# Prevalence of Depression among Family Members of Cardiac Diseases Patients in Cardiac Care Units

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**Abstract:**
**Aim of the Work:** *The purposes of this study were to assess the prevalence and the levels of depression on family members for cardiac patient in Prince Mutaib Bin Abd El Aziz Hospital in Aljouf.*
**Subjects and Method**: *A descriptive design was used to detect the prevalence and the levels of depression among family member of cardiac patient. A convenience sampling procedure was used to recruit participants for this study.* **Tools:** *1) A self-administrated questionnaire. 2) Beck's Depression Inventory.*
**Result**: *The current study showed that 55.7% of the study sample had severe level of depression. Also, the result findings illustrates that patient gender, age and education, as a sociodemographic variables have no effect on total depression scores, however, kinship to patient as one of the categorical variables was found to have an effect on total depression scores. The result findings show that, a positive weak correlation between the total depression scores with age, level of education and Kinship to patient was found. Also, for the marital status, chronic diseases and smoking, the result findings showed a negative correlation between the total depression scores and these variables were found as well.*
**Conclusion and Recommendations**: *The current study showed that 55.7% of the study sample had severe level of depression. Also, the result findings illustrates that patient gender, age and education, as a sociodemographic variables have no effect on total depression scores, however, kinship to patient as one of the categorical variables was found to have an effect on total depression scores. The study recommended encouraging family members to think away from the negative expectation about health status and future of patient, also to understand their role in encouraging the patient to cope with his disease and don't feel of depression and sadness*
**Keywords:** *depression, family members, admission, cardiac Diseases*

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## I.    Introduction

Cardiac disease as a chronic life threatening disease is responsible for the greatest numbers of hospital admissions within this group of patients, mainly because these patients experience a lots of negative emotions as stress , anxiety, fear, depression or even ambiguity in response to changes of routine daily life that occurs due to changes of diseases process itself or changes related to use of medications (as to increase dose, change medication, ..) or need for follow up or even recurrent admissions. This stressful environment affected not only patients, but also their family as a caregiver. [1] Family members who are responsible for patients treated in cardiac care units (CCUs) may develop depression when they consider the possibility of heart disease since life-threatening diseases have affected their close relatives, the rapid onset of the disease, severe states of patients and long-term hospitalization). Admissions of recurrent patients as a generalized stressful situation, defined as one of the most important factors leading to depression as an undesirable mental condition among caregivers. [2, 3] the needs of family members are often overlooked, which increases the feeling of helplessness and lack of orientation. Recently, evidence studies have highlighted the role of family caregiver as a company in the formation of educational programs to provide social support and relieve stress among their cardiac patients. [4.5]

Cardiovascular diseases are causing a higher mortality rate worldwide. It is the leading cause of death and disability in the United States and in most European countries [6], where the morbidity rate estimated that in 2008, 17.3 million people died with CVD, equal to 30% of the total ( Report of the WHO, 2011) [7]. While in the case of Saudi Arabia it is an Arab country, the vast majority of deadly diseases are chronic non-communicable diseases, i.e. 413 deaths per 100,000 in 2002, 144 (35%) were due to cardiovascular disease [6]. Moreover, in 2012, cardiovascular diseases were the leading cause of death for NCD (17.5 million deaths) (WHO report, 2014) [8]. Coronary artery disease has become one of the main health problems in Saudi Arabia and represents the third most common cause of hospital mortality after accidents and senility. [6] Depression as a psychological disorder has been defined as a combination of symptoms of persistent sadness, anxiety, feelings of hopelessness, difficulty concentrating, remembering and making decisions, insomnia and thoughts of suicide and / or suicide attempts, which interfere with the ability to a person at work, sleeping and enjoying activities that were previously pleasant, therefore, prevents a person from functioning normally [9]. Researchers defined operative depression for the total score of 21 articles in the Beck-II Depression Inventory (BDI-II) (Beck Depression Inventory, 2010). [10] World Health Organization (WHO) reported that depression was a common worldwide mental disorder, which presents with depressed mood, loss of interest, low energy, and impaired person every day responsibilities. It's the 4th leading contributor to the global burden disease in 2000, and by the year 2020 can reach 2ed place. However, depression was among the leading cause of disabilities worldwide, fewer than 25% of those affected had access to effective treatments (WHO report, 2010)

## II.  Significant of the Study

Research priorities emphasized global  concerns of  healthcare related to patients' safety, infection control and preventing potential complications related to physiological needs, Health care providers need to increase their attention to the psychological health problems as much as to physiological one [12,13].  As for Arab culture like Saudi Arabia, there are no such studies that relate mainly to the psychological concerns of family members of cardiac patients, this study is the pioneering study conducted in Saudi Arabia on the assessment of prevalence and depression levels in the family members for cardiac patients, since the data of the recent literature on the needs of the patients' families are scarce [1, 2]. In Poland, there are no studies on the above subjects. [3] Therefore, the aim of the present study was to evaluate the prevalence and levels of depression in the cardiac patient's family members at Aljouf's Prince Mutaib Bin Abd El Aziz Hospital.

## III.  Subjects and Methods

**Aim of the study:** The purposes of this study were to assess the prevalence and the levels of depression on family members for cardiac patient in Prince Mutaib Bin Abd El Aziz Hospital in aljouf, Saudi Arabia.

**Research Questions**
**The following research questions guided this study:**
- What are the Prevalence and the levels of depression of depression Among Family Members for Patient in Cardiac Care Unit in Prince Mutaib Bin Abd El Aziz Hospital?
- What is the difference in depression according to selected sociodemographic and health variables (age, educational level, and history of chronic disease, smoking, and history of psychological health problems, Physical violence and stressful life events?

**Setting:** Data was collected at the hospital during visiting time of family member for patient in cardiac care unit in Prince Mutaip Bin Abd El Aziz Hospital in Aljouf, Saudi Arabia.
**Study design:**  A descriptive design was used to detect the prevalence and levels of depression.
**Sample:** A convenience sampling procedure was used to recruit participants for this study.
**Inclusion criteria:** The study includes 70 of family members for hospitalized cardiac patient in CCU in Prince Mutaib Bin Abd El Aziz Hospital in Aljouf, Saudi Arabia.
**Exclusion criteria:** Family members of the cardiac patients for less than a month in the hospital. People who do not live with the patient in the same house, and people who are not a very relative to the patient.
**Tools:** Two structured tools were used to collect data pertaining to the study. They were developed and tested by the researcher, then reviewed by a jury of 3 nursing experts. Their opinions were elicited regarding to the tools format layout, consistency, and scoring system.
**These tools are:** 1) Self-administered questionnaire composed of a sociodemographic data form, health related factors questionnaire developed by the researchers to describe the sample and to measure the predictive variables of depression it consisted of:
- Sociodemographic data form  (using 8 questions about the member's age, marital status, educational level ,employment status, family monthly income and health insurance,  His relationship with the patient and sex of patient  )

- Health related factors questionnaire ( include 6 questions regarding the, medical and surgical history, smoking, exercise)
- History of psychological health problem, stressful life events and Physical violence was defined as the member experience with selected stressful life events during the past years, and to which extent these events affect their life, and were operationally defined by the 3 questions developed by the researchers based on the reviewed literature).

2) Beck's Depression Inventory (The original Beck's Depression Inventory scale (BDI-II) created by Beck (1961), BDI-II was published in 1996 to measure the severity of depression symptoms for individuals aged 13 and above. It consists of 21-items of multiple choice self-reported questionnaires. Member were asked to rate how they felt in the past two weeks for each items (Beck Depression Inventory, 2010). [6]

**Scoring system**: Each item was rated on a four point scale ranging from 0 to 3, the total score range from 0 to 63. Minimal Prevalence of depression is defined when the total BDI score are between 0–13, 14–19 indicated a mild depression, 20–28 moderate depression, and severe Prevalence of depression is indicated at the score 29 or above ( Beck Depression Inventory. 2010) [6].

**Method:** An official letter was issued to the director of the hospital and to the supervisor of the cardiac care unit to interview family members of patients at the time of the visit. Data collected throughout a period from 1 to 30 / 2 / 2019.

**Procedures:**
- The researchers went to the cardiac care unit in Prince Mutaib Bin Abdulaziz Hospital at the time of the visit for several days in cardiac care unit. When a family member was qualified to participate in the study and agreed to participate, the researchers explained the purposes of study and benefits
- Each family member needed 10 to 15 minutes to complete the questionnaire, but for the illiterate persons 20 minutes where researchers helped them. The completed questionnaires were sorted out, numbered and prepared for data entry, Data analysis started after the completion of data collection.

**Ethical Considerations:**

Family member were reassured that their privacy, anonymity as well as confidentiality of their responses would be protected. Member who agreed to participate were reassured that they had the right to withdraw from the study at any time, and that their names will not be identified, verbal informed consent were obtained from each member. The researcher checked the completion of questionnaire to minimize the missing data.

**Statistical analysis:**

Data were presented using the SPSS program in numbers, percentages, average and standard deviation (SD), t tests, Pearson correlation analysis was used to evaluate the interrelationships between quantitative variables. Statistical significance was considered with a value of $p < 0.05$.

## IV. Results

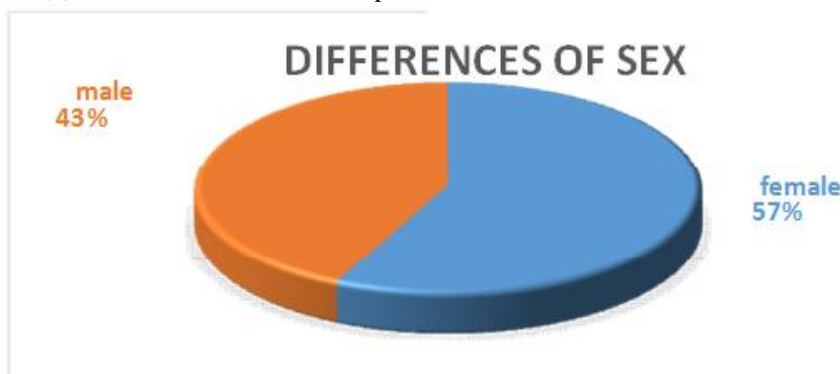**Figure (1):** shows that 43% of the sample studied were men, however 57% were women.



**Figure (1): Percentage Distribution of the sex of the sample studied (Total n = 70).**

**Table (1)**: clarifies that the age of the individual ranged between 18 to more than 50 years, 41.4% of respondents were in the age group of years 18-30 followed by 28.6%, in the age group of 31to 40 years with a mean age of 29.32 years. Concerning Marital Status, about two thirds of individuals 60% were married, and then followed by 31.4% singles, and equal proportions among divorced and widowed where they were 4.3%.

As regard to level of education about one third of respondents were having intermediate school as it came to 32.9%, then followed by those with a university degree 28.6%, while the lowest percentage was for those with of post graduate studies. Concerning Kinship to patient, about one third of respondents were the parents 35.7%, then one of the brothers 31.4%, while the lowest percentage was for other 7.10%.

**Table (1):** Frequency and Percentage Distribution for the Sociodemographic Characteristics of the Studied sample (Total n = 70).

| | Variables | No. | % | Chi | p- value |
|---|---|---|---|---|---|
| **Age in years** | 18- 30 | 29 | 41.4 % | 0.089 | |
| | 31- 40 | 20 | 28.6 % | | 6.516 |
| | 41- 50 | 10 | 14.3 % | | |
| | > 50 | 11 | 15.7 % | | 0.381 |
| **Marital status** | Single | 22 | 31.4 % | 3.069 | |
| | Married | 42 | 60 % | | |
| | Divorced | 3 | 4.3 % | | |
| | Widowed | 3 | 4.3 % | | |
| **Level of Education** | Preparatory | 16 | 22.9 % | 8.341 | |
| | Intermediate | 23 | 32.9 % | | 0.08 |
| | Secondary | 6 | 8.9 % | | |
| | Bachelor | 20 | 28.6 % | | |
| | Higher education | 5 | 7.1 % | | 0.066 |
| **Kinship to patient** | First -degree relative ( Parents ) | 25 | 35.7 % | 7.206 | |
| | Second -degree relative ( Brothers ) | 22 | 31.4 % | | |
| | Third -degree relative ( Uncle or Grandparents ) | 18 | 25.7 % | | |
| | Others | 5 | 7.1 % | | |

**Table (2):** describes Differences of medical characteristics among family members. Concerning Chronic diseases, it is obvious that 71.4%, had no chronic diseases (blood pressure and diabetes), while 18.60% had blood pressure as a chronic disease. As regard to Smoking, about two thirds of individuals 61.4% were smokers, while38.6% of them were nonsmokers.

**Table (2):** Differences of Medical Characteristics among Family Members (Total n = 70).

| Items | | N | % | Chi | P - value |
|---|---|---|---|---|---|
| **Chronic diseases** | No | 50 | 71.4 % | 7.962 | 0.093 |
| | Blood pressure | 13 | 18.6 % | | |
| | Diabetes | 3 | 4.3 % | | |
| | Blood pressure + Diabetes | 3 | 4.3 % | | 0.432 |
| | Blood pressure + gland disorder | 1 | 1.4 % | | |
| **Smoking** | Smoking | 27 | 61.4 % | 0.618 | |
| | Not Smoking | 43 | 38.6 % | | |

Table (3): Illustrates Frequency distribution of history of psychological health problems, abuse and stressful life events. It is obvious that, 52.9% are suffering from stress vs. 47.1% of them are not exposed to stress and tension. As regard to history of Physical violence, 72.9% vs. 27.10% suffered from physical violence situations.

**Table 3:** Frequency Distribution of History of Psychological Health Problems, Abuse and Stressful life Events (Total n = 70).

| Items | | N | % | Chi | P - value |
|---|---|---|---|---|---|
| **Stress** | Exposed | 37 | 52.9 % | 11.668 | 0.001 |
| | Not exposed | 33 | 47.1 % | | 0.004 |
| **Physical violence** | Exposed | 19 | 72.9 % | 8.285 | |
| | Not exposed | 51 | 27.1 % | | |

**Table (4)**: showed Differences, Mean and Standard Deviation of depression level among family members, 20% reported a minimal level of depression, 18.6 % mild, 5.7% moderate, and 55.7% severe level of depression.

**Table (4)** Differences, Mean and Standard Deviation of Depression level among Family Members (Total n = 70).

| Beck Depression Inventory score | N | % |
|---|---|---|
| Minimal depression0–13 | 14 | 20 % |
| Mild depression14–19 | 13 | 18.6 % |
| Moderate depression 20–28 | 4 | 5.7 % |
| Severe depression 29-63 | 39 | 55.7 % |
| Mean ±SD | 43.1±0.45 | |

**Table (5)** illustrates that age as a sociodemographic variable has no effect on Total depression Scores.

**Table (5)** Comparison of Means and Standard Deviation of Total depression Scores in Relation to age among family members (Total n = 70).

| Variables | Depression | | F - P values |
|---|---|---|---|
| | Mean | ±SD | |
| 18 - 30 | 43.0 | 0.44 | 2.4 ns |
| 31 - 40 | 43.3 | 0.46 | |
| 41 - 50 | 42.0 | 0.42 | |
| > 50 | 43.5 | 0.47 | |

**Table (6)** it is clear that, education as one of the categorical variables was found to have no effect on total depression scores.

**Table (6):** Comparison of Means and Standard Deviation of Total depression Scores in Relation to Educational level among family members (Total n = 70).

| Variables | Depression | | f- p values |
|---|---|---|---|
| | Mean | ±SD | |
| Illiterate | 42.0 | 0.44 | **2.9 ns** |
| Secondary or less | 44.3 | 0.46 | |
| Diploma | 43.0 | 0.42 | |
| Bsc | 43.8 | 0.49 | |
| Higher education | 44.0 | 0.49 | |

**Table (7):** it is clear that, Kinship to patient as one of the categorical variables was found to have an effect on Total depression Scores with high mean of First degree relative ( Parents)

**Table (7)** Comparison of Means and Standard Deviation of Total depression Scores in Relation to Kinship to patient among family members (Total n = 70).

| Variables | Depression | | f- p values |
|---|---|---|---|
| | Mean | ±SD | |
| First -degree relative (Parents ) | 49.0 | 0.50 | 19.2* |
| Second -degree relative (Brothers ) | 43.6 | 0.43 | |
| Third -degree relative ( Uncle or Grandparents ) | 42.0 | 0.41 | |

Table (8):   illustrates that patient Sex as one of the categorical variables has no effect on Total depression Scores.

**Table (8)** Comparison of Means and Standard Deviation of Total depression Scores in Relation to patient Sex among family members (Total n = 70).

| Variables | Depression | | t- p values |
|---|---|---|---|
| | **Mean** | **±SD** | |
| Male | 44.0 | 0.46 | 0.95 ns |
| Female | 43.7 | 0.43 | |

**Table (9)**:  Correlation Matrix of Total Depression with  (age, marital Status, level of education, kinship to patient, chronic diseases, smoking , stress and physical violence).The table shows, a positive  weak correlation between the total depression scores with age , level of education and Kinship to patient. Also, for the Marital Status, chronic diseases and smoking, the table showed a negative correlation between the total depression scores and these variables.

**Table (9):** Correlation Matrix of Total Depression with variables

| | Age | Marital Status | Education | Kinship to patient | Chronic diseases | Smoking | Chronic diseases | Physical violence | BID |
|---|---|---|---|---|---|---|---|---|---|
| **BID** | 0.043 | -0.140 | 0.252 | 0.249 | 0,210 | 0.094 | -0.409 | -0.344 | 1 |

## V.    Discussion

The results of the study showed that serious diseases that require treatment in cardiac therapy units (CCU) have induced strong stressful emotions in patients' relatives. During the stay of the cardiac care units (CCUs), the patient's relatives experienced many negative emotions, such as anxiety, uncertainty, impotence, fear, depression and nervousness. Emotions were particularly strong in admission to cardiac care units (CCUs), which is confirmed in other studies [3, 4]. The current study findings showed that the age of the individuals ranged between 18 to more than 50 years, 41.4% of respondents were in the age group of years 18-30, concerning marital Status, about two thirds of individuals 60% were married, As regard to level of education about one third of respondents were having   intermediate school as it came to 32.9%, then followed by those with a university degree 28.6%, while the lowest percentage was for those with of post graduate studies.

Concerning kinship to patient, about one third of respondents were the parents 35.7%. Concerning chronic diseases, it was obvious that 71.4%, had no chronic diseases (blood pressure and diabetes), while 18.60% had blood pressure as a chronic disease. The current study showed that 55.7% of the study sample had severe level of depression. This result coincided with (McAdam, 2010), which reported in their study that the prevalence of symptoms was high, with more than half (57%) of family members with moderate to severe levels of traumatic stress, 80% with borderline symptoms. Anxiety and 70% have borderline symptoms of depression. Over 80% of family members had other physical and emotional symptoms, such as fatigue, sadness and fear, and these had lived with moderate to severe difficulty. The factors independently associated with greater severity of symptoms included a younger age, female sex, and non-white race of the family member. The only factor of the patient significantly associated with the severity of symptoms was the younger age. Despite their experience with symptoms, most family members faced a moderate to high level and performed at a high level during the intensive care unit experience. [14]

Furthermore, this result was in agreement with Pochard et al. (2005) who demonstrated that the observation of a loved one in a critical condition is stressful and found that the symptoms of anxiety and depression were found in 73.4% and 35.3% of family members, respectively; 75.5% of family members and 82.7% of spouses have symptoms of anxiety or depression (p = 0.007). Depression symptoms were more frequent in relatives of non-survivors (48.2%) than in survivors (32.7%) (P = 0.008) (3.15). Furthermore, Rabori and Nematollahi (2014) reported in their study that open-heart surgery for patients imposes anxiety, stress and depression on their peers. Furthermore, it was shown that 77% of patient families experienced anxiety and the families that encouraged them to undergo surgery faced anxiety six times greater. [16]

As regard to Smoking, about two thirds of individuals 61.4% were smokers, while 38.6% of them were nonsmokers. In relation to psychological health problems, abuse and stressful life events, it was obvious that, 52.9% are suffering from stress vs. 47.1% of them are not exposed to stress and tension. As regard to history of Physical violence, 72.9% vs. 27.10% suffered from physical violence situations. Also, the result findings illustrates that  patient Sex , age and education , as a sociodemographic variables have  no effect on total depression scores, however ,kinship to patient as one of the categorical variables was found to have an effect on total depression scores. This observation was not consistent with wywko and Gazda (2012) who indicated that the women interviewed reported more fear, depression and nervousness than men, which could be associated

with their more open expression of feelings. [1] In relation to correlation of total depression scores with age, marital status, level of education, kinship to patient, chronic diseases, smoking ,stress and physical violence. The result findings show that, a positive weak correlation between the total depression scores with age, level of education and Kinship to patient was found. Also, for the marital status, chronic diseases and smoking, the result findings showed a negative correlation between the total depression scores and these variables were found as well. According to these results, Johnson D. (1998) mentioned that the demographic information concerning the family member included sex, age, time of transfer to hospital, time of visit to the hospital per day, number in the family group, the relationship with the patient. Ethnic origin and level of education, and whether the patient's relationship with the most significant family member was brother / sister (p = .012). The family needs a reliable tool and has shown a high degree of agreement with a second interviewee in the same family interviewed. [17]

## VI. Conclusion

The current study showed that 55.7% of the study sample had severe level of depression. Also, the result findings illustrates that  patient Sex , age and education , as a sociodemographic variables have  no effect on total depression scores, however ,kinship to patient as one of the categorical variables was found to have an effect on total depression scores.   In relation to correlation of total depression scores with age, marital status, level of education, kinship to patient, chronic diseases, smoking ,stress and physical violence.  The result findings show that, a positive weak correlation between the total depression scores with age, level of education and kinship to patient were found. Also, for the marital status, chronic diseases and smoking, the result findings showed a negative correlation between the total depression scores and these variables were found as well.

## VII. Recommendation

The following recommendations have been suggested based on the current study findings:
Encouraging family members to think  away from the negative expectation about health status and future of patient, also to understand their role in encouraging the patient to cope with his disease   and don't feel of depression and sadness.
Further research addressing family member beliefs, attitude, and perceptions regarding psychological health problems are also essential

- A similar study can be done on a large sample to generalize the findings.
- A study can be conducted by including additional demographic variables.

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