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Patients who will have an angiography or cateterization procedure: Anxiety factors

Dior Manta Tambunan[1], Nurhayati Marbun[2]
[1,2]Nursing Science Study Program, STIKes Murni Teguh, Medan, Indonesia

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ABSTRACT

Cardiac catheterization is an invasive diagnostic procedure. Cardiac catheterization is an action that can cause anxiety, including worrying about pain related to the procedure, being separated from family and friends and worrying about the results of the catheterization procedure which might be bad. The unclear feeling of Anxiety is fear accompanied by a feeling of uncertainty. The purpose of this study was to determine the factors associated with anxiety in patients undergoing cardiac catheterization. This type of research is descriptive analytic, with total sampling technique and the number of respondents is 40 people. Data analysis used the chi-square test and the Manova test. The results of the study used chi-square found that there was a relationship between anxiety and past experience, education, knowledge, age, and gender, with a p-value <0.005. The Manova test explains that there is a relationship between anxiety and past experience, age and gender with a p-value <0.005. Conversely, there is no relationship between anxiety and education and knowledge with a p-value > 0.005. It is recommended for future researchers to include more samples and add the independent variable family support, because this also affects patient anxiety in undergoing cardiac catheterization.

Corresponding Author:

Dior Manta Tambunan,
Nursing Science Study Program,
STIKes Murni Teguh,
Jl. Jawa No.2, Gg. Buntu, Kec. Medan Tim., Kota Medan, Sumatera Utara 20236
Email: dior.endlessbay@gmail.com

INTRODUCTION

Coronary Heart Disease (CHD) is a disease of the heart that occurs due to decreased blood supply to the heart muscle caused by atherosclerosis. Diagnostic examination of CHD can be detected invasively and non-invasively. One of the invasive procedures to detect blockages in the coronary arteries is cardiac catheterization, which is commonly called coronary angiography (CAG) intervention. Cardiac catheterization is an action that can cause anxiety, including worrying about pain related to the intervention, being separated from family and friends and worrying about the results of the catheterization intervention which might be bad (Hutagalung, Susilaningsih, & Mardiyah, 2014). Anxiety is an unclear feeling of fear accompanied by a feeling of uncertainty (Stuart, 2016).

Previous research conducted by Simanjuntak (2014) on 38 respondents at Adam Malik General Hospital in Medan found that the anxiety level of patients undergoing cardiac catheterization was moderate anxiety (55.3%), mild anxiety (31.6), and severe anxiety (13.2%). Another study of 44 patients aged 39-77 years stated that invasive medical procedures for cardiac catheterization were conceptualized as a crisis in cognitive abilities, and they said health education was important to be given to patients who will undergo cardiac catheterization as a psychological preparation for patients who will undergo cardiac catheterization. to reduce the psychological distress experienced by the patient (Elsay, Elshemy & Elsays, 2016).

This study is also supported by Carrol, Malecki-Ketchel, and Astin (2017) who said that health education about procedural and psychological preparation can reduce psychological stress in patients undergoing cardiac catheterization. The initial study used a questionnaire and observation conducted by the author on 10 patients who were going to undergo cardiac catheterization, 7 people said that they were worried about the intervention being taken. Based on the description above, the researcher is interested in conducting research which aims to find out patients who will have an angiography or cateterization procedure: anxiety factors. It will be recommended that this research can assist in providing knowledge references regarding factors that influence anxiety in patients undergoing cardiac catheterization. The results of this study will be disseminated to nurses who care for patients who have Cardiac Catheterization to improve the quality of patient care.

RESEARCH METHOD

This type of research is a quantitative research with an analytical descriptive design and a sample collection technique using total sampling and the number of samples were 40 people. The research location was in the third floor B Building inpatient room at Murni Teguh Medan Hospital and the research time was from May to August 2022. The instrument uses a knowledge level questionnaire with a total of 10 questions adopted from Ayu & Muflihatin (2020). While the anxiety level questionnaire uses the Hamilton Anxiety Rating Scale (HARS) with a total of 14 questions and is adopted from Chrisnawati & Aldino (2019). Data analysis using frequency distribution table, chi-square test and Manova test.

RESULTS AND DISCUSSIONS

After conducting research on 40 respondents related to anxiety in patients who will be undergo catheterization procedure/angiography, the results were as follows:

Table 1. Frequency Distribution of Respondents Based on Past Experience, Education, Knowledge, Age, Gender on Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography

No	Variable	Frequency (f)	Percentage (%)
1	Past Experience		
	Never	17	42,5%
	Once or More	23	57,5%
	Total	40	100%
2	Education		
	Never gone to School	8	20%
	Elementary School	11	27,5%
	Junior High School	14	35%
	Senior High School	2	5%
	Bachelor	5	12,5%
	Total	40	100%
3	Knowledge		
	Good	16	40%
	Fair	12	30%
	Poor	12	30%

	Total	40	100%
4	Age		
	35-50	14	35%
	50-60	19	47,5%
	60-70	7	17,5%
	Total	40	100%
5	Gender		
	Male	26	65%
	Female	14	35%
	Total	40	100%

Primary Data Source, 2022

Based on the table above it is known that out of 40 respondents that the majority had past experience of undergoing cardiac catheterization was 57.5%; the majority of junior high school education level was 35%; have a good level of knowledge was 40%; the majority aged 50 -60 years were 47.5%; and the majority of gender is male with 65%. Experience is something that has been experienced or felt, in the past or that has just happened (Saparwati, 2015). Patients who have had past experience of cardiac catheterization will know more about the intervention to be performed, so that patients will be calmer and have lower levels of anxiety than those who have never had experience of undergoing cardiac catheterization. This research is in line with Sutrisno (2018) at Eka Banten Hospital, with 30 respondents and there is a significant relationship between past experience and the level of anxiety when going through a cardiac catheterization procedure, with a chi-square test result of 0.005.

The research is similar with the study conducted by Budiman, Mulyadi and Lolong (2015) which showed that a person's low level of education would cause that person to experience anxiety easily, due to a person's lack of knowledge. Knowledge is closely related to education. However, it does not mean that people with low education also have low knowledge. As stated by Nasrul et al (2019) education level is the biggest factor causing anxiety. The lower the education level of a person, the anxiety will increase. High education will make a person have extensive knowledge so that he/she can solve problems, have high self-confidence, and have broad and experienced thoughts.

According to Nasution (2016) said that knowledge is an essential part of human existence, because knowledge is the fruit of thinking activities carried out by humans, thinking is a differentiation that separates humans from other species. Patients who have good knowledge can know and understand the conditions of the disease they are experiencing; preparation before, during and post care for undergoing a cardiac catheterization procedure. This can influence patients to act to reduce the level of anxiety they experience.

This study is similar with Rahmatika's research (2014), conducted on 36 respondents using the chi-square test showing a p-value of 0.000 and r = 0.05. This means that there is a significant relationship between knowledge and anxiety of patients undergoing cardiac catheterization in Banda Aceh. Another study by Nur Hasanah (2017) on 74 respondents, using the chi-square test also said that there was a relationship between knowledge and preoperative anxiety in Lampung with a p-value of 0.023. Studies show that the anxiety experienced by patients is due to worry about the surgical process being experienced, whether it is going well or not, and constantly thinking about the surgical process so that the surgical process results in the patient needing information about the surgical procedure.

Lasut, Lengkong, and Ogi (2017) said that age is the age of an individual that counts from birth to birthday. Increasing age affects the risk and severity of CHD, because blood vessels undergo progressive changes and last a long time from birth to death. Age has a strong relationship with the developmental process of atherosclerosis.

The risk of atherosclerosis increases at the age of more than 45 years in men, and more than 55 years in women because athrosclerosis causes blockages in the coronary arteries, causing a

decrease in oxygen supply and increasing the release of lactic acid which can stimulate nerves, causing chest pain (Zahrawardani, Herlambang & Anggraheny, 2013). Wijaya and Putri (2013) stated that the higher the age of the respondent, the higher the intensity of pain felt so that it can also cause excessive anxiety.

The research of Velyanna, Lestari, and Rahmawati (2017) in preoperative patients at Mitra Husada Pringsewu Hospital which stated that there was a relationship between gender and the anxiety level of preoperative patients. The existence of a significant relationship between gender and the level of anxiety before cardiac catheterization is in line with the theory which states that women have a higher level of anxiety than men. Because women are more sensitive to their emotions, which in turn are also sensitive to feelings of anxiety. This difference is not only influenced by emotional factors, but also influenced by cognitive factors.

Another study by Nisa, Livana, and Arisdiani (2019) explained that the female sex experienced more severe anxiety. Stuart's theory (2016), that women are more inclined to prioritize feelings than men who are more inclined to use logic. Study by Anugrah (2018) in a study that had more female respondents, showed a higher level of stress than male respondents. Another similar study by Nasrul et al (2019) found that there was a significant relationship between gender and anxiety in patients undergoing cardiac catheterization with a chi-square test result of 0.003 <0.005.

Table 2. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Past Experience

		Anxiety											
	Past Experience	Not Present		Mild		Moderate		Severe		N	total	Df	x^2 Hit
		N	%	N	%	N	%	N	%		%		
1	Tidak pernah	1	5,9	2	11,8	1	5,9	13	76,5	17	100	3	14,956
2	Pernah	0	0	8	34,8	10	43,5	5	21,7	23	100		

Primary Data Source, 2022

Based on the table above, there were 17 respondents who had never had past experience of cardiac catheterization, the majority had severe anxiety, 13 people with 76.5% and 23 respondents who had past experience with cardiac catheterization, and 10 of them had moderate anxiety with 43.5 %. The results of bivariate analysis were obtained from a comparison of x^2 calculated using the chi-square test with a confidence level of 95% and df=3. It is oobtained the x^2 count (14.956) > x^2 table (7.814) then Ha is accepted and Ho is rejected, thus there is a relationship between past experience and anxiety in patients who will undergo Cardiac Catheterization/Angiography at Murni Teguh Hospital.

Tabel 3. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Education.

		Anxiety											
	Education	Not Present		Mild		Mode-rate		Severe		N Total		Df	x^2 Hit
		N	%	N	%	N	%	N	%	N	%		
1	Never gone to School	0	0	0	0	1	12,5	7	87,5	8	100	12	30.329
2	Elementary School	0	0	5	45,5	3	27,3	3	27,3	11	100		
3	Junior High School	0	0	4	28,6	5	35,7	5	35,7	14	100		
4	Senior High School	1	50	0	0	1	50	0	0	2	100		
5	Bachelor	0	0	1	20	1	20	3	60	5	100		

Based on the table above, the education level of respondents who did not go to school was 8 persons, experiencing severe anxiety was 7 persons with 87.5%. While Elementary school from 11 respondents that had mild anxiety was 45.5% with 5 respondents. Interestingly, the level of junior high school education had moderate (35.7) and severe (35.7%) anxiety with 5 respondents each. The results of bivariate analysis were obtained from a comparison of the x^2 count (30.329) > x^2 table (21.026) meaning that Ha was accepted and Ho was rejected, so there is a relationship between education level and anxiety in patients who will undergo cardiac catheterization at Murni Teguh Hospital.

Table 4. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Knowledge

		Anxiety											
	Education	Not Present		Mild		Moderate		Severe		N Total		Df	x^2
		N	%	N	%	N	%	n	%	N	%		
1	Good	0	0	3	18.8	2	12.5	11	68.8	16	100		
2	Fair	0	0	7	58.3	4	33.3	1	8.3	12	100	5	19.907
3	Poor	1	8.3	0	0	5	41.7	6	50	12	100		

Primary Data Source, 202

Based on the table above, knowledge level of 16 respondents that who had good knowledge was 11 respondents with severe anxiety (68.8%). Respondents who had fair knowledge with mild anxiety (58.3%) were 7 persons and 4 people had moderate anxiety (33.3%). Respondents who have poor knowledge who are not anxious there was 1 person (8.3%), 5 people (41.7%) who were moderate anxiety, and there were 6 people (50%) who had severe severe anxiety. The results of the bivariate analysis were obtained from a comparison of the x^2 count with the x^2 table. It is obtained x^2 count (19.907) > x^2 table (11.070) meaning that Ha is accepted and Ho is rejected, thus there is a relationship between knowledge and anxiety in patients who will undergo cardiac catheterization/angiography at Murni Teguh Hospital.

Table 5. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Age

		Anxiety											
	Age	Not Present		Mild		Moderate		Severe		N Total		Df	x^2
		N	%	N	%	N	%	N	%	N	%		
1	35-50	0	0	6	42,9	0	0	8	57,1	14	100		
2	50-60	0	0	4	21,1	6	31,6	9	47,4	19	100	6	19.19
3	60-70	1	14,3	0	0	5	71,4	1	14,3	7	100		5

primary Data Source, 2022

Based on the table above, 8 persons out of 14 respondents with aged 35-50 years were on severe anxiety (57.1%). There was 9 persons out of 19 respondents with aged 50-60 years were on severe anxiety 50-60 (47.4%). While 5 persons out of 7 respondents aged 60-70 years were on moderate anxiety (71.4%). The results of the bivariate analysis were obtained from a comparison of the x^2 count with the x^2 table. It is obtained x^2 count (19.195) > x^2 table (12.591) meaning that Ha is accepted and Ho is rejected, thus there is a relationship between age and anxiety in patients who will undergo cardiac catheterization/angiography at Murni Teguh Hospital.

Table 6. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Gender

	Gender	Not Present		Mild		Moderate		Severe		N Total		Df	x^2
		N	%	N	%	N	%	N	%	N	%		
1	Male	0	0	9	34,6	10	38,5	7	26,9	26	100		13.24
2	Female	1	7,1	1	7,1	1	7,1	11	78,6	14	100	3	5

Primary Data Sources 2022

Baesd on the table above, 10 males out of 26 respondents were on moderate anxiety (38.5%), and 9 males out of 26 respondents were on mild anxiety (34.6%. While 11 females out of 14 respondents were on severe anxiety (78.6%). The results of the bivariate analysis were obtained from a comparison of the x^2 count with the x^2 table. It is obtained x^2 count (13.245) > x^2 table (7.814) meaning that Ha is accepted and Ho is rejected, thus there is a relationship between gender and anxiety in patients who will undergo cardiac catheterization/angiography at Murni Teguh Hospital.

Table 7. Factors Related to Anxiety in Patients Who Will Undergo Cardiac Catheterization/Angiography Based on Past Experience, Education, Knowledge, Age, and Gender (Tests of Between-Subjects Effects)

Ource	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Past Experience	3.655[a]	3	1.218	7.166	.001
	Education	3.361[b]	3	1.120	.720	.547
	Knowledge	3.707[c]	3	1.236	1.862	.154
	Age	8.370[d]	3	2.790	8.807	.000
	Gender	3.013[e]	3	1.004	5.940	.002

Primary Data Sources, 2022

The tests of between-subjects effects using the Manova test found that the significant value of past experience was 0.001 <0.005. It can be concluded that the average past experience showed an effect on variable X (AO). While education has a significant value of 0.547 > 0.005 and knowledge 0.154 > 0.005, it can be concluded that education and knowledge have no effect on variable X (AO). Interestingly, age showed a significant value of 0.000 <0.005, it was concluded that there was an effect of age on variable X (AO). In terms of gender, a significant value of 0.002 <0.005 was obtained, it was concluded that there was an effect of gender on variable X (AO).

Patients who have undergone cardiac catheterization before will definitely have a different level of anxiety than patients who have never undergone cardiac catheterization. Patients who have undergone cardiac catheterization must already know how the cardiac catheterization procedure works. Experience also affects the patient's anxiety and psychological disturbance, if the patient has already experienced the procedure, the psychological pressure will not be disturbed. Elsay, Elshemy and Elsays (2016) which states that the psychological preparation of patients who will undergo cardiac catheterization is important to reduce the psychological stress experienced by patients, waiting for procedures can be a major source of stress and anxiety, these feelings are directly related to the invasive nature of the procedure and the uncertainty associated with diagnosis.

Elderly is the final stage of development in the human life cycle which is a natural process that cannot be avoided by every individual. One of the psychological problems that often occur in the elderly in conditions of social life is anxiety. Anxiety is defined as an emotional condition that causes discomfort characterized by feelings of worry, anxiety and fear so that it can interfere with life according to Freud. One of the risk factors in patients with coronary heart disease, where increasing age will raise the risk of developing coronary heart disease because blood vessels

experience progressive and continuous changes (Aaronson & Ward, 2010). In this study it was found that patients who were >60 years old experienced a more severe level of anxiety.

Heart disease is more prone to occur in men. Men do not have the hormone estrogen progesterone, women before menopause are relatively more susceptible to cardiovascular disease than men because women have a mechanism of the hormone estrogen and progesterone. The existence of a significant relationship between gender and the level of anxiety before cardiac catheterization is in line with the theory which states that women have a higher level of anxiety than men, because women are more sensitive to their emotions which in turn are also sensitive to feelings of anxiety. This difference is not only influenced by emotional factors, but also influenced by cognitive factors. Women are more likely to see life or the events they are experiencing in terms of detail, it will be easy for them to experience anxiety because they have more information and can finally suppress their feelings (Jamiyanti, Muliani, & Jundiah, 2012).

CONCLUSION

After conducting research and discussion of the patients who will have an angiography or cateterization procedure: anxiety factors, the following conclusions can be drawn for 40 respondents that there is a significant relationship between past experience and anxiety in patients who will undergo cardiac catheterization at Murni Teguh Hospital with the chi-square test results obtained p value 0.002 <0.005. There is a significant relationship between education and anxiety in patients who will undergo cardiac catheterization at Murni Teguh Hospital. From the results of the chi-square test, a p value of 0.002 <0.005 means that there is a significant relationship. There is a significant relationship between Knowledge and anxiety in Patients Who Will Undergo Cardiac Catheterization at Murni Teguh Hospital, with the chi-square test results obtained p value 0.004 <0.005. There is a significant relationship between age and anxiety in patients who will undergo cardiac catheterization at Murni Teguh Hospital, with the chi-square test results obtained p value 0.004 <0.005.

There is a significant relationship between gender and anxiety in patients who will undergo cardiac catheterization at Murni Teguh Hospital, with the chi square test results obtained p value 0.004 <0.005. Based on the multivariate analysis, it was found that there were 3 variables that were most related, namely past experience with a p-value of 0.00 <0.005; age with a p-value of 0.00 <0.005; and gender with a p-value of 0.002 <0.005. It is recommended for future researchers to study with more samples and add the independent variable family support, because this also affects patient anxiety in undergoing cardiac catheterization.

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