



ORIGINAL RESEARCH

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The Relationship of Anxiety Level and Increased Blood Pressure In Preoperative Patients With General Anesthesia



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Abstract

Background: Preoperative anxiety, particularly among patients undergoing general anesthesia can significantly impact physiological responses, including blood pressure. General anesthesia often induces higher anxiety levels compared to spinal anesthesia due to the loss of consciousness and associated risks. This research aims to investigate the relationship between preoperative anxiety levels and blood pressure increase in patients undergoing general anesthesia.

Methods: A descriptive quantitative study with an analytic correlational approach was conducted. The cross-sectional study included 86 preoperative patients selected using incidental sampling. Data collection involved the APAIS questionnaire for anxiety and a sphygmomanometer for blood pressure measurements. Due to the non-normal data distribution, data were analyzed using Spearman's rho test.

Results: Among the 86 respondents, 64% were male, and the majority (32.6%) were aged 45-55. Most respondents were self-employed (22.1%) and had higher education (38.4%). Anxiety was prevalent, with 40.7% experiencing severe anxiety and 82.6% having high blood pressure. Spearman's rho test indicated a significant correlation between anxiety levels and increased blood pressure ($p < 0.05$). In addition, in the Spearman Rho test between anxiety levels and blood pressure there is a correlation value of 1,000 and 0.441 which shows that there is a strong relationship between anxiety levels and increased blood pressure, where the more positive the correlation value, the stronger the relationship between the two variables.

Conclusions: There is a significant relationship between preoperative anxiety and increased blood pressure in patients undergoing general anesthesia. The findings highlight the need for effective anxiety management to mitigate hypertensive risks during surgery.

Keywords: Anxiety, Blood Pressure, General Anesthesia, Preoperative Care, Surgical Outcomes

Introduction

Pre operation is stage beginning from nursing perioperative started from decision taken for carry out intervention surgery. Activity nursing at stage this is preoperative assessment regarding physical, psychological and social status patient, plan nursing about preparation

patient for surgery, and implementation nursing who has planned. Preoperative phase started moment decision for do surgery created and ended moment client moved to table operation (Rahmayati et al, 2018).

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Preoperative phase that is covers giving anesthesia. Anesthesia is circumstances loss of pain moment working operation push network nerve in a way central block or working on the tip nerves, effects from giving anesthesia is relieve pain without is lost awareness or until is lost awareness. Anesthesia is shared into 2 types: general and regional anesthesia (Saputri et al., 2022).

Anesthesia general or general anesthesia is a condition where a patient lost awareness of the consequence of giving a certain drug, which makes the patient unable to be awakened even when given painful stimulation. During anesthesia general, ability for maintain function ventilation in a way independent often disturbed. So that patient needs help for guard patent airway and maybe ventilation pressure positive. This matter happen because the drugs used can result emphasis on ventilation spontaneous or result depression in the patient's neuromuscular function (American Society of Anesthesiologists, 2019).

Preoperative procedures carried out by the patient before operation can result in reaction stress, okay from facet physique or mental, which can cause worry (Hudia et al., 2023). In level worry operations that use general anaesthesia techniques are taller compared to spinal anaesthesia techniques because is a general anaesthesia technique, patient experience loss of consciousness, amnesia, analgesia, paralysis muscle, and sedation.

Worry is a fear that is not clear, accompanied by feeling of uncertainty, helplessness, isolation and insecurity. Symptoms worry before the operation can seen from acting in demand, visible patient restlessness, and asked continuously even over and over again, although the question has been answered . Emergence symptom worry is caused by internal factors and external factors. Influencing factors worry covers age, gender, type operation, education level, knowledge and economics (Fitriani et al., 2023). Anxiety levels are divided into four parts that is worry mild, moderate, severe and panic.

Worry excessive preoperative treatment in patients cause operation No can done because in patients who experience worry before operation will give rise to abnormality like pressure increased blood, so if operation done will result trouble, where effect from drug anesthesia given cause patient No can realize self in fast and deep period a long time because exists pressure problems blood (Muliana et al., 2021). Pressure blood is measurement the pressure generated moment blood flow through arteries, arteries bring blood from heart to all body (Word Health Organization, 2023).

Hypertension is shared in three categories: light, medium, and heavy. Hypertension light own pressure blood between 140-159/ 90-99 MmHg whereas hypertension currently own pressure blood between 160-179/100-109, and hypertension heavy own pressure blood more or The same with 180/110 MmHg (Mancia et al., 2018).

Factors risk hypertension there are 2 namely factor no risk can changed like age, type gender and genetics as well as factor possible risks changed like obesity, smoking, lack activity physical, excessive salt consumption, dyslipidemia, consumption alcohol as well as psychosocial, stress and anxiety excessive (Ekarini et al., 2020). Worry can increase pressure blood because stimulation system nerve sympathetic influence bulk heart and vasoconstriction arterioles, resulting in pressure blood increase (Farrell, 2016). A study report that there is connection worry with enhancement pressure blood in preoperative patients close the fracture where based on results research 53.6% experienced enhancement pressure blood with worry currently (Enawati & Erli, 2022) . Other studies also report from 54 respondents, it was obtained results that majority respondents experience worry currently with pressure blood systolic in stage 1 hypertension as many as 26 respondents and pressure blood diastolic in prehypertension as many as 24 respondents in preoperative patients with general anesthesia at Cilacap Regional Hospital (Princess Nabillah et al., 2023).

Methods

The research ethics permit for this study is numbered B.LPPM-UHB/560/06/2024, issued by the Research Ethics Committee of health research ethics committee University Harapam Bangsa. The approval confirms that the research adheres to ethical standards and protects the rights and welfare of participants.

This study employs a descriptive quantitative research method using an analytic correlational approach. It aims to examine the relationship between anxiety levels and blood pressure increases in preoperative patients undergoing general anesthesia. Data were collected using a cross-sectional approach, observing and gathering data simultaneously.

The research design is cross-sectional, which involves studying the dynamic correlation between risk factors and effects through a one-time data collection approach (Fannya, 2020). The research participants included preoperative patients with general anesthesia at the IBS RSUD 45 Kuningan transfer room at Jl. Gen. Sudirman No.68, Awirangan, District





Kuningan, Kab. Kuningan, West Java 45511. The sample size was calculated using the Slovin formula from a population of 110 patients, resulting in 86 participants. The sampling technique used is incidental sampling, where participants who meet the inclusion criteria and are encountered during the study period are included.

The research intervention consists of two groups: Group A received 25 grams of paracetamol, while Group B (placebo group) received 10 grams of paracetamol. The administration of the intervention is carefully monitored and recorded. Data were collected through questionnaires and direct observations. The instruments used include the APAIS (Amsterdam Preoperative Anxiety Information Scale) for measuring anxiety levels and a sphygmomanometer for measuring blood pressure. The APAIS questionnaire has been validated ($r = 0.481-0.712$) and has a Cronbach's alpha of 0.825-0.863, ensuring reliability. Statistical analysis was performed using [specific software], with references to [relevant literature]. Data coding, tabulation, and entry were carried out regularly to ensure accuracy and reliability of the analysis.

Results

Table 1. Characteristics Respondent

Parameter	Frequency (n)	Percentage (%)
Gender		
Woman	31	36
Man	54	64
Total	86	100
Age		
>19 years	1	1.1
19-25 years old	24	27.9
26-35 years old	16	18.6
36-45 years old	17	19.8
45- 55 years old	28	32.6
Total	86	100
Work		
Student	15	17.4
Civil servants	15	17.4
Employees	12	14
Entrepreneur	19	22.1
Farmer	11	12.8
Housewife	14	16.3
Total	86	100
Education		
Elementary school	11	12.8
Junior high school	13	15.1
Senior high school	29	33.7
College	33	38.4
Total	86	100

Based on Table 1 Characteristics Respondent Preoperative Patients with general anesthesia at RSUD 45 Kuningan, obtained respondents study as many as 86 respondents. Characteristics respondents based on type gender, majority respondents manifold sex man amounting to 54 respondents (64%). Based on

age, dominated by older respondents between 45-55 years as many as 28 respondents (32.6%). Based on work, respondents majority Work as self-employed or trader with amount respondents 19 respondents (22.1%). Based on level education, most respondents go through level education until college with a total of 33 respondents (38.4%).

Table 2. Preoperative Patient with General Anesthesia

Category	Frequency (n)	Percentage (%)
Worry		
Not anxious	6	5.16
Light	13	15.1
Currently	20	23.6
Heavy	35	40.7
Panic	12	15.4
Total	86	100
Pressure blood		
Pressure blood low	0	0
Pressure normal blood	15	17.4
Pressure blood tall	71	82.6
Total	86	100

Table 2 shows that part of the respondents who do operating room operations at RSUD 45 Kuningan have a heavy worry category, with as many as 35 respondents (40.7%). Additionally, results from pressure blood respondents have a high pressure blood category, with a total of 71 respondents (82.6%).

Table 3. Correlations between Anxiety Levels with Enhancement Blood Pressure in Preoperative Patients with General Anesthesia

Worry	Pressure blood			Total	p-value
	Low	Normal	Tall		
Not anxious	-	4	2	6	0,000
Light	-	5	8	13	
Currently	-	4	16	20	
Heavy	-	2	33	33	
Panic	-	0	12	12	
Total	0	15	71	86	

Table 4. Correlations of Anxiety Level with Increased Blood Pressure in Pre Anesthesia Patients with General Anesthesia

Spearman's rho	Blood Pressure	Correlation Coefficient	1.000	.441**
		Sig. (2-tailed)	.	.000
		N	86	86
	Anxiety	Correlation Coefficient	.441**	1.000
		Sig. (2-tailed)	.000	.
		N	86	86

The results from the normality test say that the data distribution is not normal, so a correlation test using Spearman's rho test is carried out. According to Sugiyono (2019), if the correlation test is not normally distributed, then the correlation test in the study uses the Spearman rank correlation test. Using Spearman rank correlation, it was assumed that the data was not normally distributed. Spearman rank correlation was used for know connection or





influence between two variable ordinal scale, ie variable free and variable bound. Based on the results of the tests carried out with Spearman's rho test, the p-value is 0.00, which shows that the p-value is <0.05 . In addition, in the Spearman Rho test between anxiety levels and blood pressure there is a correlation value of 1,000 and 0.441 which shows that there is a strong relationship between anxiety levels and increased blood pressure, where the more positive the correlation value, the stronger the relationship between the two variables. Thus, this study shows the results that there is a significant relationship between anxiety levels and increased blood pressure in preoperative patients with general anesthesia at 45 Kuningan hospital.

Discussion

The characteristics of respondents in this study based on gender, the majority of respondents were male, 54 respondents (64%). According to the researcher's assumption, the number of male respondents in this study is related to hormonal differences in men and women that affect the body's immunity. The hormone estrogen in women causes women to have higher immunity compared to men, so that women are not easily infected with viruses, bacteria, parasites, fungi, and are not prone to inflammation (Saputra et al., 20). (Saputra et al., 2024). The results of this study are in line with research conducted by Sri Enawati et al., (2022) where the majority of patients there were 16 respondents (51.6%) were male. This is due to the type of fracture surgery he performed, with the assumption from the researcher Sri Enawati et al., (2022) who said that fractures are more common in men than in women. However, this study has the disadvantage of not being distributed regarding the type of surgery performed so that the assumptions from the theory of Sri Enawati et al., (2022) theory cannot be further validated. However, this research is not in line with research conducted by Amalia et al., (2022) where the results showed that the majority of respondents who performed surgery with general anesthesia were women.

The characteristics of respondents in this study based on age were dominated by respondents aged between 45-55 years as many as 28 respondents (32.6%). The results of this study are in line with research conducted by Saputra et al., (2024) which shows that the characteristics of preoperative patients are mostly in the adult category (36-45 years old) with 51.9%. According to the researcher's assumption, the majority of age is in the adult category due to diseases that attack more at an

adult age than at a younger age so that surgery is needed to overcome the disease experienced.

This research is also in line with research conducted by Priyonggo et al., (2024) which showed that the majority of respondents were >40 years old. Older patients tend to experience higher anxiety because they have more complex health conditions or have a longer medical history, which can lead to feelings of uncertainty and anxiety about the surgical procedure (Priyonggo et al., 2024).

Based on occupation, the majority of respondents work as self-employed or traders with 19 respondents (22.1%). The results of this study are in line with research conducted by Uskenat (2022) which showed that the majority of respondents worked in the field of self-employment (70.0%). Researchers assume that someone who works in the field of self-employment has an uncertain income so that respondents will have a higher level of anxiety due to medical expenses, hospital care, and purchase of drugs at a high cost.

Based on the level of education, the majority of respondents studied until college with 33 respondents (38.4%). The results of this study are not in line with research conducted by Priyonggo et al., (2024) which shows the majority of the last level of education in preoperative patients with general anesthesia is high school. Patients with higher education tend to seek more in-depth information related to surgical procedures and risks so that anxiety in someone with higher education compared to someone with lower education. (Priyonggo et al., 2024).

The results showed that respondents who experienced anxiety in preoperative patients with mild anxiety levels were 13 respondents (5.16%), moderate anxiety levels were 20 respondents (23.6%), and panic as much, severe anxiety levels were 35 respondents (40.7%), panic anxiety levels were 12 respondents (15.4%), and not anxious as many as 6 respondents (5.16%). The results of this study indicate that the majority of preoperative patients with general anesthesia experience severe anxiety with 35 respondents (40.7%). Researchers assume that surgery with general anesthesia makes patients feel more anxious due to the total anesthetic effect so that patients will feel the risks posed are higher and can cause death. Anxiety is an emotion, a feeling that arises as an initial response to psychological stress and threats to values that are meaningful to the individual. Anxiety is often described as a feeling of uncertainty, doubt, helplessness, anxiety, worry, unrest that is often accompanied by physical complaints





(Rismawan et al., 2019). Anxiety often arises during preoperative conditions that will be faced by a patient, this preoperative anxiety can be influenced by many factors (Pandiangan, 2020).

The results showed that respondents who had normal blood pressure were 15 respondents (17.4%) and high blood pressure were 71 respondents (82.6%). The majority of respondents in this study had high blood pressure with 82.6%. Researchers assume that because of emotional changes a person will stimulate an increase in heart rate and blood pressure. During the preoperative period, many patients experience altered emotional responses, which may stimulate the sympathetic nervous system, characterized by increased heart rate, cardiac output and peripheral vascular resistance. The sympathetic effect of increased blood pressure combined with stress or mental tension (such as feelings of distress, loss, anxiety, palpitations, anger, upset, fear, and guilt) can stimulate the renal daughter gland (suprarenalis) to release adrenaline and stimulate the heart to beat faster and harder, so that blood pressure will increase (Udani, 2023). Based on the test results conducted with the Spearman's rho test, the p-value is 0.00, which indicates that the p value is <0.05 . This can be interpreted that there is a relationship between anxiety levels and increased blood pressure in preoperative patients with general anesthesia at RSUD 45 Kuningan. Researchers assume that changes in blood pressure can occur due to several factors such as the height of the sympathetic block, patient position, patient condition. In addition, changes in blood pressure in preoperative patients can also occur due to disease factors, drugs, age, gender, and psychological status of the patient (Saputra, et al., 2024). The results of this study are comparable to the theory that says that patients who perform surgery with general anesthesia experience high anxiety. This study states that the majority of patients who will undergo surgery with general anesthesia experience severe anxiety ($n = 33$). This is due to the fear of death, fear of postoperative complications, and fear of unexpected surgical results (Christine et al, 2021). Feelings of anxiety that are often experienced by preoperative patients can be seen physically from changes in the patient's vital signs such as increased blood pressure and pulse, patients also feel the urge to urinate more frequently (Pandiangan, 2020). Anxiety and fear before surgery are common, which can cause increased levels of stress hormones, produce unwanted metabolic responses before

anesthesia, and increase high systemic catecholamine levels resulting in increased blood pressure. Anxiety will stimulate the hypothalamus to secrete adrenocorticotrophic hormone (ACTH) in order to stimulate the adrenal cortex to secrete cortisol. Increased cortisol levels in the blood will cause an increase in renin, angiotensin II and increase vascular sensitivity to catecholamines, resulting in an increase in blood pressure. Activation of the sympathetic nerves causes the adrenal medulla to secrete epinephrine and norepinephrine, which play a role in increasing heart frequency and increasing blood pressure (Christine, 2021). The anxiety that arises in the patient's mind makes the activation of the sympathetic nervous system stimulate the adrenal medulla to release stress hormones such as cortisol, catecholamines, epinephrine and norepinephrine. Epinephrine and norepinephrine is what prepares the body to respond nervously, tense, pale, increase breathing frequency, heart rate and reduce energy levels in patients, and ultimately can be detrimental to the patient himself because it will have an impact on the implementation of surgery (Saputra, 2024).

Conclusion

Study this find a significant relationship between level worry and enhancement pressure blood in pre- operative patients undergoing general anesthesia at RSUD 45 Kuningan. The data shows that part big respondents, as many as 35 people (40.7%), experienced heavy worry levels before operation. This matter strengthen understanding that high anxiety can contribute to change physiological, incl enhancement pressure blood. More further, research notes that most respondents, namely 71 people (82.6%), have pressure incoming blood in category tall

Limitations

On research this done measurement pressure blood moment was in space take care stay. However, in research, this only done measurement level worry moment the patient was in space operation, so the researcher could not do a comparison related to worry about the patient during the operation. In contrast, in space take care stay and time already enter room operation. is hoped that the research will coming can done measurement level anxiety in space take care stay so that researcher can know results more research validated related connection between level worry with enhancement pressure blood in preoperative patients with general anesthesia





Acknowledgements

All authors thanks to our institutions is Universitas who has facilitating us the database in this study

Author's contributions

Made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data: IY, SS, HSM, AM, TH; Involved in drafting the manuscript or revising it critically for important intellectual content: IY, SS, HSM; Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content: IY, SS, HSM, AM, TH; Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved: IY, SS, AM. All authors read and approved the final manuscript.

Funding

Open access funding provided by University There was no external funding in this research

Availability of data and materials

The data that support the findings of this study are available from the corresponding author, [IY], upon reasonable request

Declarations

Ethics approval and consent to participate
Not applicable

Competing Interest

The authors declare no competing interest

References

American Society of Anesthesiologists. (2019). Statement on Continuum of Depth of Sedation: Definition of General Anesthesia and Levels of Sedation/Analgesia. American Society of Anesthesiologists. <https://www.asahq.org/standards-and-practice-parameters/statement-on-continuum-of-depth-of-sedation-definition-of-general-anesthesia-and-levels-of-sedation-analgesia>

Astuti, A., Abiyoga, A., & Safitri, KH (2021). Description of Characteristics, Knowledge, and Level of Anxiety Preoperative Sectio Caesarea Patient in the Installation Central Surgery.

Journal Nursing Wiyata, 2(2), 11. <https://doi.org/10.35728/jkw.v2i2.363>

Swinging. (2019). Connection Self -Efficacy with Anxiety in Preoperative Patients at Level III Baladhika Husana Hospital, Jember. Jember University Digital Respository, 1–177.

Enawati, S., & Erli, A. (2022). The Relationship of Anxiety aand Increased Blood Pressure In Preoperative Patients With Close Fractures. 2022-11-16, 2, 87–95. <https://doi.org/DOI:10.55606/jikki.v2i3.737>

Farrell, M. (2016). Smelter and Bare's Textbook of Medical-Surgical Nursing (Fourth Australian and New Zealand edition, Vol. 2). <https://zlib.pub/book/smelter-and-bares-textbook-of-medical-surgical-nursing-7hjk75tolqv0>

Fitriani, L., Kusumajaya , H., & Agustiani , S. (2023). Related Factors with Level of Anxiety Preoperative Patient in Inpatient Room Surgery. Journal Study Nurse Professional, 5(2), 573–578. <https://doi.org/10.37287/jppp.v5i2.1504>

Hudia, PC, Anggraini, RB, & Permatasari , I. (2023). P-ISSN 2746-5497; e-ISSN 2746-5500 <http://jurnal.globalhealthsciencegroup.com/index.php/IJNHS>. 4(2).

Iqbal, M. (2021). Relationship between Anxiety Levels with Enhancement Blood Pressure in Patients Pre Operation at Bhayangkara Hospital Banda Aceh. Institute Bali Health Technology.

Mancia, G., Rosei, E.A., Azizi, M., Burnier, M., Clement, D.L., Coca, A., de Simone, G., Dominiczak, A., Kahan, T., Mahfoud, F., Redon, J., Ruilope, L., Zanchetti, A., Kerins, M., Kjeldsen, S.E., Kreutz, R., Laurent, S., Lip, GYH, McManus, R., ... Desormais, I. (2018) . 2018 ESC/ESH Guidelines for the management of arterial hypertension. 08-25-2018, 39(33), 3021–3104. <https://doi.org/10.1093/eurheartj/ehy339>

Mukarromah, A. (2023). Influence Giving boiled water from bay leaves Decline Blood Pressure in Elderly Women in Subanagara Village Ward Purbaratu West Java 2022. National University.

Muliana. (2019). Relationship to Anxiety Level with Enhancement Blood Pressure in





- Preoperative Patients Benignaprostata Hyperplasia (BPH) at RSUD Prof. Dr. Margono Soekarjo. *Viva Medika: Journal of Health, Midwifery and Nursing*, 9(16), 42–52.
- Putri Nabillah, D., Susanto, A., & Mixrova, S. (2023). The Relationship between Anxiety Levels and Blood Pressure in Preoperative Patients with General Anesthesia In Cilacap Hospital. *Journal Malang Nursing (JKM)*, 8(2), 387–396. <https://doi.org/10.36916/jkm.v8i2.226>
- Rahmayati, E., Silaban, RN, & Fatonah, S. (2018). Influence Support Spiritual on Anxiety Levels in Pre- Operation Patients. *Journal of Health*, 9(1), 138. <https://doi.org/10.26630/jk.v9i1.778>
- Saputri, GAR, Nofita, N., & Tiwi, TS (2022). Rationality of Use Of Anesthesia In The Sectio Cesarea Surgery In The Central Surgery Installation Of The Pertamina Bintang Amin Hospital, Lampung, 2019. *Malahayati Pharmacy Journal*, 4(2), 194–204. <https://doi.org/10.33024/jfm.v4i2.5306>
- Word Health Organization. (2023). Hypertension. 03-16-2023. <https://www.who.int/news-room/fact-sheets/detail/hypertension>
- Christine, zainumi, Cut Meliza, Tasrif Hamdi, & Albar, H. F. (2021). Relationship between Anxiety at the Pre-Anesthesia Visit and Blood Pressure before Anesthesia Action at the University of North Sumatra Hospital. 10.
- Amalia, M., Suryani, R. L., & Putranti, D. P. (2022). Overview of Anxiety Levels in Preoperative Patients with General Anesthesia at Jatiwinangun Purwokerto Hospital. *National Seminar on Research and Community Service (SNPPKM)*, 104-109.
- Priyonggo, R., Negoro, W. R., & Winanda, D. (2024). Analysis Of Anxiety Factors In Preoperative Laparotomy Patients With General Anesthesia At Itsk Dr. Soepraoen Malang. *Tambusai Health Journal*, 5(2), 4820-4829.
- Saputra, J., Yudono, D. T., Novitasari, D., & Sebayang, S. M. (2024). Relationship between Anxiety Level and Blood Pressure in Preoperative Patients with Spinal Anesthesia at Rsud Dr. Soedirman Kebumen. *Scientific Journal of Wahana Pendidikan*, 10(9), 1-23.
- Uskenat, M. (2022). Differences in Anxiety Levels in Preoperative Patients with General Anesthesia Before and After Being Given Muscle Relaxation. 30, 1-8

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