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Original Research Article

Depression, Anxiety, Stress and its Association with Socio-Demographics Characteristics among Patients Waiting Prior to Elective Coronary Angiography

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Abstract

Objective: To estimate prevalence of depression, anxiety, stress and its association with socio-demographic characteristics among patients, waiting prior to elective coronary angiography. ***Methodology:*** This cross-sectional analytical study was conducted in National Institute of Cardiovascular Diseases (NICVD). A total of 349 adult patients, waiting for elective angiography were part of this study. DASS-21(Depression, Anxiety, Stress scale-21) was used to assess depression, anxiety and stress among study participants. Data were by using SPSS version 21.0. Chi-square test was performed to estimate the association of demographics characteristics with stress, anxiety and depression. ***Conclusion:*** This study concludes that depression and anxiety were significantly associated with educational level and monthly income. Furthermore, stress level was significantly associated with only educational level of the study participants.

Keywords: Depression, Anxiety, Stress, patient, Coronary angiography.

INTRODUCTION

Cardiovascular diseases (CVDs) are the leading cause of death and chronic diseases with an elevated risk of death [1]. Coronary artery disease (CAD) is a common issue and the leading cause of death around the world [2]. Coronary angiography is a minimally invasive procedure that uses a specific radiopaque contrast agent injected into coronary arteries to accurately evaluate coronary artery stenosis [3].

The perioperative phase is one of the most stressful times for most surgery patients. Frequently, emotional, cognitive, and physiological responses are produced. Before, during, and after surgery, perioperative nursing care attempts to improve a patient's environment and quality of life [4]. Undergoing coronary angiography is very stressful experience for many patients; High level of anxiety and stress can have adverse effects on cardiovascular system. Stress, which is generally defined as the 'common reaction process to something that challenges an individual mentally and physically. Causing distress 'frequently focuses on problem solving strategies. Situational factors leading to stress may arise from lack of support from external sources or wrong inadequate knowledge and education [5].

Anxiety is a situation in which a person feels concerned and their sympathetic system is activated in response to a vague and unclear threat. Anxiety and stress can cause cardiovascular problems. Changes in cardiovascular function, such as cardiac irritability, increased basal metabolic rate, and elevated blood pressure, can be caused by high levels of worry and stress [6].

There are many listed reasons of anxiety among those who are planned for CAG however, crucial cause is lack of pre knowledge regarding CAG

procedure, lengthy waiting time, death terror and results outcome of procedure [7]. Anxiety defined in response of threat it is depend upon internal battle or may be unknown [8].

High levels of anxiety immediately after treatment, as well as during discharge, are connected to high levels of worry before the treatment [9]. Anxiety can cause physiological parameters including respiratory rate, heart rate, blood pressure, and catecholamine release to rise, increasing the myocardial oxygen demand [10].

Thence, the stress phenomena and its unfavorable impact on society's function are intriguing in variety of areas, as like public health. It is incomprehensible for people to operate in a serene environment. Respectively, in order to promote the status of the patient's health, it's important to minimize the negative impact in the health sector. When any procedure is necessary, hospital stay enhance stress among patients. Additionally, waiting before cardiac procedure effect patient stress response as compare to another surgery [11]. The aim of this study is to found out the anxiety, stress and depression among patients waiting prior to elective coronary angiography.

METHODOLOGY

This cross-sectional analytical design study was conducted at National Institute of Cardiovascular Diseases hospital Karachi (NICVD). The sample size was calculated on OpenEpi software Calculated sample size was 349 with prevalence of 65.27% anxiety, 95% of confidence interval and 5% of level of significance [12]. Data were collected after approval from Institutional Review Committee (IRC) of Dow Institute of Nursing and Midwifery (DIONAM) (Ref. No: ION/MSN/2019) and Ethical Review committee (ERC) of NICVD (ref #: ERC-18/2020).

Data was collected from July 2019 to June 2020 through Self-developed demographic questionnaire and Depression, Anxiety and Stress Scale -21 items (DASS-21). Pilot study was conducted on 30 participants. The internal consistency of the scale has checked by Cronbach's alpha and calculated values were 0.87, 0.84 and 0.80 for stress, anxiety, and depression, respectively [13]. DASS 21 consists of 21 items and each item score on 0 to 3 rating scale. Where 0 is for (Did not apply to me at all), 1 (Applied to me to some degree, or some of the time), 2 (Applied to me to a considerable degree, or a good part of time) and 3 (Applied to me very much, or most of the time). Overall scores for depression are as follows 0-9 for (Normal), 10-13 for (Mild), 14-20 for (Moderate), 21-27 for (severe) and greater than 27 considered as extremely severe. The score for anxiety from 0-7 is for (normal), 8-9 for (Mild), 10-14 for (moderate), and 15-19 for (severe) and greater than 20 has consider as very severe. Whereas, the stress scales score from 0-14 is normal, 15-18 mild, 19-25 moderate, 26-33 severe and ≥34 has counted as very severe stress. Questions categorizes for stress are Q1, Q6, Q8, Q11, Q12, Q14, Q18 for anxiety Q2, Q4, Q7, Q9, Q15, Q19, Q20 and for Q3, Q5, Q10, Q13, Q16, Q17, Q21 respectively. Furthermore, these scores have multiplied by 2 for total score of depression, anxiety and stress. Data were analyzed by SPSS version 21.0. The chi-square test used to explore the association between demographic variable with depression anxiety and stress.

RESULTS

Result of this study highlighted that majority of the participants (61.03%) were male and mean age of the participants (89.4%) was above 35 years. Furthermore, most of the participants (61%) were uneducated and 94.8% were married.

Finding of this study revealed that 72.49% of the participants had overall depression level including mild, moderate and severe/very severe categories. There is a significant association of educational status and monthly income with depression and the P-value is 0.002 and <0.0001 respectively.

Table I- Association of demographic characteristics with Depression

Variables		Normal	Mild	Moderate	Severe/very severe	P–value
Age	20-35 years	6 (1.71%)	14 (4.01)	12 (3.43)	5 (91.43)	0.127
	36 and more	90 (25.78)	81 23.20)	119 (34.09)	22 (6.30)	
Gender	Male	73 (20.91)	55 15.75)	85 24.35)	19 5.44)	0.060
	Female	23 (6.59)	40 (11.46)	46 13.18)	8 (2.29)	
Educational level	Primary/ uneducated	50 (14.32)	58 (6.61)	86 (24.64)	20 (5.73)	0.002*
	Matric	13 (3.72)	22 (6.30)	25 (7.16)	6 (1.71)	
	Others	33(9.45)	15 (4.29)	20 (5.73)	1 (0.28)	
Marital status	unmarried	3 (0.85)	5 (1.43)	9 (2.57)	1 (0.28)	0.634
	married	93 (26.64)	90 (25.78)	122 (34.95)	26 (7.44)	
Job status	private	32 (9.16)	25 (7.16)	29 (8.30)	5 (1.43)	0.333
	Government	16 (4.58)	13 (3.72)	20 (5.73)	5 (1.43)	
	Business	15 (4.29)	14 (4.01)	16 (4.58)	7 (2.00)	
	Other	33 (9.45)	43 (12.32)	66 (18.91)	10 (2.86)	
Monthly income	< then 10000	35 (10.02)	41 (11.74)	83 (23.78)	8 (2.29)	
	10000-20000	20 (5.73)	16 (4.58)	19 (5.44)	4 (1.14)	<0.001*

Variables		Normal	Mild	Moderate	Severe/very severe	P–value
	>then 20000	41 (11.74)	38 (10.88)	29 (8.30)	15 (4.29)	
Co-Morbid	Diabetic	37 (10.60)	37 (10.60)	54 (15.47)	14 (4.01)	0.724
	Hypertension	20 (5.73)	24 (6.87)	28 (8.02)	7 (2.00)	
	Others	39 (11.17)	34 (9.74)	49 (14.04)	6 (1.71)	

P-Value ≤0.05 is significant*

Finding of this study evident that 79.36% of the participants had overall anxiety level. There is significant associations of anxiety level with educational level and monthly income with P-value <0.001 and 0.021 respectively.

Table II- Association of demographic characteristics with Anxiety

Variables		Normal	Mild	Moderate	Severe / very severe	P –value
Age	20-35 years	6 (1.71)	3 (0.85)	16 (4.58)	12 (3.43)	0.584
	36 and more	66 (18.91)	32 (9.16)	100 (28.65)	114 (32.66)	
Gender	Male	55 (15.75)	22 (6.30)	79 (22.63)	76 (21.77)	0.129
	Female	17 (4.87)	13 (3.72)	37 (10.60)	50 (14.32)	
Educational level	Primary/ uneducated	35 (10.02)	22 (6.30)	70 (22.92)	87 (24.9)	<0.001*
	Matric	6 (1.71)	5 (1.43)	29 (8.30)	26 (7.44)	
	Others	31 (8.88)	8 (2.29)	17 (4.87)	69 (19.77)	
Marital status	unmarried	2 (6.57)	2 (0.57)	8 (2.29)	6 (1.71)	0.656
	Married	70 (20.05)	33 (9.45)	108 (30.9)	120 (34.38)	
Job status	Private	23 (6.59)	11 (3.15)	31 (8.88)	26 (7.44)	0.756
	Government	10 (2.86)	05 (1.43)	21 (6.01)	18 (5.15)	
	Business	12 (3.43)	4 (1.14)	16 (4.58)	20 (5.73)	
	Other	27 (7.73)	15 (4.59)	48 (13.75)	62 (17.7)	
Monthly income	< 10000	22 (6.30)	19 (5.44)	54 (15.42)	72 (20.63)	0.021*
	10000-20000	14 (4.01)	5 (1.43)	23 (6.59)	17 (4.87)	
	> 20000	36 (16.31)	11 (3.15)	39 (12.17)	15 (4.29)	
Co-Morbid	Diabetic	24 (6.87)	12 (3.43)	46 (13.1)	60 (17.19)	0.419
	Hypertension	17 (4.87)	11 (3.15)	27 (7.73)	24 (6.87)	
	Others	31 (8.88)	12 (3.43)	43 (12.3)	42 (12.03)	

P-Value ≤0.05 is significant*

Results of this study showed in table-III that 32.95% participants had stress level for mild, moderate, severs and extremely severe. In addition, education level is significantly associated with stress and P-value 0.003.

Table III- Association of demographic characteristics with Stress

Variables		Normal	Mild	Moderate	Severe /very severe	P –value
Age	20-35 years	19 (5.44)	10 (2.86)	5 (1.43)	5 (1.43)	0.17
	36 and more	215(61.60)	50 (14.32)	33 (9.45)	14 (4.01)	
Gender	Male	161 (46.13)	35 (10.02)	23 (6.59)	13 (3.72)	0.29
	Female	73 (20.91)	25 (7.16)	15 (4.29)	4 (1.14)	
Educational level	Primary/ uneducated	140 (41.11)	40 (11.46)	23 (6.59)	11 (3.15)	0.03*
	Matric	35 (10.02)	13 (3.72)	13 (3.72)	5 (1.43)	
	Others	59 (16.90)	07 (2.00)	2 (0.57)	1 (0.28)	
Marital status	unmarried	10 (2.86)	5 (1.43)	2 (0.57)	1 (0.28)	0.65
	married	224 (64.18)	55 (15.75)	36 (10.31)	16 (4.58)	
Job status	private	66 (18.91)	14 (4.07)	7 (2.00)	4 (1.14)	0.33
	Government	38 (10.88)	7 (2.00)	7 (2.00)	2 (0.57)	
	Business	33 (9.45)	8 (2.29)	7 (2.00)	4 (1.14)	
	Other	33 (9.45)	31 (8.88)	17 (4.87)	7 (2.00)	
Monthly income	< then 10000	104 (29.79)	36 10.31)	19 (5.44)	8 (2.29)	0.52
	10000-20000	43 (12.32)	8 (2.29)	6 (1.71)	2 (0.57)	
	>then 20000	87 (24.92)	16 (4.58)	13 (3.72)	7 (2.00)	
Co-Morbid	Diabetic	90 (20.78)	22 (6.30)	17 (4.87)	13 (3.72)	0.05
	Hypertension	53 (15.18)	13 (3.72)	10 (2.86)	3 (0.85)	
	Others	91 (26.07)	7.16)	11 (3.15)	1(0.28)	

P-Value ≤0.05 is significant*

DISCUSSION

This study finding revealed that overall depression level among pre-operative angiographic patients was 253 (72.49%). These findings were supported by the studies conducted in China 2016 [13], Palestine 2019 [14] and Sydney 2010 [15]. While this finding was contradicted by Iran 2018 [12].

Results of this present study revealed that depression was statistically significant associated with level of education and monthly income. These finding were supported by the study conducted in Portugal 2014 [16]. Some demographics variables were significantly associated with depression in this study. These finding were supported by Ethiopia 2018 [17] and Brazil 2019 [18]. Whereas opposite results were shown by Portugal 2014 [16] Iran 2015 [19], Ethiopia 2018 [17], Brazil 2019 [18].

The study also found that 277 (79.36%) of patients awaiting prior coronary angiography were suffered with anxiety. These finding were consistent with those obtained by Jordan 2020 [20], Ethiopia 2018 [17] and Netherland 2017 [21]. Study conducted in Palestine 2019 [22] was opposed the findings of this study.

Outcomes of this study highlighted men showed higher levels of anxiety than female. The results obtained from this study are contradicted with studies conducted in Netherland 2017[(21)], Ethiopia 2018 [17], Iran 2015 [19], and India 2016 [23].

The findings of this study showed that anxiety was significantly associated with level of Education. These finding were supported by the study conducted in Poland 2016 [20] and Ethiopia 2018 [17], India 2016 [23]. On the other hand, studies conducted in Netherland 2017 [21], and Jordan 2020 [20] were not supported the findings.

Results of this current study highlighted that nearly 1/3 of the participants 32.95% were suffered with stress. These finding were similar with the studies conducted in Palestine 2019 [22], Iran 2009 [24].

Finding of this current study shows that level of stress among patient is statistically significant to level of education. Nevertheless, other demographic variable and level of stress has no association among pre angiographic patient. These findings contradict by the study conducted in Poland 2016 [20]. Furthermore, the obtained values of current study shown some variables including gender, marital status, job status and co-morbid were not significantly associated with stress level. Whereas, these findings were not supported by Poland 2016 [20] and Iran 2015 [19].

CONCLUSION

Findings of this current study revealed that when patients awaiting prior coronary angiography have greater risk and increase levels of anxiety depression and stress. Depression is significantly associated with educational level and monthly income and educational level and monthly income were significantly associated with anxiety level. In addition, stress level is significantly associated with educational level.

RECOMMENDATION

- Studies can be conducted at multiple settings on higher level.
- Interventional studies need to be conducted, in order to find out the effectiveness of nursing interventions and for the reduction of psychological pressure among patients waiting for their procedures.

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