. Early detection of depression in patients with heart failure is critical for early intervention and avoiding a consequent loss of quality of life in affected individuals. The results of the study may be the trigger to start designing a depressive management tool for patients with heart failure in Cyprus.

Search Method
From the initial bibliography search in three databases using the words ‘heart failure, prevalence and depression’, 32,388 articles were found. From these 32,343 articles were excluded because they did not refer to the depression of people with heart failure. After reading the titles and abstracts, about forty-five articles were found. Thirty articles were excluded because there was no full access to them and the remaining five articles were written in a language other than Greek and English. From the reading of the entire articles, those related to the purpose of the present study were selected. See diagram 1.

RESULTS
The search of the studies was made in the ProQuest, PubMed, Ebsco and Google Scholar online databases. From ProQuest, four studies,12,14,17 were found, in Google Scholar, 79,10,16-19 and
in PubMed 3 studies.\textsuperscript{9,14,15} Two studies were found in all three
databases in all four databases.\textsuperscript{8}

From the ten cross-sectional studies included in the search,
one was quantitative\textsuperscript{14} and one used both qualitative and
quantitative approach.\textsuperscript{15} One of the surveys was a pilot one
which was conducted in Southern India by Deb Debasree et al.
in 2007.\textsuperscript{17}

Three studies aimed to assess the prevalence of depression
among outpatients with heart failure\textsuperscript{9,16,14} and seven measured
depression in hospitalized patients with heart failure. Gottlieb
et al. in 2004 showed that depression is elevated in heart failure
patients with age, gender and race affected in ways similar
to those of the general population.\textsuperscript{9} Depression rates among
hospitalized patients range from 13% to 77.5%, and outpa-
tients rates of 13% to 42% have been reported. Adewuya et al.
in 2006 in Nigeria showed that psychosocial factors lack social
support and low socio-economic status, many of which are
independent of depression, and have been implicated in the
development of heart failure.\textsuperscript{14}

Two studies provided an estimation of the prevalence of de-
pression in elderly patients with heart failure who have been
urgently hospitalized.\textsuperscript{8,19} Polikandrioti et al. in 2015, aimed to investigate the factors
related to anxiety and depression experienced by patients be-
ing treated with heart failure in Greece.\textsuperscript{16} Its results suggest
that family status plays an important role in whether a patient
with heart failure is likely to have major depression or not. The
results below show that divorced and widowed patients are
more likely to have major depression than married patients
(35.6% vs. 19.2%) even though married patients are 59% less
likely to have major depression than their unmarried counter-
parts. In addition, patients with a low (<1 year) and moderate
(2-5 year) duration of the disease are 69% and 61% less likely
to have major depression than those with a long-term dis-
ease.\textsuperscript{16}

In the results of Freedland et al., in 2003, the prevalence ranges
from as low as 8% among patients in New York Heart Associa-
tion category I, with failure as high as 40% among patients in
class IV. The relationship between depression and KA class may
be further influenced by age, with younger patients (<60 years)
being more vulnerable to depression. Faller et al. in 2007
aimed to investigate the prevalence and prognostic signifi-
cance of depression in a group of out-patients with sympto-
matic heart failure, and compared the findings in men and
women. The prevalence of suspected major depression was
13% (minor depression, 17%) and not different between the
sexes.\textsuperscript{15}

In India, Deb Debasree et al. 2007 conducted research aimed to
assess the prevalence of depression and anxiety disorders in
patients with heart failure in the Indian population and to ana-
lyze the risk factors. The results recorded that NYHA Class II
and III, with advanced age and previous history of myocardial
infarction, show a strong positive correlation with depression
and anxiety. Patients receiving b-blockers and statins have
been reported to experience higher levels of depression.\textsuperscript{17}

These results agree with other studies, too.\textsuperscript{17,18}

Depressive symptoms are evident in elderly patients treated
with heart failure, especially in women. Women have more
frequent depression symptoms than men, 48% versus 36% as
reported in Lesman-Leegte et al in 2006, from the Nether-
lands.\textsuperscript{17}

Research activity on that field has been carried out in Greece,\textsuperscript{11, 17}
India,\textsuperscript{16} Nigeria\textsuperscript{15, 17} and Spain. As deter-
mined by the selection criteria, the participants had to be
adults, the venue had to be inside and outside the clinic, and
the articles reported or evaluated the prevalence of depression
of patients with heart failure.

In terms of sampling, nine quantitative studies of the above
used a sample of 80-1000 individuals and two qualitative in-
vestigations used a sample of 10-682.

**Tools used in surveys for depression assessment in patients
with heart failure**

The Minnesota Living with Heart Failure Questionnaire was
used by Gottlieb et al. in 2004 and Polikandrioti et al., in
2015.\textsuperscript{5,15} The MLHEART FAILURE questionnaire was designed to
measure the effects of heart failure on EQ. It consists of 21
questions that include two sub-scales: the emotional and the
physical.

The Patient Health Questionnaire PHQ-9 was used to detect
depression in patients with heart failure as well as to investigate the role played by psychological parameters and perceptions about the disease in shaping the quality of life.

The Beck Depression Inventory was used in three studies and consists of 21 self-reported depression questions designed to help mental health professionals assess the mood, symptoms and behaviors of people suffering from depression. Each answer is given a score of zero to three to show the severity of the symptoms.9,15,20

Freedland et al., in 2003 also used a modified version of the Diagnostic Schedule, a structured interview designed to diagnose major psychiatric disorders in a credible and authoritative manner, according to the Diagnostic and Statistical Manual of Mental Disorders.15

The Geriatric Depression Scale (GDS) was used in a survey in Spain.19 The GDS was created by Yesavage et al and has been extensively tested and used with the elderly population. The GDS Long Form is a short, 30-point questionnaire in which participants are asked to answer yes or no about how they felt last week.

Lesman-Leegte et al., in 2006 used the CES-D Depression Inventory in seventeen hospitals in the Netherlands. The CES-D scale is a short scale self-report designed to measure depressive symptomatology in the general population.11

W. K. Zung’s self-assessment depression scale was deployed in a Debian study in Southern India by Deb Debasree et al., in 2007. The Zung Scale includes twenty questions. Each question has four possible answers describing the respondent’s assessment is scored, respectively, from 1-4.

The Mini-International Neuropsychiatric Interview (M.I.N.I.) was applied to Nigeria research by Adewuya et al. in 2006. It is a brief structured interview for the major psychiatric disorders in DSM-IV. The goal is to evaluate and monitor patients with greater efficiency and accuracy. It is intended only as a tool to facilitate accurate data collection and the treatment of symptoms by trained personnel.14

Poliakntriots et al. in 2015 used the Minnesota Living with Heart Failure Questionnaire and the HADS Hospital Anxiety and Depression Scale in Greece. It is a scale of fourteen self-assessment elements developed to detect depression, anxiety and depression, and emotional discomfort among patients treated for a variety of clinical problems. Seven of the data relate to anxiety and seven relate to depression.36

DISCUSSION

The aim of this systematic review was to investigate the prevalence of depression in patients with cardiac insufficiency and establish a correlation with determinants. From the literature search, ten investigations carried out met the selection criteria. This systematic review provides evidence of a moderate to high prevalence of depression among patients with heart failure, as well as an increased risk of mortality and clinical manifestations.9,14,15,19,20 The reduction of depressive symptoms arises through a variety of therapeutic interventions. The relationship between depression and heart failure is a relatively new but rapidly growing area of interest in cardiology research. In fact, very few articles were published on this subject before 1990.

The increase in research coincides with the rise in HF as a health care problem in the US over the past ten years. Heart failure is the fastest and most developed form of cardiovascular disease, and represents more than one million annual hospital admissions and an estimated $60 billion in annual health care costs.21 Because patients with heart failure have high mortality and attenuation rates, the study of depression characteristics in this population is a critical area of research in seeking to improve the quantity and quality of life.27,28 Depression increases in patients with heart failure, with age, gender and race affecting in ways similar to those observed in the general population. In terms of age, it has been found that the higher the age, the more negatively the patient with UA is affected. Depression is very common in elderly patients with heart failure and is associated with various medical and psychosocial factors. Given high prevalence of depression and the poor prognoses in patients with depressive symptoms, simple diagnostic tools and effective treatment advocate the systematic screening of depression in these patients.19 The relationship between depression and heart failure may be further influenced by age as shown by Freedland et al. in 2004, with younger patients (<60 years) being more susceptible to the condition. Younger patients with more severe symptom are
among most commonly affected. Depressive symptoms are evident in elderly patients, especially women. Severe depressive symptoms are similar to other indicators of the severity of left ventricular dysfunction. Forty-one percent of patients surveyed had symptoms of depression with women more often reporting depression symptoms than men, 48% versus 36%.11 In a survey by Gottlieb et al, women are more likely (64%) to be depressed than men (44%). Among men, blacks (34%) tend to have less depression than Caucasians (54%).

Class II and III NYHA, with advanced age and a previous history of myocardial infarction, show a strong positive association with depression and anxiety. Patients receiving beta-blockers and statins have been reported to have higher levels of depression.18 Timely diagnosis of mood disorders can help in long-term management and a better quality of life in patients with heart failure.17 For example, the prevalence of depression ranges from as low as 6% among patients in the New York Heart Association category I to as high as 40% among patients in class IV.15

Psychosocial factors, a lack of social support and low socio-economic status, many of factors which are independent of depression, have also been implicated in the development and progression of heart failure and should be taken into account when assessing the impact of depression on the disease. There is a trend in current research to compare rates of depression in Nigeria with western countries, showing slightly higher depression rates due to the low socio-economic situation of patients in Nigeria.14

As for the prevalence rates of major depression at 95% confidence intervals, it has been found in ten studies of heart failure patients that the highest rate is recorded in Spain at 49% and the lowest in Cyprus at 13%.19 The overall assessment of the 10 major depression studies identified using post-analytical testing was 25%.

Compared to patients with major depression, the sample of patients with heart failure had a lower score on physical health, while to the contrary, emotional health secured a better score. However, patients at a more advanced stage of ST (Stage 3) had similar outcomes to the sample with major depression as regards emotional health. The findings also show that depression and heart failure have a significant share in rhythm disturbances (predisposing patients to arrhythmias) that may, in part, have a devastating effect on the depression of those with a severe prognosis.19

It is worth mentioning that in all these investigations it has been found that patients who are well informed about their health problems are less likely to develop depression than those who are less well informed. As shown, the degree of information affects the major depression of patients. Addressing depression problems in patients with heart failure can help improve the quality of life of these patients and may improve the long-term outcome of depression.

With this systematic review, it has been found that there are no studies in Cyprus concerning the assessment of the prevalence of depression in patients with heart failure and there is in high demand to design relative research projects.

CONCLUSIONS

Based on the recommendations of the WHO, the European Commission and the overall results of this study, the integration of mental health services into primary health care is a challenge, but also a priority for health systems. In order to achieve the goal of de-institutionalization and reintegration of mental patients, interventions are needed at both the central and regional level. These initiatives require both organizational changes and targeted information as well as continuing education campaigns. Thus, the management of mental illness as an extension and “side effect” of a chronic organic disease should become a public health priority in Cyprus since, as the present study shows, it is an extremely frequent complication in an extremely vulnerable group of patients; and any delay comes at the expense of the sufferers, and also of society as a whole.

Since mental health problems affect the entire sphere of activities of the person affected, management is only possible if a controlled living environment is assured. Multiple levels of support, depending on the degree of autonomy and the severity of individual assistance (e.g. self-care, therapeutic communities, day clinic and home care) should be developed. PFM services should detect the needs of this population and sug-
ggest the ideal disposition of existing resources, while at the same time informing and ensuring the consensus of the local community.

A second parameter concerns the need to create an interdisciplinary intervention team, involving the patient and his or her environment, which will guarantee gradual and sustained medical monitoring and psychosocial integration. This group may be coordinated by the family doctor and a community nurse, who usually have a personal relationship with the patient. As an alternative implementation of the above approach, it has been proposed to transform existing mental health structures from closed to open primary care units, incorporating general family medical services. In this case, already available resources can be better utilized and chronic mental patients remains in contact with a familiar environment (if they have been hospitalized in the past); but now they have a wider supportive and guidance system for all their health needs.

Particularly in the case of people with mental illness in the context of organic disease (heart failure), the role of the corresponding physician (cardiologist) is called to foster the close relationship already built with the patient so he or she can be the link between the patient and the larger mental health group. As this systematic review shows, an initial diagnosis of mental illness should then refer the individual to mental health services for better investigation and treatment. Nurses, having the privilege of close contact with patients, often diagnose symptoms of depression early on and intervene to inform members of the multidisciplinary team to deal with them. Also, with a holistic approach to the patient encouraging coverage of both his or physical as well as psychosocial needs, nurses can contribute to a better prognosis of CA.

Particularly important for the successful integration of mental health services is the continuation of primary care, which can be ensured through the horizontal interconnection of the general practitioner with mental health professionals. It is typical that the review of the surveys selected note that in various developed economics and medical counties, patients and general practitioners report the difficulty of communicating – with direct access to professional help as a major barrier to effective outpatient care for people with a psychopathology.

Consequently, the development of uninterrupted and continuous communication channels must be ensured by appropriate administrative interventions right from the planning and programming stage.

Finally, the results of the research conclude that it is crucial for the success of any project to continue training and re-training the health professionals involved, while strengthening them with the formal assignment of responsibilities and, possibly, the self-management of resources.

REFERENCES

1. Segal Z V, Williams M & Teasdale J. Mindfulness-based cognitive therapy for depression. Guilford Publications: 2018.
2. WHO / WONCA. World Health Organization. Integrating mental health into primary care: a global perspective. USA, 2008.
3. WHO Europe. The European health report 2009: health and health systems. Brussels, 2009.
4. Tountas G & Frisiras S. Social inequalities at health. Medicine. 2015; 69 (3): 270-276.
5. Koenig HG. Depression in hospitalized older patients with congestive heart failure. General Hospital Psychiatry. 1998; 20 (1): 29-43.
6. Celano CM, Huffman JC. Depression and Cardiac Disease: A Review. Cardiology in Review. 2011; 19 (3): 130-142.
7. Silver M A. Depression and heart failure: An overview of what we know and don’t know. Cleveland Clinic J Med. 2010; 77 (3): S7-S11.
8. Lichtman JH, Thomas JT, Blumenthal JA, Frasure-Smith N, Kaufmann PG, Lepêrêque F. Depression and Coronary Heart Disease: Recommendations for Screening, Referral, and Treatment: A Science Advisory From the American Heart Association Prevention Committee of the Council on Cardiovascular Nursing, Council on Clinical Cardiology, Council on Epidemiology and Prevention, and Interdisciplinary Council on Quality of Care and Outcomes Research: Endorsed by the American Psychiatric Association. Circulation. 2008; 118 (1); 1768-1775.
9. Gottlieb SS, Khatta M, Friedmann E, Einbinder L, Katzen S, Baker B. The Influence of age, gender, and race on the
prevalence of depression in heart failure patients. JACC. 2004; 43(9): 1542-1549.
10. Faller H, Stöck S, Schwalter M, Steinhübel T, Wollner V, Ertl G et al. Depression and survival in chronic heart failure: Does gender play a role? European J Heart Failure. 2007; 9 (1): 1018–1023.
11. Lesman-Leegte I, Jaarsma T, Sanderman R, Linssen G, van Veldhuisen DJ. Depressive symptoms are prominent among elderly hospitalised heart failure patients. European J Heart Failure. 2006; 8: 634 – 640.
12. Dimos AK, Stougiannos PN, Kakavas AT, Trikas AG. Depression and Heart Failure. Hellenic J Cardiol. 2009; 50: 410-417.
13. Mastrogiannis D, Giamouzis G, Dardiotis E, Karayannis G, Chroub-Papavaiou A, Kremeti D. Depression in Patients with Cardiovascular Disease. Cardiology Research and Practice. 2012; doi:10.1155/2012/794762.
14. Adeyewa Abiodun O, Ola Bola A, Ajayi, Olufeji O, Oyejede Adebayo O. Prevalence and Correlates of Major Depressive Disorder in Nigerian Outpatients With Heart Failure, Psychosomatics. 2006; 47 (6), 479-85.
15. Freedland - Kenneth E, Rich - Michael W, Judith A, Robert M, Dávila – Román, V, Jaffe, AS. Prevalence of Depression in Hospitalized Patients with Congestive Heart Failure. Psychosom Med. 2016; 78 (8): 896-903.
16. Polikandrioti M, Goudevenos J, Michalis LK, Koutelkossis J, Kyristi H, Tsialas D, Elisaif M. Hellenic: Factors associated with depression and anxiety of hospitalized patients with heart failure. Hellenic J Cardiol. 2015;56(1):26-35.
17. Deb Debasree, Khandelwal S, Kansal N, Gonsalves J. Depression and Anxiety in Heart Failure Patients in a South Indian Population: A Pilot Study. Asian Journal of Biomedical and Pharmaceutical Sciences. 2013; 3 (7): 65-70.
18. Lossnitzen N, Herzog WB, Müller-T, Lehmkühl E, Zuckck C, Regiz-Zagrosek V, Pankuxweit S, Maisch B, Ertl G, Gelbrich G, Angermann CE. Incidence rates and predictors of major and minor depression in patients with heart failure. Competence Network Heart Failure. Int J Cardiol. 2013; 172(2):170-177.
19. Pilar Guallar – Castillona, María del Mar Magariño s- Losadas, Carmen Montoto - Otero, Ana I. Tabuenca, Carlos Rodríguez - Pascualc, Maite Olcoz-Chivac, Manuel Conde - Herrerae, Concepción Carreño, Pedro Constantino, Eduardo Martinez - Morentingg, José R. Banegasa, Fernando Rodríguez-Artalejo. Prevalence of Depression and Associated Medical and Psychosocial Factors in Elderly Hospitalized Patients With Heart Failure in Spain, Rev Esp Cardiol. 2006; 59 (8):770-8.
20. Jiang W , Alexander J, Christopher E , Kuchibhatla M , Gaulden LH , Cuffe MS. Relationship of depression to increased risk of mortality and rehospitalization in patients with congestive heart failure. Arch Intern Med. 2001; 161(15):1849-56.
21. Bennett JA, Riegel B, Bittner V, Nichols J. Validity and reliability of the NYHA classes for measuring research outcomes in patients with cardiac disease. Heart Lung. 2002; 31 (2):262–70.
22. Camm AJ, Luscher TF, Semys, PW. (eds). The ESC Textbook of cardiovascular medicine. 2nd Edition. UK. Oxford University Press: Oxford, 2009.
23. Dhar AK & Barton DA. Depression and the link with cardiovascular disease. Frontiers in psychiatry. 2016; 7 (1): 33.
24. Halaris A. Inflammation-associated co-morbidity between depression and cardiovascular disease. In Inflammation-Associated Depression: Evidence, Mechanisms and Implications. Springer: Cham. 2016.
25. Argyriadis A. The cultural construction of diversity. Athens: Pedio.
26. Argyriadis A. The Historical Approach of Psychopaths in Greece: An Endless Effort of Seeking Therapy for the Different Other. International Journal of Caring Sciences. 2017; 10 (1): 590-595.
27. Dimitrakopoulos I & Gourni M. Assessment of the 30-year Cardiovascular Risk in Cyprus. To Vima tou Askifliiou. 2017; 2 (16): 122-140.
28. Polikandrioti M, Koutelkossis I, Vasilopoulos G, et al. Anxiety and Depression in Patients with Permanent Atrial Fibrillation: Prevalence and Associated Factors. Cardiol Res Pract. 2018;7408129.
ANNEX

FIGURE 1. Flow chart of the systematic review

32,388 articles were retrieved from the original search

32,343 articles were excluded because they did not refer to depression of people with heart failure

45 articles were studied in terms of title and summary

35 articles were excluded, of which 30 were not fully accessible and 5 were written in a language other than Greek and English

10 articles related to the purpose of the study were found

10 articles were used in this systematic review
| Researchers - Year | Country | Sample Type | Type of Study | Aim | Research tools | Results - Main Findings |
|--------------------|---------|-------------|---------------|-----|----------------|------------------------|
| Gottlieb SS, Portis M, Trivedi M, Schürlemmer L, Katzen S, Baker B et al, 2004 | USA | 155 patients | quantitative | To determine the prevalence of depression in outpatients with heart failure | • Minnesota Living with Heart Failure Questionnaire  
• Beck Depression inventory | Depression is increased in patients with RA, with age, gender and race being affected in ways similar to those observed in the general population. Depression rates among hospitalized patients range from 11% to 77.5%, and outpatients, rates of 13% to 42% have been reported. |
| Deb Dasacree, Shanker and Dwarakanath Smith, Kerenal Niren, Gonsalves James, 2013 | India | 82 patients | Pilot study | Assess the prevalence of depression in patients with CAD in the Indian population | Zung questionnaire | Class II and III NYHA, with advanced age and previous history of myocardial infarction, showed a strong positive association with depression and anxiety. Patients receiving β-blockers and statins have been reported to have higher levels of depression. |
| Ivonne Lesman-Leegte a, Tiny Jaarsma a, Robbert Sanderman b, Gerard Linssen c, Dirk J. van Veldhuisen d, 2006 | Holland | 572 patients with heart failure | quantitative | Determination of the prevalence of depressive symptoms in elderly patients treated with UA | CES-D | Depressive symptoms are evident in elderly patients treated with heart failure especially in women. Women more often report symptoms of depression than men—48% versus 36%. |
| Adewuya, Aluko D, Olaiya O, Oluferan E, Oyedeyi, Adeleye O, et al, 2006 | Nigeria | 105 outpatients with heart failure | qualitative | It aims to estimate the prevalence of major depressive disorder in Nigeria in outpatients with UA | MINI-25 | Psychosocial factors lack of social support, and the low socioeconomic situation, many of which are independent of depression, have also been implicated in the development and development of the CA. |
| Timewell, Kenneth L., Rich Michael W., Skala Judith A, 2004 | USA | 841 patients with heart failure | mixed method | It aims to assess the prevalence of depression | 1. Schedule 2. Beck Depression | The prevalence ranges from low as 8% among patients in the New |
| Author(s) | Year | Country | Methodology | Participants | Findings |
|-----------|------|---------|-------------|--------------|---------|
| RN, MA; Carney, Robert M; PhD; Davila-Roman, Victor G; MD; and Jaffe, Allan S; MD | 2004 | USA | Failure inventory | 20% of a larger sample of hospitalized patients with CA and to identify demographic, medical, psychosocial and methodological factors | Failure to high as 40% among patients in class IV. The relationship of depression and CA class may be further influenced by age, with younger patients (<60 years) being more vulnerable to depression. |
| Faller H; Störk S; Schowalter M; Steinhäuser T; Weiher V; Enl G; Angermann CE | 2007 | Germany | Failure | 986 outpatients with heart failure | To investigate the prevalence and prognostic significance of depression in a group of symptomatic CA patients and to compare findings in males and females. |
| Jiang W; Alexander J; Christopher E; Kuchibhatla M; Gaulden LH; Cuffe MS; et al | 2001 | USA | Quantitative | 374 patients | To determine the prevalence and relationship of depression with the outcomes of patients treated with heart failure. What is the relationship of depression with the increased risk of mortality and re-encephalitis in patients with UA. |
| Pilar Guallar-Castillón, D; María del Mar Magarinos, 5-Louadac; Carmen Montoto-Oned; Ana J; Tabbas-Carlos Rodríguez-Fassouli; Maro Ollat-©Winz; Manual Condé-Hernéase; Concepción Cavanhill; Pedro Comínhef; Eduardo Martínez-Moreno; José-lasal | 2019 | Spain | Quantitative | 435 patients | Depression was more common in patients with the following characteristics: NYHA functional class III-IV. Major depression is common in patients receiving UA and independently associated with poor prognosis. |

**Table:** Prevalence and Prognostic Significance of Depression in Symptomatic CA Patients and Relationship with Outcomes of Patients Treated with UA.
R. Banegas, Fernando Rodríguez-Artealejo. (2006) Polikandrioti M, Goudevenos J, Michalis LK, Kyritsi H, Tzialas D, Elisaf M. Hellenic J Cardiol. (2015) Greece 190 patients quantitative Investigating the factors associated with anxiety and depression experienced by patients with UA.

1. Minnesota Living with Heart Failure Questionnaire
2. HADS scale

Family status plays an important role in whether a patient with UA is likely to have major depression. Divorced and widowed patients alone were more likely to have major depression compared to married patients (35.6% vs. 19.2% \(p = 0.046\)). Also, married patients were 59% less likely to have major depression than their unmarried counterparts. In addition, patients with a low (<1 year) and moderate (2-5 year) duration of the disease were 69% and 61% less likely to have major depression than those with long-term disease.

Lossnitzer NJ, Herzog W, Pepeleo S, Änger B, Müller-Tasch, Lehmkühf C, Gugli C, Regitz-Zagrosek V, Farbstein S, Malisch B, Eh G, Gelbrich G, Angermann CE. (2013) Germany 839 quantitative To investigate the incidence and prognostic factors of depression in patients with RA.

PHQ-9

Events of major (major) depression were observed in 61 (7.3%) and 47 (5.6%) of the population. Depression was recurrent in 15 (25%) and 16 (34%), respectively. Multiple regression analysis revealed the following variables that predict small or large depression are:

- Previous depressive episode
- Space Trust Visits / year to general practitioner
- New York Heart Association Physical function

https://ejournals.epublishing.ekt.gr/index.php/HealthResJ