Frequency Major Depressive Disorder Among (Coronary Heart Diseases)

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Abstracts:

Background: Cardiovascular disease (CVD) is the major cause of mortality in a lot of countries. In the past few years, there has been a spike in the likelihood of depression following an acute myocardial infarction (AMI), as symptoms of depression are found in up to 45% of patients in this population.

Aim of study: to identify Frequency MDD Among of people with coronary heart disease.

Patients and methods: cross sectional study involved 50 individuals who was conducted in Karbala province. All patients diagnosed with coronary heart disease and admitted to intensive care unit in Al-Hussien teaching hospital. Data were collected during 1 year .There are two parts to the questionnaires; socio-demographic questions and patient health questionnaire (PHQ-9)

Results: The mean of age group was ±60.9 years. Most patients were aged more than 60 year old (52%). Males were (76%). 70% were from urban area. 10% of participants presented with severee depression, 28% mild, 34% moderate . diabetes mellitus, psychiatric illness and smoker were significantly associated with depression.

Conclusions: Depression is a common disorder in our society. AMI has associated with increased risk of depression especially in old age patients. smoker patients had lower PHQ-9 comparing with non-smoker patients**.**

Keywords: Myocardial infarction, Depression, PHQ-9 questionnaire.

Introduction:

Cardiovascular disease (CVD) is the major cause of mortality in a lot of countries [1, 2]. Coronary Heart Disease (CHD) is the most frequent presentation of CVD [3]. CHD affected about 16 million people in the United States [1]. In Europe, CVD, particularly CHD, accounts for approximately 55% of all women's deaths, while it accounts for 44% of all men's deaths [4]. In the Middle East, CHD mortality will rise by approximately 174% in males and 146% in females [5]. According to the most recent World Health Organization (WHO) reports, CHD deaths in Jordan accounted for approximately 19% of total fatalities [2].

 Depression affects around 264 million individuals globally [6,7]. In the past few years, there has been a rise in the development of mood disorders after an acute myocardial infarction (AMI), as depressive disorders have been reported in up to 45% of patients in the population. Just one-quarter of individuals with post-AMI depression are detected, and only 10% of those diagnosed take therapy [8]. Depression is related to both long-term and short-term prognosis in AMI patients [9, 10]. Depression occurs frequently and is long-lasting in AMI patients [10]. Anxiety or depressive disorders are substantially more likely to coexist with ischemic heart disease (IHD).[11,12] Depression affects 20% of people following an AMI. The incidence of anxiety in the initial week following percutaneous coronary intervention (PCI) is between 25 to 37% [13], although up to two-thirds of individuals who undergo PCI can become depressed[14]. Post-AMI depression is a separate risk factor for subsequent heart attacks and death, according to growing data [9,10,15]. Furthermore, depression has been proven to predict problems following AMI [10, 16]. The majority of these problems arise during the early stages, which may start as soon as the first hour [17 - 19]. Initial manifestations of depression

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develop 48 to 72 hours after MI and usually fade within a week [12]. A number of studies have found a physiological association between depressive disorders and AMI. While depression is seen to be a neurological condition, severeal inflammations have been related to depression [20-23]. AMI can cause inflammation of the vascular system and is associated with depressive disorders [24]. The inflammatory cascade is a regulatory process in AMI patients that initiates the growth of scars to restore the original infarcted myocardium [25]. While the inflammatory reaction is directed locally, systemic inflammation can influence other systems, like the central nervous system[26]. Similarly, higher rates of inflammatory processes have been found in those who have depressive symptoms. In the past few years, there has been more evidence for the hypothesis that immune system activation may play a role in the genesis of both depressive disorders and AMI [25,27,28,29].

A number of studies have found that females are more likely than males to suffer from severee depression [30,31,32]. According to an American Heart Association scientific report on depressive disorders as a risk factor for poor prognosis among people with acute coronary syndrome [33]. A number of studies have discovered a relationship between depressive disorders and death [33]. Subsequent research found that depression raised the risk of mortality by 1.6 times during a 7-year period following PCI[34].

This study aim to identify Frequency MDD Among of people with coronary heart disease.

material and methods:

Study design: cross sectional study involved 50 individuals (76% were males and 24% were females) was conducted in Karbala province. All patients diagnosed with coronary heart disease and admitted to intensive care unit in Al-Hussien teaching hospital.

Study time and duration: Data were collected for approximately 1 year starting from January 2022 until February 2023.

Sampling method and sample size: The final sample size obtained was 50. The samples collected from the Al-Hussien teaching hospital in Karbala. All patients were diagnosed to have coronary heart disease.

Data Collection: The researcher performed a conversation using a standardized questionnaire form and direct discussion with patients. There are two parts to the questionnaires.

Part 1: Sociodemographic related questions :

- Age
- Sex
- Address
- Marital status
- Occupation
- Educational levels

Part 2: involved patient health questionnaire (PHQ9). PHQ9 is a self-administered questionnaire involved nine questions. It used for the diagnosis and determine the severeity of depression. The PHQ-9 questions asked about the person's recent experiences. The questions include the amount of interest in doing things, feeling down or sad, sleeping difficulties, state of energy, dietary behaviors, self-perception, capacity to focus, rapid functioning, and suicidal thoughts. Responses vary from "0" (never) to "3" (almost daily). The aggregate of the replies indicates varied degrees of depression. The scale runs between 0 and 27. In general, a score of 10 or above indicates the existence of depressive disorders.

Ethical approval : All patients signed the consent form before starting the research.

Statistical Analysis: data were organized and analyzed by using Excel 2010 and SPSS V 26 Descriptive (frequency / chi square), mean . the minimum significant level will be 0.05 .

Results

Part I (**Demographic data**): The mean of age group was ±60.9. The result showed that the most patients were more than 60 year old (52%). The result showed that the gender was male (76%). Most of cases were from urban (70%). Most of cases was married (94%)as showed in the table below :

Table 1: Demographic data

		Frequency	Percent %
Gender	female	12	24.0
	male	38	76.0
Age group	less than 40	5	10.0
	40-60	19	38.0
	more than 60	26	52.0
Address	rural	15	30.0
	urban	35	70.0
Occupation	employment	17	34.0
	housewife	11	22.0
	working at a private sector	22	44.0
Educational level	college and higher	12	24.0
	illitrate	16	32.0
	primary school	11	22.0
	read&write	5	10.0
	secondary school	6	12.0
Maternal status	married	47	94.0
	single	1	2.0
	widow	2	4.0
Income	enough	27	54.0
	good	6	12.0
	not enough	17	34.0
Total		50	100.0
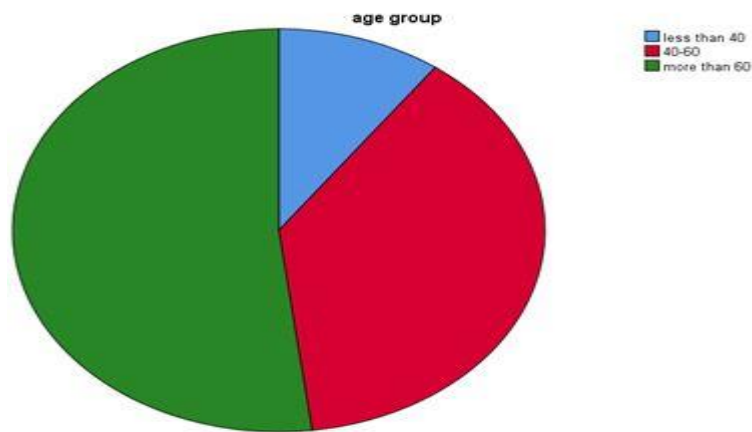
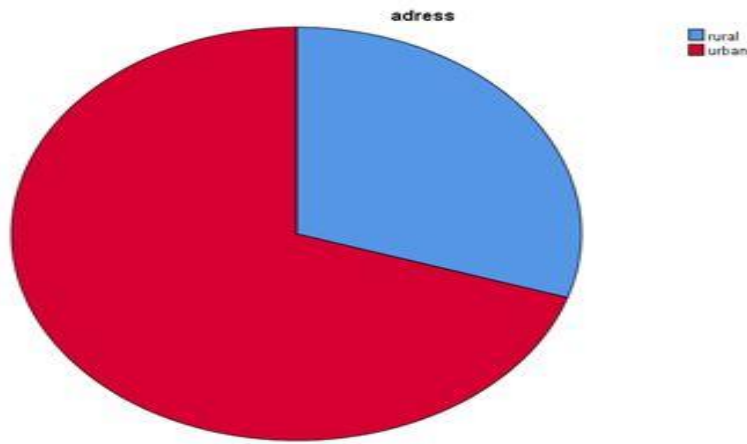**Figure 1:** Percentage of age group

adress

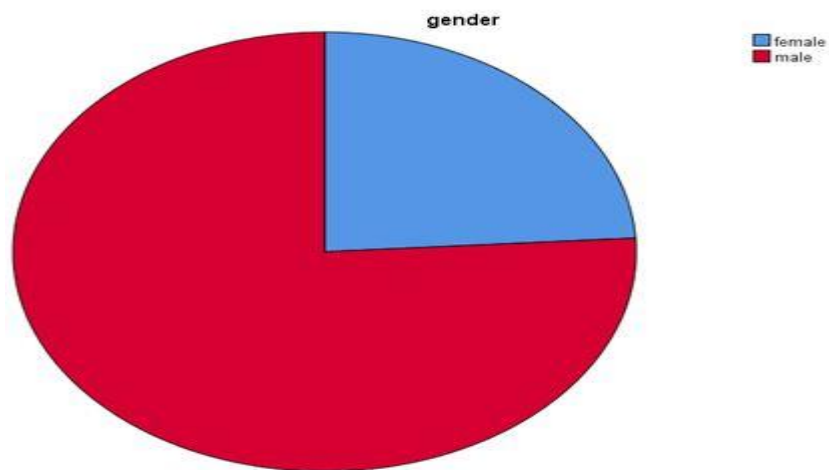**Figure 2:** Percentage of address

gender

Figure 3: Percentage of gender

Part II:

Depression Severeity: 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severee, 20-27 severee. The most of cases were moderated and mild in severeity as showed in table below: Table: the mean of variables

Table2: Total score of PHQ9

		Frequency	Percent%
Scores	none	7	14.0
	mild	14	28.0
	moderate	17	34.0
	moderate to severe	7	14.0

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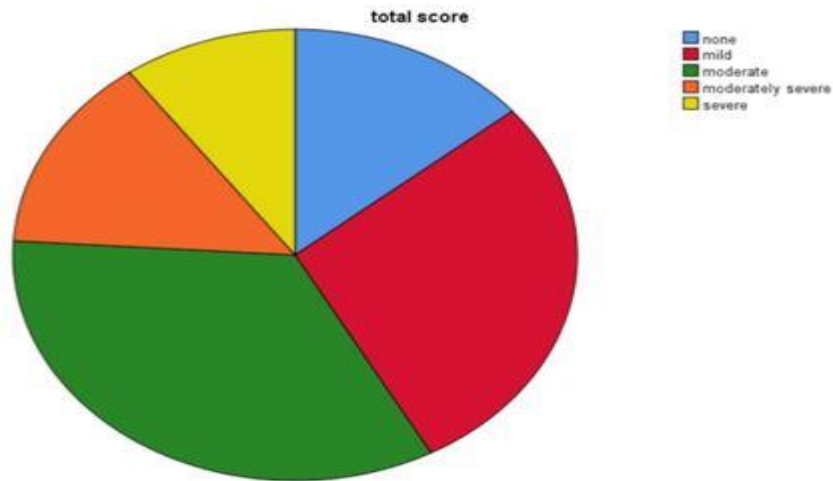| severe | 5 | 10.0 |
| Total | 50 | 100.0 |

Figure 4: Percentage of total score

Part III (**The association between PHQ-9 questionnaire and risk factors**)
The association between PHQ-9 questionnaire and risk factors by using Pearson Chi-Square and according to the p value as showed below:

Table 3: The association between PHQ-9 questionnaire and risk factors

Variables	P value	Significant or not
Gender and total score	0.300	Not significant
Age group and total score	0.023	significant
Smoker and total score	0.019	significant
DM and total score	0.869	Not significant
Hypertension and total score	0.184	Not significant
Hyperlipidemia and total score	0.071	Not significant
physical activity and total score	0.139	Not significant
psychiatric illness and total score	0.005	significant

1. age group and total score
The result showed that the association between the age group and total score was significant and that mean the total score increase with age as showed

Table 4: Age group and total score association

Age group	Total score

		None	Mild	Moderate	Moderate to severe	Severe
less than 40	% within age group	20.0%	60.0%	20.0%		
	% within total score	14.3%	21.4%	5.9%		
40-60	% within age group	26.3%	42.1%	15.8%	5.3%	10.5%
	% within total score	71.4%	57.1%	17.6%	14.3%	40.0%
more than 60	% within age group	3.8%	11.5%	50.0%	23.1%	11.5%
	% within total score	14.3%	21.4%	76.5%	85.7%	60.0%
Total	% within age group	14.0%	28.0%	34.0%	14.0%	10.0%
	% within total score	100%	100%	100.0%	100.0%	100.0%

2. Smoker and total score

The result showed that the association between the Smoker and total score was significant and that mean the total score is less with smoker more than none smoker and the severe cases increase in non smoker (71.4%). The mild cases were found in smoker patient more than in non smoker as showed in table below:

Table 5: Smoker and total score association

			Total score				
			None	Mild	Moderate	Moderate to severe	Severe
smoker	No	% within smoker	24.0%	12.0%	28.0%	20.0%	16.0%
		% within total score	85.7%	21.4%	41.2%	71.4%	80.0%

Yes	% within smoker	4.0%	44.0%	40.0%	8.0%	4.0%
	% within total score	14.3%	78.6%	58.8%	28.6%	20.0%
Total	% within smoker	14.0%	28.0%	34.0%	14.0%	10.0%
	% within total score	100.0%	100.0%	100.0%	100.0%	100.0%

3. psychiatric illness and total score
The result showed that the association between the age group and total score was highly significant (P value= 0.005) and that mean the patient who had psychological illness had more score than who did not have and the severe cases found in patients with psychological illness (70.1% from severee cases had psychological illness.

Table 6: Psychiatric illness and total score association

			Total score				
			None	Mild	Moderate	Moderate to severe	Severe
psychiatric illness	no	% within psychiatric illness	17.5%	32.5%	35.0%	5.0%	10.0%
		% within total score	100.0%	92.9%	82.4%	28.6%	80.0%
	yes	% within psychiatric illness		10.0%	30.0%	50.0%	10.0%
		% within total score		7.1%	17.6%	71.4%	20.0%
Total		% within psychiatric illness	14.0%	28.0%	34.0%	14.0%	10.0%

% within total score	100.0%	100%	100.0%	100.0%	100%

Discussion

This study showed that depressive symptoms is common in people who suffering from acute myocardial infarction, with age group more than 60 years had higher risk compared to others as compared to study done for people with Post-Acute myocardial infarction [35] the high risk age was above 60 years. Risk factors for developing post-MI depression include Complications during hospital admission, prescribing benzodiazepines during admission to the hospital, previous history of mood disorders, and inability to cease smoking.

Figueiredo et al. (2017) [36] reported sex, age above 60 years, and a history of significant mood disorders were all related to an elevated risk for depressive disorders after AMI, The rise in the incidence of depressive disorders (23%) in post-MI people over the age of 60 was statistically non-significant while in this study was (50%) with moderate and (23.1%) with severee score of depression.

Research has shown that no-smoking, age group and psychiatric illness are related to increase risk of depression post-ACS and (Paperwalla, Khatija N., et al) [37] show a significant relation between non smoker and depression as compared to [Marchesi C, Ossola P et al 2014] [38] and [Murphy, Barbara, et al] [39] that done for Anxiety and Depression After a Cardiac Event that show the association between smoking and depression.

People who had history of previous AMI were lower possibility to suffer from depressive symptoms compared to people who presented with first attack of AMI [40]. May be due to make them thinking that are associated with the decreased overall quality of life, but also increase the death rate of patients with MI rather than patient how undergo severeal attacks.

Amin et al. (2006) showed the prevalence of depression to be 17.6% in their participants with a mean age of 61.5 ± 12.9 year and that mean of age was the same in this study. [41]

The results of the study show the effect of many risk factors in rising risks of post-event anxiety and mood disorders, demonstrating that having severeal risk factors may elevate one's mental health risk. Being under 60 was identified as the single most important risk factor for either anxiety or mood disorder in late recovery, with having DM and HT.

The VIRGO study, a wide spread study based on 3,572 participants' data with AMI, reported half of females to have depressive manifestations in their life. Overall, half of the study participants were married (94% in this study), 95% of the participants attended higher school or above (12% in this study).

In comparison this study with VIRGO study Depression was more prevalent in younger subjects with ACS [42] .

Conclusion:

Depression is a common disorder in our society. AMI has associated with increased risk of depression especially in old age patients. smoker patients had lower PHQ-9 comparing with non-smoker patients

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