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Association between knowledge and anxiety level among patients undergoing coronary angiography in tertiary care hospitals of Peshawar.

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ABSTRACT

INTRODUCTION: Coronary artery disease (CAD) leads to mortality and morbidity globally. Approximately, 18 million deaths occurred due to cardiovascular diseases. Objective: To determine the association between knowledge about coronary angiography and anxiety level among patients undergoing coronary angiography.

MATERIAL AND METHODS: Analytical cross-sectional study was conducted in two major public-sector hospitals between September 2017 to March 2018. A total of 264 patients were recruited in the study Rusing a non-probability convenience sampling technique. A modified questionnaire about coronary angiography was distributed among participants and the HADS scale was used to assess the anxiety level of the participants. SPSS version 22 was used for data analysis.

RESULTS: The mean knowledge score of the participants about angiography was 17.88 ± 4.047. The total knowledge score of both hospitals was good knowledge (6%), fair knowledge (42%) and had poor knowledge (52%). Regarding anxiety level, the participants of both hospitals experienced a high level of anxiety i.e. mild (20%), moderate (34%) & sever (10%). A significant association was found between knowledge and anxiety levels among the participants of both hospitals with a p-value of <0.001.

CONCLUSIONS: This study found a significant association between patient's knowledge about coronary angiography and anxiety level among patients undergoing coronary angiography. The study puts forwards that nurses shall assess the patient's knowledge before coronary angiography procedure. The provision of accurate knowledge renders categorical purpose to this procedure for salubrious patients' outcomes.

KEY WORDS: Coronary artery disease (CAD), coronary angiography (CAG), anxiety, knowledge.

INTRODUCTION

Coronary artery disease (CAD) has been a significant cause of profound morbidity and mortality among cardiac patients around the world [1]. According to the World Health Organization (WHO) statistics about 18 million deaths occurred due to cardiovascular diseases and among them, 7.6 million were patients having coronary artery diseases in 2008 [2]. In Pakistan's mortality rate of CAD, patients have been reported as 110.65/100000 by the year 2014 [3].

Subsequently, CAD results from atherosclerotic plaque in the coronary arterie [4]. Particularly, substantial evidence implies that anxiety is one of the major risk factors for CAD enhancement [5]. Besides, the International Classification of Diseases (ICD) transparently designates anxiety as more than twice the risk for the augment of CAD [6]. As a matter of fact that, it could be considerably precarious to end up on deaths [7]. As well, Coronary Angiography is the gold standard, an invasive and non-surgical procedure that is required for the diagnosis and analysis of CAD needing patients' hospitalization [8]. Alike, a coronary angiography procedure needs a particular protocol and suitable information for admitted patients. In Khyber Pakhtunkhwa, tertiary care hospitals of Peshawar, chiefly Hayatabad Medical Complex (HMC) and Lady Reading Hospital (LRH) are the only two main hospitals offering cardiac health services for angiography patient.

In like manner, anxiety is a state of nervousness, apprehension, mental strain or worry about probable future problem[9]. Mild anxiety before coronary angiography is a prevalent occurrence amongst patients. Nonetheless, when it exceeds to stern anxiety level, it may harmfully affect patient outcomes that may prolong hospital stay, refusal from the procedure, cardiac incident or even death occurrence [10]. The existing literature reports many contributing factors for anxiety; waiting time for coronary angiography,fear from cardiac catheterization unit, angiography consequence, and panic from a complication of angiography [11]. On the other hand, the most widespread cause of anxiety is the lack of knowledge about angiography procedure [12-13]. To illustrate this point, assessing knowledge and anxiety level before angiography is one of the important tasks of the health care team.

The essential role and participation of nurses in the assessment and preparation are assistive pertinent to the patients for coronary angiography. In this context, nurses should be aware of the best assessing method of knowledge and anxiety level of the patients who are undergoing coronary angiography. Anxiety is manageable not only by pharmacological interventions but also by non-pharmacological ones [11]. However, it is observed that nurses feel difficulty to deal with patient's anxiety before angiography procedure [11]. Little is known regarding the patient's knowledge and its association with their anxiety level in public sector hospitals of Pakistan. Consequently, this study may facilitate to identify the association between knowledge and anxiety level amongst patients undergoing coronary angiography across Pakistan's medical practitioners.

MATERIAL AND METHODS

This analytical cross-sectional study was conducted to find the association between knowledge and anxiety levels among patients undergoing coronary angiography. Moreover, the study population was admitted patients in the two major public hospitals, HMC and LRH Peshawar, KPK. Conspicuously, the participants were selected from the Cardiology units, Coronary Care Unit, Cardiac Rehabilitation Centre and cardiac Catheterization Lab of these hospitals. The sample size was calculated on the WHO software calculator with a 95 % confidence interval, the prevalence was anticipated about 22% [13] with a significance level of 0.05. Prevalence was taken as 22% by measurement tool of anxiety level. Next, the sample size 264 was divided into the selected hospital HMC & LRH. A convenience sampling technique was used to collect the sample. The inclusion criteria for the study were adult patients who were undergoing coronary angiography for the first time. The age of the participants was greater than 18 years and who were willing to partake in the study. A patient receiving any other invasive procedure were excluded from the study. Before data collection ethical approval was obtained from the Ethical Review Committee of Khyber Medical University. A well explained participant's information sheet regarding the study was distributed among all participants before data collection to ensure their safety and confidentiality. Patients who were constant and enthusiastic to participate in the study were provided consent form to indemnify their autonomy, privacy, and confidentiality.

A structured questionnaire was provided to the participants who were admitted tothe cardiology ward or coming directly from their home to the cardiac catheterization lab. After that, the data was collected after explaining them the questionnaire. The questionnaire was adopted and modified by reviewing relevant literature about study objectives. It had three components. The first part included demographic data such as age, gender, qualification, etc. The second part was to determine the knowledge of patients regarding angiography which comprised 11 items in the following categories: 'Good knowledge' (?80%), 'Fair knowledge' (51 to <80%) and 'Poor knowledge' (<50%). The third part was adopted scale: Hospital Anxiety and Depression Scale (HADS) to evaluate the anxiety level of the participants [14]. The reliability of the HADS tool by Cronbach's alpha score ranges from.68 to.93 (mean.83) [15]. This tool has been translated into Urdu language and was pilot tested on 10% of the total sample size for language refinement. Data wereanalyzed via SPSS 22 program. Pearson Chi-square test was applied to find the association among variables and calculating the significance between categorical data.

RESULTS

The response rate of the questionnaire was 100%. Out of 264 participants, 137 were male and 127 were females. The overall demographic summary of the participants is given in Table 1. The mean knowledge score of the participants about Coronary Angiography (CAG) was 17.88 ± 4·047. Only 15(6%) of patients had good knowledge, 110(42%) fair knowledge while 139(52%) of patients had poor knowledge about CAG. The results of the study were shown in Table 2.

Table 1. Demographic characteristic of the participants

	Variables	n	%
Gender	Male	137	51.9
	Female	127	48.1
Age	Less than or equal to 30 Years	7	2.7
	31-60 Years	168	63.6
	Greater than 60 Years	89	33.7
Residence	Urban	84	31.8
	Rural	180	68.2
Educationlevel	Illiterate	178	67.4
	Primary	34	12.9
	Secondary	37	14.0
	Degree	15	5.7
Marital status	Unmarried	10	3.8
	Married	238	90.2
	Widowed	15	5.7
	Divorced	1	0.4
Occupation	Unemployed	65	24.6
	Employed	66	25.0
	Retired	5	1.9
	House Wife	128	48.5

No significant association was found between patient's knowledge about CAG with the marital status of the participants i.e. 0.124 p-values. However, a significant association <0.001 p-valueswere found with age, 31 to 60 years of participants had good knowledge while less than 31 years and greater than 60 years had poor knowledge. A significant association was also found with residence, urban had more knowledge than rural participants. Similarly, a significant association was found in qualification, educated participants had good knowledge than illiterate participants. Furthermore, in occupation, unemployed and house-wives had poor knowledge whereas employed participants had good knowledge about CAG. Regarding anxiety level, the participants of both hospitals were found Mild anxiety 52(20%), Moderate 89(34%) and severe anxiety 28(10%). Table 3 demonstrates the results of the anxiety level of the participants of both hospitals.

A significant association was found in gender, qualification, and occupation of patients with anxiety. Females had higher anxiety levels than male i.e.<0.001 p-values. As concerned with the patient's academic qualifications, illiterate participants had higher anxiety levels than participants who were educated. Likewise, similar results were found in the patient's occupations, unemployed and housewives had higher anxiety levels than employed participants.

Table 2. Hospital patient's knowledge about coronary angiography.

No	Items	Hospital *	[N] Don'tknow (1)	[N] Incomplete(2)	[N] Complete(3)	Pearson Chi-Square	p-value
1	*I understand what is meant by the term coronary angiography.*	HMC	65 (49.2%)	55 (41.7%)	12 (9.1%)	13.718[a]	**0.001**
		LRH	37 (28.0%)	71 (53.8%)	24 (18.2%)		
2	*It is a diagnostic test & there is no therapeutic effect.*	HMC	81 (61.4%)	34 (25.8%)	17 (12.9%)	15.527[a]	**0.000**
		LRH	49 (37.1%)	56 (42.4%)	27 (20.5%)		
3	*I know about the insertion site for angiography.*	HMC	76 (57.6%)	34 (25.8%)	22 (16.7%)	10.265[a]	**0.006**
		LRH	50 (37.9%)	50 (37.9%)	32 (24.2%)		
4	*I know the fasting time before angiography.*	HMC	9 (6.8%)	85 (64.4%)	38 (28.8%)	11.555[a]	**0.003**
		LRH	3 (2.3%)	109 (82.6%)	20 (15.2%)		
5	*I know about the medication used before angiography.*	HMC	19 (14.4%)	111 (84.1%)	2 (1.5%)	2.412[a]	0.299
		LRH	11 (8.3%)	119 (90.2%)	2 (1.5%)		
6	*I know which investigation are required for CAG.*	HMC	82 (62.1%)	49 (37.1%)	1 (0.8%)	.779[a]	0.677
		LRH	75 (56.8%)	56 (42.4%)	1 (0.8%)		
7	*I know what kind of anaesthesia will be given before CAG.*	HMC	111 (84.1%)	13 (9.8%)	8 (6.1%)	5.687[a]	0.058
		LRH	95 (72.0%)	22 (16.7%)	15 (11.4%)		
8	*I know about the time duration of procedure.*	HMC	107 (81.1%)	19 (14.4%)	6 (4.5%)	2.179[a]	0.336
		LRH	97 (73.5%)	26 (19.7%)	9 (6.8%)		
9	*I got information from doctors about procedure.*	HMC	11 (8.3%)	118 (89.4%)	3 (2.3%)	866[a]	0.648
		LRH	15 (11.4%)	113 (85.6%)	4 (3.0%)		
10	*I got information from nurses*	HMC	29 (22.0%)	103 (78.0%)	0 (0.0%)	78.563[a]	**0.000**
		LRH	101 (76.5%)	31 (23.5%)	0 (0.0%)		
11	*I got information from family members/colleagues*	HMC	109 (82.6%)	22 (16.7%)	1 (0.8%)	3.669[a]	0.160
		LRH	105 (79.5%)	21 (15.9%)	6 (4.5%)		

** HMC - Hayatabad Medical Complex; LRH - Lady Reading Hospital*

Table 3. Hospital patient's anxiety level.

Hospital		Normal	Mild	Moderate	Severe
Hayatabad Medical Complex	Frequency	53	23	39	17
	Percentage	40%	17%	30%	13%
Lady Reading Hospital	Frequency	42	29	50	11
	Percentage	32%	22%	38%	8%
Total	Frequency	95	52	89	28
	Percentage	36%	20%	34%	10%

Nevertheless, there was no significant association was found among the age, residence and marital status of the patients i.e. 0.727, 0.148 and 0.163 p-values. Likewise, there was alsoa significant association between knowledge and anxiety level among the participants of HMC and LRH i.e. 0.087 and 0.000 p-values. The score of the p-value was presented in Table 4.

Table 4. Association between patients' knowledge and anxiety level.

Hospital	Anxiety Level	Patient's knowledge about coronary angiography (N=264)				Pearson Chi-Square	p-value
		Poor knowledge	Fair knowledge	Good knowledge	Total Counts/ Percentage		
Hayatabad Medical Complex	Normal	22(41.5%)	27(50.9%)	4(7.5%)	53/100%	11.044[b]	0.087
	Mild	14(60.9%)	7(30.4%)	2(8.7%)	23/100%		
	Moderate	26(65.7%)	13(33.3%)	0(1.0%)	39/100%		
	Severe	12(70.6%)	5(28.4%)	0(1.0%)	17/100%		
	Total	74(56.1%)	52(39.4%)	6(4.5%)	132/100%		
Lady Reading Hospital	Normal	7(16.7%)	27(64.3%)	8(19.0%)	42/100%	34.905[c]	0.000
	Mild	19(65.5%)	9(31.0%)	1(3.4%)	29/100%		
	Moderate	30(60.0%)	20(39.0%)	0(1.0%)	50/100%		
	Severe	9(80.8%)	2(18.2%)	0(1.0%)	11/100%		
	Total	65(49.2%)	58(43.9%)	9(6.8%)	132/100%		
Total	Normal	29(30.5%)	54(56.8%)	12(12.6%)	95/100%	38.199[a]	0.000
	Mild	33(63.5%)	16(30.8%)	3(5.8%)	52/100%		
	Moderate	56(62.9%)	33(36.1%)	0(1.0%)	89/100%		
	Severe	21(75.0%)	7(24.0%)	0(1.0%)	28/100%		
	Total	139(52.7%)	110(41.7%)	15(5.7%)	264/100%		

DISCUSSION

The findings of the present study indicated that the participants did not have sufficient knowledge regarding coronary angiography i.e. 17.88 ± 4.047(mean ± SD). Similarly, the existing studiem [16-17] also supported the results of the current study. Whereas, studies conducted in Egypt showed better knowledge score i.e. 21.90±4.08 and 33.18± 1·521 [18-19]. Indeed, the possible reason for the differences in the results could be the lack of institutional policy regarding the provision of teaching before CAG. Overall results of this study showed that the patients' source of information mostly were physicians who provided them 87% information, however, the majority of the participants reported that this information was incomplete. In contrast, a study conducted by Şat?roglu et al. in Turkey, demonstrated that 77% of patients were given information about CAG by the physician but their information was complete [17].

Also, the results of this study identified the score of moderate anxiety34% among patients which is consistent with a study reportedby Aboalizm et al in Egypt i.e. 30 %[18]. In contrast, a study published by

Ali. S.A. found moderate anxiety 50% in the participants of Iraq [20]. Moreover, the participants of the current study reported 'severe anxiety' 10%. The study by Tajfard et al also supports our results [21]. In contrast, the study in Egypt showeda higherlevel of severe anxiety i.e. 18% [18]. Differences in anxiety level could be due to many reasons which may be waiting time for the procedure, unfamiliar environment, and fear from complication, illiteracy, and lack of knowledge about CAG [10-11].

The current study found a considerable association between anxiety and gender. In terms of gender female patients reported higher anxiety (50%) as compared to male participants i.e. 18 %. A similar association was found in some other studies between anxiety and gender [18,20]. In contrast, studies conducted by Buzatto and Ulvik et al identified a higher level of anxiety in males than female patients [11,22]. The possible reason for different results could be the sociocultural background of the participants. Female in Khyber Pakhtunkhawa confined into homes as compared to the male who works outside and has more access to information. Moreover, male in this culture usually not very expressive their feelings, especially to the opposite gender. Besides, females have shared this information considering the researcher as of their gender. Other reason could be the disparity in the educational level of the male and female. As concerned with personal qualification, the present study revealed a higher level of moderate anxiety in illiterate participants i.e. 44%. The studies conducted by Aboalizm et al and Ali S.A. also found the significant association between anxiety and education level of the participants [18,20]. The possible reason is that the overall literacy rate in Pakistan is low. Next, the provision of the information by the hospital was almost no and the patients were also not able to use information technology or any other reliable source to get information on their own.

The present study demonstrated significant association (p-value ?0.001) and correlation (0.01) between the patient's knowledge and anxiety level. A study carried out by Aboalizm et al also supported the results of the present study [18]. In reality, the previous studiem [23-24] also indicated that the lack of information about the procedure is the main factor that increased the anxiety level of the patients and confirmed that a well-informed patient experienced fewer ankiety [20,25]. The findings of this study may helpful for in-service training programs for nurses, public health planning, generate hypotheses to understand the cause of anxiety undergoing CAG. Undeniably, the limitations of the study were snapshot study and non-random sampling technique which may be biased in choosing the sample for the study. The only association was found and unable to make causal inferences between the knowledge and anxiety level of the participants.

CONCLUSIONS

This study found a significant association between patient's knowledge and anxiety level before CAG. In this regard giving pertinent information to the patient can reduce the anxiety level of the patient undergoing CAG. Likewise, based on the findings of the study recommendations are set forth for nursing practice to timely assess the informational needs of the patients and give them health teaching for better patient outcomes.

SUPPLEMENTARY INFORMATION

Funding: *This research received no external funding.*
Institutional Review Statement: *The study was conducted according to the guidelines of the Declaration of Helsinki.*
Informed Consent Statement: *Informed consent was obtained from all subjects involved in the study.*
Data Availability Statement: *The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.*
Conflicts of Interest: *The authors declare no conflicts of interest.*
Disclaimer:*This study was conducted as part of the MS Nursing degree at Khyber Medical University.*

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