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Research Article

**INCREASED FREQUENCY OF DEPRESSIVE SYMPTOMS IN
ADOLESCENTS WITH VALVULAR DYSFUNCTION (VD)**¹Dr. Saleem Ullah Zaffar, ²Dr. Aysha Rashid, ³Dr. Muhammad Kamran Khan¹University of Health Sciences Lahore²Assistant Professor, Department of psychiatry, PGMI/LGH³PIMS, Islamabad**Abstract:**

Objective: Adolescents with valvular dysfunction is at increased risk for developing depression and associated symptoms i.e. lack of pleasure in everyday activities, disturbance in sleep patterns, change in appetite and body weight, sense of worthlessness and guilt, problems with concentration and decision making, and fatigue. Presence of depressive symptoms significantly effects poor clinical outcomes and also posed greater risk of developing other physical diseases and psychopathology as well. The first aim of the present study was to evaluate the frequency and severity levels of depression in patients with valvular dysfunction. The second aim was to find out association between depressive symptoms with sociodemographic characteristics of patients with valvular dysfunction.

Materials and Methods: In this cross-sectional study, a total of 420 adolescents with age range 12-18 years, diagnosed with valvular dysfunction were enrolled in study. Participants with history of psychiatric disorder, using or have used any psychotropic medication, unstable medical condition or life threatening illness (e.g. AIDS or cancer), incomplete forms and refusal to participate were excluded from sample. Demographic form was used to record the socio-demographic details of the participants. Prevalence and severity levels of depressive symptoms were measured by administering Beck's Depression Inventory-II (BDI-II). Statistical analysis was done using SPSS 21.

Results: The mean age was 16 years (SD = 2.4). The frequency of depressive symptoms among the study population was 33.5%. The mean BDI-II score was 12.4 (SD= 2.4). Correlational analyses showed significant positive relationship between age, residence, family history of depression, no of hospitalization, minimal/mild BDI-II scores and moderate/severe BDI-II score in patients with valvular dysfunctions. No correlation was found between gender, education, and duration of illness.

Conclusion: Young age, patients belonging to rural areas, family history of depression, no of hospital stays, and minimal/mild depressive symptoms can cause moderate/severe depressive symptoms. Therefore, it is concluded that VD is associated with increased frequency of depressive symptoms.

Keyword: Increased frequency, depressive symptoms, adolescents, valvular dysfunction (VD).

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INTRODUCTION:

The process of heart disease involving dysfunction in one or more of the valves of heart is known as valvular dysfunctions. There are four valves of heart, two of them located on left side named as aortic and bicuspid valves, while the other two valves are on right side and named as pulmonary and tricuspid valves [1]. Valvular dysfunctions can be caused mainly due to the process of aging, sometimes result of inborn abnormalities and particular physiological diseases such as, rheumatic heart disease and pregnancy [2]. In the current era, people with valvular dysfunction (cardiac problems) are seen very often and these problems are further associated with overhyped rates of morbidity and mortality. Presently, around 23 million patients are estimated to suffer from valvular dysfunctions [3]. It is estimated that 20% of people suffering from VD can live up to 5 years with heightened disease rates [4]. Furthermore, negative impact on quality of life can be attributed to repeated hospital admissions, nutritional restrictions and lack of socialization and this adversely affects social life⁵ as well as life expectancy [6].

As far as prognostic factors are concerned, psychosocial risk factors i.e. anxiety, depression, traumas, abuse worsened valvular dysfunction [7]. Of the psychosocial factors, depression is observed to be by far more common in patients with valvular dysfunctions with prevalence between 11-51% [8,9]. Usually symptoms of depression involves low or depressed mood, diminished interest in daily activities (at school, home and workplace), change in weight and appetite, disturbed sleep patterns (insomnia and hypersomnia), fatigue, or impaired concentration and decision making ability [10]. Presence of depressive symptoms in patients with VD can prone them to suffer from adverse cardiac events, such as, heart failure and blood lumps [11]. Valvular dysfunctions (VD) may have an additional impact on the adolescent's emotional status. In adolescence, approximately 30-40% is suffering from depressive disorders [12]. Estimates by WHO suggested that depression and valvular dysfunctions will be the two major causes of disability-adjusted life years by the year 2020.¹³ Rates of depressive symptoms are much higher when screened through specific screening questionnaires.

Although there are numerous established risk factors for depressive symptoms in VD patients but still paucities exist in literature. Mostly studies concluded that patients in their young age, women and family history of depressive symptoms served as indicator for developing depression in the context of VD [14].

Undoubtly, consensus are clear regarding under diagnosis of depression in VD patients by cardiologists and primary health care physicians [15]. Due to the high prevalence, it is recommended that regular evaluation at first visit and follow up appointments should be done for depression in all patients with VD.¹⁶ For that purpose, detailed patient profiles should be regarded mandatory for early detection, psychological assessment and intervention strategies [8,17]. Several assessment measures can be used to assess depressive symptoms and its severity. Some of the most widely tools are, Beck Depression Inventory-Second Edition (BDI-II), Hamilton Depression Inventory (HDI), Carroll Depression Scales-Revised (CDS-R) and Diagnostic Inventory for Depression (DID).

Rationale/ significance of the study: Present study was done to evaluate the frequency and severity levels of operationally defined depression and its relation to socio demograhic characteristics of the patients suffering from valvular dysfunctions. Further, it may give directions to health practitioners to handle patients with depressive symptoms by referring them to Psychiatrist/ clinical psychologist for proper management of depression. Furthermore, the study may also orient patient regarding depressive symptoms and treatment that may significantly had an impact on patient's physical and mental health thus by improving social life and quality of life.

Objective of the study

- To evaluate the frequency and severity levels of depressive symptoms in patients with Valvular dysfunction.
- To find out association between depressive symptoms and sociodemograhic characteristics of the patients suffering from VD.

MATERIAL ANDMETHODS:

Research Design: Cross-sectional study

Settings: Punjab Institute of Cardiology, Lahore and department of cardiology Gulab Devi hospital.

Duration of Study: One Year

Sample Size : 420 adolescents diagnosed with valvular dysfunctions.

Sampling Technique: Purposive sampling

Inclusion criteria

1. Adolescence
2. Both genders
3. Age range was from 11 to 18 years
4. Agreement to participate in the study

Exclusion criteria

1. History of psychiatric disorder
2. Use of any psychotropic medication
3. Unstable medical condition or life threatening illness (e.g. AIDS or cancer)
4. Incomplete forms
5. Refusal to participate

Measures

Demographic Information Form: Information included gender, age, education, duration of illness (valvular dysfunction), no. of hospitalization over past one year, residence and family history of depression.

Beck Depression Inventory-II (BDI-II): BDI is a self report measure that is used to assess clinically defined depressive symptoms and its severity. BDI-II is 21 items Likert scale used to indicate change in affective, behavior, motivational, cognitive and physical domain over the previous two weeks. Items are scored on a 0–3 scale, yielding a score range of

0–63 where higher scores indicate greater depression severity. A ≥ 17 score as cut-off on each scale of BDI-II indicates a clinically significant level of depression.¹⁸ Participants were classified into 2 groups according to severity of depression and graded as minimal/mild (0-16) and moderate/severe (17-63).

Procedure

We recruited participants from Punjab Institute of Cardiology, Lahore and cardiology department of Gulab Devi hospital. Ethics approvals were obtained from Hospital Ethics Committees. Purpose of the study was explained, informed written consent was obtained from patients who were over 16 years of age. If patient was younger than 16 years of age, informed consent was obtained from both patients and parents. They were assured about the confidentiality of information. Assessment measure including demographic sheet and Beck Depression Inventory (BDI-II) was administered. Data were analyzed using SPSS-21 and results were discussed.

RESULTS:

Descriptive statistics i.e., mean scores (standard deviations), frequencies and percentages were used to describe the demographic characteristics of the sample. See Table-I and Table-II

Table I: Mean, Standard Deviations, Maximum and Minimum of the Demographic Characteristics of the Participants (N=420)

Demographic Characteristics	<i>M</i>	<i>SD</i>
Age (in years)	16.2	2.4
BDI score	12.4	11.1
Duration of illness (years)	1.8	2.3
No. of Hospitalization in past year	4.8	3.5

Note. *M*=mean, *SD*=standard deviation.

Meanwhile, the frequency and percentages of demographic characteristics of sample are shown in Figures (I, II, III, IV & V) respectively.

Figure I: Percentages of Age Group in Sample (N=420)

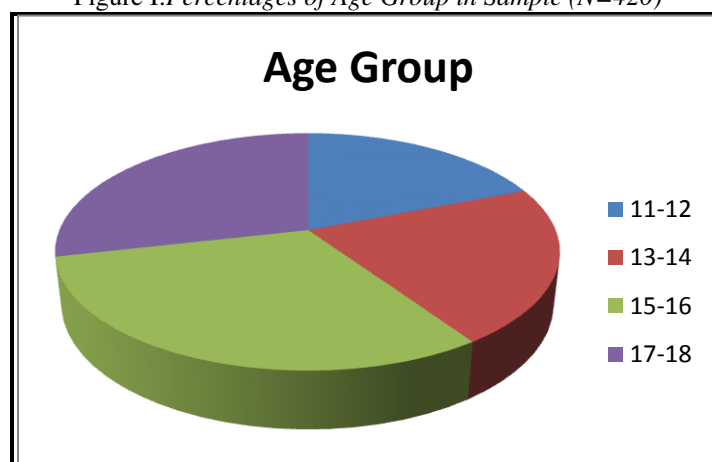


Figure II: Percentages of Gender in Sample (N=420)

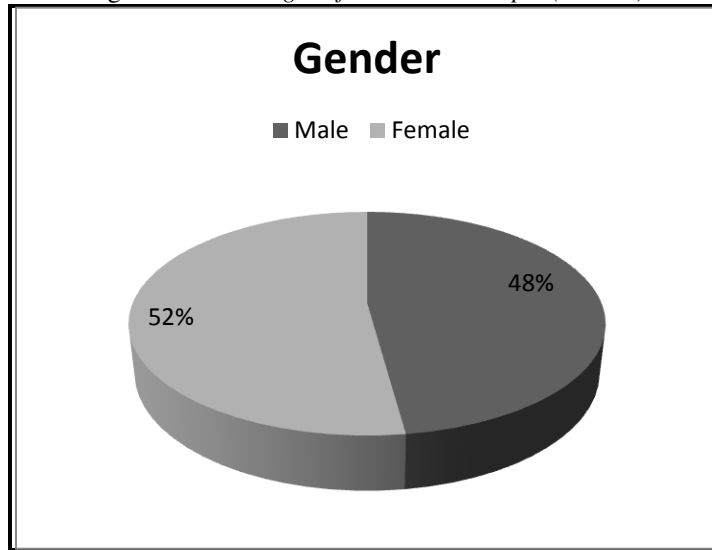


Figure III: Percentages of Educational Status in Sample (N=420)

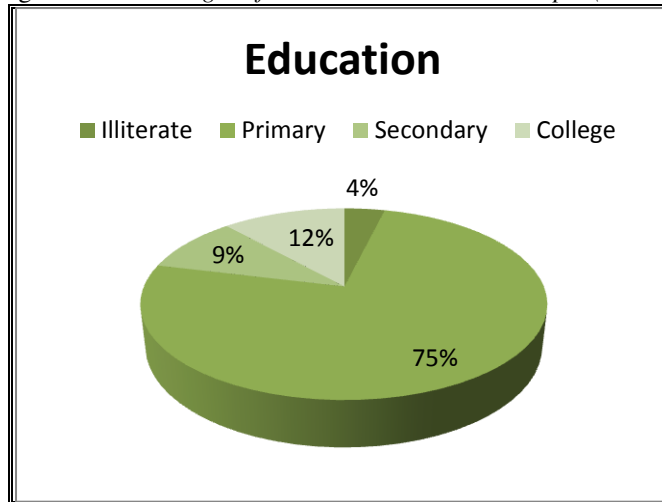


Figure IV: Percentages of Residential Area in Sample (N=420)

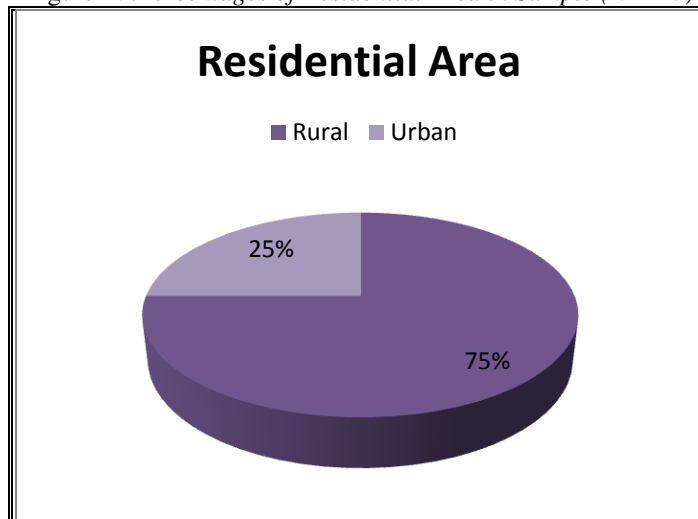
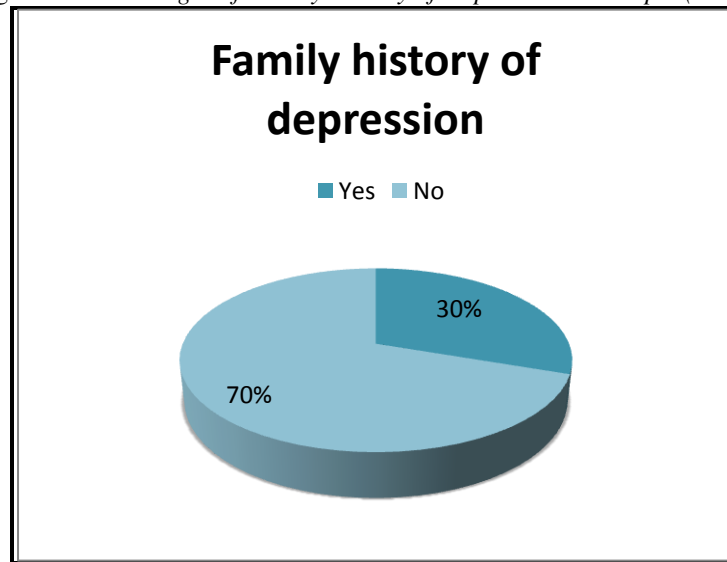
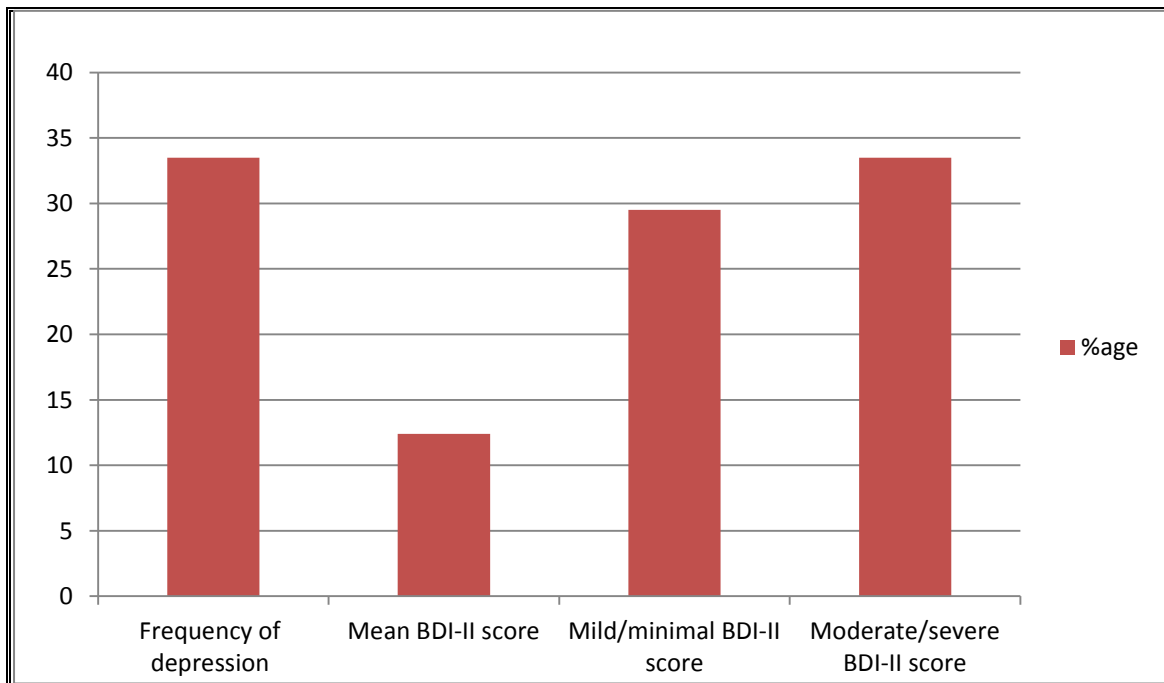


Figure V: Percentages of Family History of Depression in Sample (N=420)



The frequency of depressive symptoms among the study population was 33.5% based on patients with moderate/severe BDI-II scores. The mean BDI-II score was 12.4 (Figure VI).

Figure VI: Percentage of Depressive Symptoms in Sample (N=420)



To find the relationship between socio-demographic variables and severity levels of BDI-II in patients with valvular dysfunctions Pearson Product Moment Correlation was employed. Results are shown in Table-III

Table III: Pearson Product Moment Correlation Showing Relationship between Socio-Demographic Variables and Severity Levels of BDI-II in Patients with Valvular Dysfunctions. (N=420)

Measures	2	3	4	5	6	7	8	9	M	SD
1.Age	.00	-.01	.04	-.01	-.01	.01	.01	.05**	16.2	2.4
2.Gender	-	.04	.04	-.01	-.01	.15	.15	-.00	1.41	.495
3.Education	-	-	-.05	-.05	-.05	.09	.09	.16	1.28	.451
4.Residence	-	-	-	.16	.16	.16	.16	.23*	1.30	.460
5.Family History of Depression	-	-	-	-	-.08	.03	.05*	-.03	1.80	.394
6. Duration of Illness	-	-	-	-	-	-.07	.04	.06	1.8	.230
7. Hospitalization	-	-	-	-	-	-	.05*	.06**	1.80	.394
8.Minimal/Mild BDI-II Score	-	-	-	-	-	-	-	.56**	29.5	5.12
9.Moderate/Severe BDI-II Score	-	-	-	-	-	-	-	-	33.5	7.11

Note: BDI-II=Beck Depression Inventory-II.*p<0.05. ** p<0.01.

Results show significant positive relationship between age, residence, family history of depression, no. of hospitalization, minimal/mild BDI-II scores and moderate/severe BDI-II score in patients with valvular dysfunctions. No correlation was found between gender, education, and duration of illness.

DISCUSSION:

Around the globe, VD is now been considered hot topic of discussion among public health sectors due to increased rates of mortality and morbidity. Increased valvular heart diseases are significantly associated with disease burden on patient, care givers and as well as on health practitioners. In the present study, we tried to evaluate frequency of depressive symptoms and its levels of severity in relation to socio-demographic characteristics of the patients with valvular dysfunctions. To date, most of the studies are focusing on depression as one of the central psychosocial risk factors in VD. Conclusions drawn from these researches showed significant association between depressive symptoms with heightened rates of physical and psychological sufferings i.e. prolong and repeated hospitalizations and deterioration quality of life.¹⁹⁻²⁰

The prevalence of depression reported in literature is ranging between 30-50% and is considered high in VD patients.^{21,22,23} But unluckily the assessment and intervention rates of depressive symptoms in VD patients are near to the ground.^{21, 24} The frequency of depressive symptoms in the present study was 33.5% suggesting that depression associated with VD is widespread despite the advances made in modern treatment protocols are exceptional. The high rate of depression found in the current study is in line with the findings from studies conducted in Western populations.^{25,26} The frequency is close to studies done by Celik et al, (2016)⁵, Liang JJ et al, (2014),²⁷ and Watkins et al, (2003)²⁸ and higher as compared to Fraz K et al, ²⁹ and Whooley³⁰.

The present study demonstrated significant relationship between severity of depressive symptoms and frequent VD hospitalization. These finding validate the results of the previous researches in establishing the association between increased VD related hospitalizations as a result of depression symptoms in VD patients.^{5, 19, 20}

Throughout literature it was concluded that women and young patients with VD are more prevalent to develop depressive symptoms in relation to socio-demographic characteristics i.e. age, gender and educational status.⁸ In the present study, we found that there was no significant difference depressive symptoms in relation to gender and educational status. However significant positive correlation was found between age and depression score i.e. depressive symptoms tend increases with preceding age.

As far as residence is concerned, 75% of the patients were living in rural than urban areas. These finding were statistically investigated and showed significant positive correlation with depression. The results are in contrast with the study conducted by Polikandrioti et al. (2010)³¹ and Herva (2007)³² which founded higher prevalence of depressive symptoms in urban as compared to rural areas. The disagreement between the previous study result with present one can be due to more patients belonging to rural than urban areas.

The result of the current study showed significant positive correlation between family history of mental illness and depressive symptoms in VD patients. The

results are similar to Swedish study³³ and Wray and Sensky, (2004)³⁴ which found an increased incidence of depression in parents of children with VD.

CONCLUSION:

In this study, it was observed that depressive symptom associated with valvular dysfunctions was substantial in the study population. Depressive symptoms in valvular dysfunctions were not affected by gender, educational status and duration of illness. Whereas, living in underdeveloped area and having family history of depression can increase the risk of developing depressive symptoms. Furthermore, having minimal/mild levels of depressive symptoms can cause moderate/severe depressive symptoms. In addition, it is important to evaluate high-risk patients for depressive symptoms.

Limitation

- The educational level of most of the participants was primary and most of them belong to rural areas which may have an impact of reliability of assessment tool i.e. BDI-II.
- Some of the symptoms mentioned in BDI-II overlap with symptoms of valvular dysfunction such as, dyspnea, fatigue, and insomnia. Therefore, the scores may not represent true depression severity in patients with severe valvular dysfunction.
- Treatment of valvular dysfunction and the timing of evaluation may influence the values of BDI-II.

REFERENCES:

1. Nkomo VT, Gardin JM, Skelton TN, Gottdiener JS, Scott CG, Enriquez-Sarano. Burden of valvular heart diseases: a population-based study. *Lancet*. 2006; 368(9540):1005-11.
2. Kovacs AH, Harrison JL, Colman JM, Sermer M, Siu SC, Silversides CK. J Am Coll. Pregnancy and contraception in congenital heart disease: what women are not told. *Cardiol*. 2008;52(7):577
3. McMurray JJ, Petrie MC, Murdoch DR, et al. Clinical epidemiology of heart failure: public and private health burden. *Eur Heart J* 1998;19,9-16.
4. McMurray JJ, Adamopoulos S, Anker SD, et al. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC. *Eur Heart J* 2012;33:1787-847.
5. Celik E, Cay S, Sensoy B, Murat S, Oksuz F, Cankurt T and Mendi MA. Heart failure functional class associated with depression severity but not anxiety severity. *Acta Cardiol Sin* 2016;32:55-61
6. Al-Abbudi SJ, Lami FH, Wady ZA. (2018). Prevalence and assessment of severity of depression among ischemic heart disease patients attending outpatient cardiology department baghdad teaching hospital, Baghdad, Iraq. *J Psychiatry* 21: 438.
7. Perk J, De Backer G, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts). *Eur Heart J* 2012;33:1635-701.
8. Rutledge T, Reis VA, Linke SE, et al. Depression in heart failure a meta-analytic review of prevalence, intervention effects, and associations with clinical outcomes. *J Am Coll Cardiol* 2006;48: 1527-37.
9. O'Connor CM, Jiang W, Kuchibhatla M, et al. Antidepressant use, depression, and survival in patients with heart failure. *Arch Intern Med* 2008;168:2232-7.
10. David L. Hare, Samia R. Toukhsati, Peter Johansson, Tiny Jaarsma; Depression and cardiovascular disease: a clinical review, *European Heart Journal*, 2014; 35(21), 1365–1372
11. Pozuelo L. (2013). Depression & Heart Disease. The Cleveland Clinic Foundation. Retrieved from <https://my.clevelandclinic.org/health/diseases/16917-depression--heart-disease>
12. Kato N, Kinugawa K, Yao A, et al. Relationship of depressive symptoms with hospitalization and death in Japanese patients with heart failure. *J Card Fail* 2009;15:912-9.
13. Cully JA, Johnson M, Moffett ML, et al. Depression and anxiety in ambulatory patients with heart failure. *Psychosomatics* 2009; 50:592-8.
14. Wang QF, Hay M, Clarke D and Menahem S. The prevalence and predictors of anxiety and depression in adolescents with heart disease. *The Journal of Pediatrics* 4(1).
15. Huffman JC, Celano CM, Beach SR, Motiwala SR, Januzzi JL (2013) Depression and cardiac disease: epidemiology, mechanisms, and diagnosis. *Cardiovasc Psychiatry Neurol* 2013: 695925.

16. Raj HSS, Sajimon PP (2010) Anxiety and depression in ischemic heart disease. *J Indian Acad Appl Psychol* 36: 239-244
17. Colquhoun DM, Bunker SJ, Clarke DM, Glozier N, Hare DL, et al. (2013) Screening, referral and treatment for depression in patients with coronary heart disease. *Med J Aust* 198: 483-484.
18. Beck AT, Ward CH, Mehdelson M, et al. An inventory for measuring depression. *Arch Gen Psychiatry* 1961;4:561-71.
19. Jiang W, Kuchibhatla M, Clary GL, et al. Relationship between depressive symptoms and long-term mortality in patients with heart failure. *Am Heart J* 2007;154:102-8.
20. Faller H, Steinbuechel T, Störk S, et al. Impact of depression on quality of life assessment in heart failure. *Int J Cardiol* 2010; 142:133-7.
21. Cully JA, Jimenez DE, Ledoux TA, et al. Recognition and treatment of depression and anxiety symptoms in heart failure. *Prim Care Companion J Clin Psychiatry* 2009;11:103-9.
22. Brenes GA. Anxiety and chronic obstructive pulmonary disease: prevalence, impact, and treatment. *Psychosom Med* 2003;65:963-70.
23. MacMahon KM, Lip GY. Psychological factors in heart failure: a review of the literature. *Arch Intern Med* 2002;162:509-16.
24. Serafini G, Pompili M, Innamorati M, et al. The impact of anxiety, depression, and suicidality on quality of life and functional status of patients with congestive heart failure and hypertension: an observational cross-sectional study. *Prim Care Companion J Clin Psychiatry* 2010;12(6).
25. Vaccarino V, Kasl SV, Abramson J, Krumholz HM. Depressive symptoms and risk of functional decline and death in patients with heart failure. *J Am Coll Cardiol* 2001; 38: 199-205.
26. Freedland KE, Rich MW, Skala JA, Carney RM, Davila-Roman VG, Jaffe AS. Prevalence of depression in hospitalized patients with congestive heart failure. *Psychosom Med* 2003; 65:119-28.
27. Liang JJ, Tweet MS, Hayes SE, Gulati R, Hayes SN (2014) Prevalence and predictors of depression and anxiety among survivors of myocardial infarction due to spontaneous coronary artery dissection. *J Cardiopulm Rehabil Prev* 34: 138-142.
28. Watkins LL, Schneiderman N, Blumenthal JA, Sheps DS, Catellier D, et al. (2003) Cognitive and somatic symptoms of depression are associated with medical co-morbidity in patients after myocardial infarction. *Am Heart J* 146: 48-54.
29. Fraz K, Khan SA, Sikander S (2013) Screening for depression in coronary artery disease patients using PHQ-9. *LIP Health* 4: 3-6.
30. Whooley MA (2006) Depression and cardiovascular disease: Healing the broken-hearted. *JAMA* 295: 2874-2881.
31. Polikandrioti M, Christou A, Morou Z, Kotronoulas G, Evagelou H, et al. (2010). Evaluation of depression in patients with heart failure. *Health Science Journal*: 37-47.
32. Herva A (2007). Depression in association with birth weight, age, at menarche, obesity and metabolic syndrome in young adults. The Northern Finland 1966 Birth Cohort Study, *Acta Univrsitatis Ouluensis D Medica*.
33. Lawoko S, Soares JJ. Distress and hopelessness among parents of children with congenital heart disease, parents of children with other diseases, and parents of healthy children. *J Psychosom Res* 2002; 52: 193-208
34. Wray J, Sensky T. Psychological functioning in parents of children undergoing elective cardiac surgery. *Cardiol Young* 2004; 14: 131-139.