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RELATIONSHIP BETWEEN ANXIETY LEVELS AND SLEEP QUALITY IN PATIENTS PRECEDING HEART CATHETERIZATION PROCEDURES

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ABSTRACT

Background: Cardiac catheterizationis an invasive procedure that often causes anxiety inpatients. The anxiety experienced can affect the physical andpsychological condition of patients, one of which is disturbing sleep quality. Poorsleep quality can have an impact on the patient's physical condition, and thismay be related to the level of anxiety experienced. **Objective:** The purpose of this study was to determine the relationship between anxiety levels and sleep quality in patients prior to cardiac catheterization. **Methods:** This study used a quantitative method with across-sectional design. The instruments used were the HARS (HamiltonRating Scale for Anxiety) questionnaire to assess anxiety levels and thePSQI (Pittsburgh Sleep Quality Index) questionnaire to assess sleep quality. The sampling technique was accidental sampling witha total of 31 respondents who met the inclusion and exclusion criteria. Data analysisused the Sperman Rank test through the JASP program. **Result:** The results of the studyshowed a significant relationship between anxiety levels andsleep quality in patients prior to cardiac catheterization procedures, with a significance of <.001 (p <0.05)). **Conclusion:** There is a relationship between anxiety levels and sleep quality in patients prior to cardiac catheterization procedures at Umar Wirahadikusumah Regional General Hospital. Provide health education to reduce anxiety and improve patients sleep quality before the procedure.

Keywords: Anxiety Level; Cardiac Catheterization; Sleep Quality

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INTRODUCTION

Every year, the number of deaths from non-communicable diseases (NCDs) reaches more than 36 million people. Globally, the leading causes of mortality from non-communicable diseases are heart and blood vessel diseases. Commonly known heart disorders include heart failure, coronary heart disease, and stroke (Chusaeri, 2024). According to the (2018) American Heart Disease (AHA) report, heart disease caused 17.9 million deaths in 2015 and mortality rates are projected to continue rising until 2030. In Indonesia, according to the 2018 Riskesdas, around 1.5% of the population suffers from heart disease. Meanwhile, the 2023 Indonesian Health Survey (SKI) reported a decrease in the prevalence of heart disease to 0.85%.

Coronary heart disease (CHD) occurs when blood circulation in the coronary arteries is disrupted due to the buildup of fat, chemicals, and pollutants from the environment. These substances generally enter the body from food, drink, and air pollutants, which then attach to the lining of the coronary arteries (Faizal & Anggraini, 2023). This condition usually begins with atherosclerosis, which is the buildup of lipids in the form of lipoproteins, cholesterol, cell metabolism products, and others. This buildup causes hardening and narrowing of the arteries, which obstructs blood flow to the heart (Sinaga et al., 2022). Clinically, the main signs and symptoms are pain or discomfort in the chest, especially in the lower sternum, left chest, or epigastrium, which spreads to the neck, left shoulder, left hand, and back.

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especially in the lower sternum, left chest, or epigastrium, which spreads to the neck, left shoulder, left hand, and back.

Heart disease can be identified through invasive and non-invasive procedures. Non-invasive procedures consist of electrocardiograms (EKG), cardiac CT scans, and treadmill tests (Mashadi et al., 2022). The invasive procedure performed is cardiac catheterization (Susanti, 2020). Cardiac catheterization is a medical procedure in which a thin tube (catheter) is inserted into a blood vessel (artery or vein) with the aid of x-rays, then directed to the heart or blood vessels that are the target of examination or treatment (Susanti, 2020).

Cardiac catheterization is a diagnostic and interventional procedure that aims to identify the occurrence of blockages, the location of blockages, and the extent of blockages in the coronary arteries. Cardiac catheterization is usually performed with planning, where individuals with heart problems undergo treatment and comply with the rules and preparation procedures at the hospital prior to the cardiac catheterization procedure (Darmayanti, 2022).

Before undergoing cardiac catheterization (pre-procedure), anxiety is an affective disorder that often occurs in patients before undergoing the procedure (Davris et al., 2023). According to Stuart in Perdana et al., (2025), anxiety is an undefined fear accompanied by feelings of uncertainty. One situation that often causes anxiety is a threatening experience, such as a medical procedure or surgery, especially for patients experiencing it for the first time (Akhmad et al., 2024). In addition, anxiety can interfere with the immune system, increase health risks, and affect sleep quality (Rachmawaty et al., 2024).

Sleep quality refers to a person's level of satisfaction with their sleep experience, including ease of falling asleep, ability to maintain sleep, sleep duration, and feeling refreshed upon waking (Pramana & Harahap, 2022). Good sleep quality is characterized by the absence of symptoms of sleep deprivation. Conversely, poor sleep quality can be caused by various factors, with anxiety being one of the main contributors (Richard & Adjie, 2022).

Based on previous research by Damanik, (2020), there is a relationship between anxiety levels and sleep quality in hemodialysis patients. In addition, research by Santoso & Fatmawati, (2024) shows that there is no relationship between anxiety levels and sleep quality in pre-heart surgery patients. These differing results highlight the need for further research on different populations. This study focuses on patients undergoing pre-cardiac catheterization procedures, a medical procedure that has rarely been studied in the context of anxiety and sleep quality. Therefore, this study is important to enrich the limited literature on the relationship between anxiety levels and sleep quality in patients undergoing pre-cardiac catheterization procedures.

Referring to the findings of a preliminary study conducted on five respondents in the Cathlab & HCCU of Umar Umar Wirahadikusumah Regional General Hospital, it was found that three of the five patients who were about to undergo cardiac catheterization felt afraid and worried about the procedure, while two patients did not feel this way. In addition, 4 of the 5 patients reported difficulty falling asleep prior to the procedure, while 1 patient stated that their sleep was not disturbed. Based on this phenomenon, the researcher was interested in investigating the relationship between anxiety levels and sleep quality in patients prior to cardiac catheterization at Umar Wirahadikusumah Regional General Hospital.

METHOD

This study used a quantitative method with a cross-sectional design. The study population consisted of all patients undergoing pre-cardiac catheterization procedures at Umar Wirahadikusumah Regional General Hospital, totaling 120 patients. The sample size for this study was 31 respondents. The sampling technique used was accidental sampling, in which the researcher selected respondents at random at the study location. This study was conducted from September 12 to October 12, 2025.

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In this study, anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS), while sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI), which has been validated in Indonesia and is widely used in clinical research. Data analysis was performed using Spearman's rank correlation test with the help of JASP software, with a p-value <0.05 considered significant. Respondent characteristics, including age, gender, education level, and research variables, were analyzed univariately to provide frequency distributions. This study was conducted after the issuance of an ethical approval letter Number: 123/KEPK/Fitkes-Unjani/IX/2025 by the Health Research Ethics Committee of the Faculty of Health Sciences and Technology, Jenderal Achmad Yani University, Cimahi.

RESULTS

1. Univariate Analysis

Table 1 Respondent Characteristics

Karakteristik	f	%
Age		
26-35 Years Old	2	6.5
36-45 Years Old	1	3.2
46-55 Years Old	9	29.0
56-65 Years Old	10	32.3
>65 Years Old	9	29.0
Total	**31**	**100**
Gender		
Male	24	77.4
Female	7	22.6
Total	**31**	**100**
Education		
Elementary School	17	54.8
Junior High School	2	6.5
Senior High School	8	25.8
University	4	12.9
Total	**31**	**100**

Based on the table 1 above, it is known that of the 31 respondents, most were in the 56-65 age range, namely 10 people (32.3%). Meanwhile, there were 24 male respondents (77.4%). In addiction, the most common level of education among respondents was elementary school (SD), with 17 respondents (54.8%).

Tabel 2 Frequency Distribution Based on Anxiety Level

Category	(f)	%
No Anxiety	6	19.4
Mild Anxiety	12	38.7
Moderate Anxiety	10	32.3
Severe Anxiety	3	9.7
Total	**31**	**100**

Based on the table 2 above, it can be seen that in general, most respondents in this study experienced mild anxiety, namely 12 people (38.7%). A total of 10 people (32.3%) experienced moderate anxiety, 6 people (19.4%) did not experience anxiety, and 3 people (9.7%) experienced severe anxiety.

Tabel 3 Frequency Distribution Based on Sleep Quality

Sleep Quality	f	%
Good	14	45.2
Bad	17	54.8
Total	**31**	**100**

Based on the table 3 above, it can be seen that most respondents in this study had poor sleep quality, totaling 17 people (58.1%), while respondents who had good sleep quality totaled 14 people (45.2%).

2. Bivariate Analysis

Tabel 4 Analyzing the Relationship Between Anxiety Levels and Sleep Quality

Variabel	r	p-value
Anxiety Level Sleep Quality	.600	<.001

Based on the table 4 above, the Spearman Rank correlation test results show a correlation coefficient (r) value of 0.600 with a p-value = <.001 (p<0.05). Based on these statistical tests, it can be interpreted that there is a significant relationship between anxiety levels and sleep quality in patients prior to cardiac catheterization procedures.

DISCUSSION

Based on the results of the study, most respondents in the prior to cardiac catheterization were found to experience mild anxiety. This study is in line with the research by Artini et al., (2024), which also found that mild anxiety was dominant, namely 12 people (40%) in patients before cardiac catheterization.

Additionally, research conducted by Darmayanti, (2022) in the Intermediate Room found that 15 respondents (38%) before cardiac catheterization experienced moderate anxiety levels. Anxiety is an uncertain fear with feelings of uncertainty in Perdana et al., (2025) Perdana et al., (2025). According to Stuart G.W and Sudeen 2016 in (Ningrum, 2023), internal factors that can affect a person's anxiety level are age, gender, level of knowledge, personality type, and environment or situation.

Based on the results of this study, it appears that most patients undergoing cardiac catheterization experience mild anxiety. According to the researchers, differences in anxiety levels among respondents may be due to diverse individual characteristics, with most respondents aged 54-65 years and having a primary school education. This suggests that older individuals are better able to control their emotions, while a lower level of education may affect respondents' understanding of the procedure they are about to undergo.

Based on the results of the study, most patients undergoing pre-procedural cardiac catheterization at Umar Wirahadikusumah Regional General Hospital had poor sleep quality. Sleep quality is the extent to which an individual feels satisfied with their sleep experience, which includes the process of falling asleep, maintaining sleep, sleep duration, and feeling refreshed and comfortable after waking up. Sleep quality has several components, including subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, medication use, and daytime dysfunction. Scores of <5 in these components are categorized as good, while scores of >5 are categorized as poor.

The research conducted by the researchers is in line with research by Ahsan, (2022), which shows that patients undergoing chemotherapy mostly experience poor sleep quality. In addition, research by Dani Safdinan, (2023), shows that patients undergoing preoperative excisional biopsy at Dr. Moewardi General Hospital in Surakarta mostly show poor sleep quality. Another study by (Sulistiani et al., 2024). Tingkat et al., (2024), shows that the majority of preoperative patients at Cilacap Regional General Hospital experience poor sleep quality. A person's sleep quality can be influenced by several factors that cause sleep quality to be good or bad. According to Gusrianti et al., (2025), factors that affect sleep quality include medical conditions, environment, fatigue or exhaustion, anxiety, and medications.

Based on the results of this study, the quality of sleep of patients prior to cardiac catheterization can be associated with the anxiety they experience. The analysis results show that most respondents with moderate to severe anxiety levels tend to experience poor sleep quality, while respondents with no anxiety to mild anxiety generally have good sleep quality. These findings indicate a tendency that anxiety levels play a role in changes in sleep quality in patients undergoing cardiac catheterization.

These results indicate that there is a relationship between anxiety levels and sleep quality in patients undergoing cardiac catheterization at Umar Wirahadikusumah Regional General Hospital, so it can be concluded that H1 is accepted and H0 is rejected in this study. The results of this study are in line with several previous studies.

Research by Muflih, (2019), showed a relationship between anxiety levels and sleep quality in preoperative patients at Sundari Hospital in Medan. Damanik, (2020), also found the same results in patients undergoing hemodialysis at the Rasyida Kidney Hospital in Medan. Similarly, research by Siburian, (2021), which studied preoperative patients undergoing Transurethral Resection of The Prostate (TURP), showed a significant relationship between anxiety levels and sleep quality. In addition, research conducted by Sulistiani et al., (2024), also showed a relationship between anxiety and sleep quality in preoperative patients at Amanah Sumpiuh General Hospital. Another study conducted by Tingkat et al., (2024) also showed a relationship between anxiety levels and sleep quality in preoperative patients at Cilacap Regional General Hospital.

This is in line with the theory proposed by Kozier 2010 in Astuti et al., (2021), which explains that anxiety can affect sleep quality through an increase in the hormones

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norepinephrine and epinephrine. These increased hormones stimulate the autonomic nervous system, accelerating the heart rate, increasing blood pressure, and affecting sleep quality. As a result, the NREM and REM sleep phases are disrupted, thereby reducing sleep quality.

However, the results of this study differ from those of Santoso & Fatmawati, (2024), which showed no relationship between anxiety and sleep quality in pre-operative heart surgery patients. This is because in that study, respondents had received preliminary information about the surgical procedure approximately three to six months before the operation. As a result, anxiety levels decreased, thus not having a significant impact on sleep quality. This is due to the fact that in that study, respondents had received preliminary information about the surgical procedure approximately three to six months before the operation. As a result, anxiety levels decreased, thus not having a significant impact on sleep quality.

Based on the research data, out of 31 respondents, it was found that respondents with no anxiety to mild anxiety tended to have good sleep quality, while respondents with moderate to severe anxiety tended to have poor sleep quality. These results indicate that anxiety levels are related to the sleep quality of patients prior to cardiac catheterization procedures. This may occur because when patients feel anxious, their bodies become tense and find it difficult to relax, thereby reducing their sleep quality. Thus, the higher the level of anxiety experienced by patients, the greater the likelihood of their sleep quality declining.

These findings indicate that healthcare workers need to provide clear education about procedures and psychological support to help reduce patient anxiety. Meanwhile, families play a role in providing emotional support so that patients feel calmer and more prepared to face treatment. This study has limitations in the form of a small number of respondents due to time constraints, the presence of patients who refused to participate, and several patients who could not be interviewed, resulting in less than optimal data completeness.

CONCLUSION

There is a relationship between anxiety levels and sleep quality in patients precedings heart catheterization procedures. The hospitals are expected to support the implementation of health education to reduce anxiety and improve the quality of sleep for patients. Health workers need to provide clear education about procedures, while families play a role in providing emotional support so that patients feel more at ease. Patients are also expected to understand the procedures they will undergo to help reduce anxiety. In addiction, future researchers are advised to involve more respondents and use different methods or variables to obtain more comprehensive results.

REFERENCES

Ahsan, Z. (2022). *HUBUNGAN ANTARA KECEMASAN DENGAN KUALITAS TIDUR PADA PASIEN KEMOTERAPI DI RSUD dr. SAIFUL ANWAR MALANG*. *2*(4), 490–500.

Akhmad, A. N., Bahfiarti, T., & Fatimah, J. M. (2024). Komunikasi Terapeutik dalam Mengurangi Tingkat Kecemasan : Literature Review. *INNOVATIVE: Journal Of Social Science Research*, *4*(5), 6194–6205. https://j-innovative.org/index.php/Innovative%0AKomunikasi

Artini, B., Tjahjono, H. D., & Nuraeni, N. (2024). Hubungan Tingkat Pengetahuan Tentang Kateterisasi Jantung Dengan Kecemasan Pada Pasien Sebelum Kateterisasi Jantung. *Jurnal Keperawatan*, *13*(1), 31–37.

Astuti, V. P., Lestari, T. B., & Simbolon, A. R. (2021). Hubungan Antara Tingkat Kecemasan, Jenis Kelamin Dengan Kualitas Tidur Pasien Gagal Ginjal Kronik Yang Menjalani Hemodialisis. *Carolus Journal of Nursing*, *3*(2), 112–121. https://doi.org/10.37480/cjon.v3i2.69

Chusaeri, A. R. (2024). Hubungan Aktivitas Fisik dan Durasi Tidur Dengan Status Gizi pada Remaja di SMA Negeri 7 Bandar Lampung Tahun 2024. *Jurnal Ilmu Kedokteran Dan Kesehatan*, *10*(12), 3480–3487. https://doi.org/10.33024/jikk.v10i12.12594

Damanik, V. A. (2020). Hubungan Tingkat Kecemasan Dengan Kualitas Tidur Pada Pasien Yang Menjalani Hemodialisis. *Jurnal Keperawatan Priority*, *3*(1), 47–57.

Dani Safdinan, D. (2023). *Hubungan Tingkat Kecemasan Dengan Kualitas Tidur Pada Pasien Pre Operasi Biopsi Excisi di RSUD DR. Moewardi Surakarta*. Universitas Kusuma Husada Surakarta.

Darmayanti, R. (2022). Gambaran tingkat kecemasan pasien cad sebelum tindakan katerisasi jantung di

ruang intermediate. *Jurnal Keperawatan BSI, Vol. 10 No. 1 April 2022*, *10*(1), 130–137.

Davris, W., Mailani, F., & Muliantino, M. R. (2023). Edukasi Kesehatan Terhadap Kecemasan Pasien Pra-Kateterisasi dengan Diagnostik Jantung Koroner. *Jik Jurnal Ilmu Kesehatan*, *7*(2), 287. https://doi.org/10.33757/jik.v7i2.724

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Faizal, M., & Anggraini, R. B. (2023). Faktor-Faktor yang Berhubungan Dengan Kejadian Penyakit Jantung Koroner (PJK) di Rsud Dr.(Hc) Ir. Soekarno Provinsi Bangka Belitung Tahun 2022. *Jurnal Keperawatan*, *12*(1), 17–25.

Gusrianti, D., Fatmawati, F., Febrianti, Y., Fandari, R., & Rahmayanti, F. (2025). Kecemasan pasien pre operasi dan kualitas tidur: Sebuah studi kasus. *Jurnal Keperawatan*, *17*(1), 57–62.

Mashadi, I., Prabawati, D., & Hidayah, A. J. (2022). Efektivitas Pemberian Edukasi Terstruktur Terhadap Tingkat Kecemasan Pasien Pre Prosedur Catheterisasi Jantung Di Eka Hospital. *Carolus Journal of Nursing*, *5*(1), 57–68.

Muflih. (2019). HUBUNGAN TINGKAT KECEMASAN DENGAN KUALITAS TIDUR PASIEN PRE OPERASI DI RUMAH SAKIT UMUM SUNDARI MEDAN. *Indonesian Trust Health Journal*, *1*(2), 98–106.

Ningrum, N. M. (2023). *Self Healing dalam Menurunkan Kecemasan Pada Ibu Hamil*.

Perdana, N., Amin, S., & Redho, A. (2025). *Ju rn a l Ke p e r a w a t a n Mu h a m m a d i y a h Penerapan Komunikasi Terapeutik untuk Mengurangi Kecemasan pada Pasien dengan Penyakit Jantung Koroner Selama Prosedur Kateterisasi di RSUD Arifin Achmad*. *10*(1), 192–199.

Pramana, I. D. B. K. W., & Harahap, H. S. (2022). Manfaat kualitas tidur yang baik dalam mencegah demensia pada lansia. *Lombok Medical Journal*, *1*(1), 49–52.

Rachmawaty, R., Hisni, D., & Widowati, R. (2024). Hubungan Tingkat Kecemasan dengan Kualitas Tidur pada Mahasiswa Keperawatan Tingkat Akhir di Fakultas Ilmu Kesehatan Universitas Nasional Jakarta. *MAHESA : Malahayati Health Student Journal*, *4*(4), 1353–1364. https://doi.org/10.33024/mahesa.v4i4.14135

Richard, D. D., & Adjie, E. K. (2022). Hubungan Gangguan Kecemasan dan Kualitas Tidur Remaja di SMA Santo Yosef Selama Masa Pandemi Covid-19. *Malahayati Nursing Journal*, *4*(12), 3293–3302.

Santoso, T., & Fatmawati, E. (2024). Relationship Between Anxiety Level and Sleep Quality in Patients Pre-Cardiac Surgery at Dr . Kariadi Hospital , Semarang , Indonesia. *Babali Nursing Research*, *5*(3), 538–546. https://doi.org/https://doi.org/10.37363/bnr.2024.53401

Siburian, C. H. (2021). Hubungan Kecemasan Dengan Kualitas Tidur Pada Pasien Pre Operasi Transurethral Resection of the Prostate (Turp) Di Rumah Sakit Umum Imelda Pekerja Indonesia Medan. *Indonesian Trust Health Journal*, *4*(2), 491–498. https://doi.org/10.37104/ithj.v4i2.83

Sinaga, E., Manurung, S., Zuriyati, Z., & Setiyadi, A. (2022). Pengaruh Edukasi Kesehatan Terhadap Tingkat Kecemasan Tindakan Kateterisasi Jantung di Rumah Sakit Omni Pulomas Jakarta Timur. *Journal of Nursing and Midwifery Sciences*, *1*(1), 1–7.

Sulistiani, D., Apriliyani, I., & Triana, N. Y. (2024). Hubungan Kecemasan Dengan Kualitas Tidur Pada Pasien Pre Operasi. *Jurnal Ilmiah Permas : Jurnal Ilmiah STIKes Kendal*, *14*(1), 295–304. http://journal2.stikeskendal.ac.id/index.php/PSKM/article/view/1599

Susanti, M. (2020). Pengaruh Komunikasi Terapeutik terhadap Tingkat Kecemasan Pasien dengan Tindakan Kateterisasi Jantung di Ruang Cathlab RSUD dr. *Soebandi Jember*.

Tingkat, H., Kenyamanan, T., & Kualitas, D. (2024). *The Relationship between Anxiety Level and Comfort Level with Sleep Quality in Preoperative Patients at Cilacap Regional Hospital*. 202–212.