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Research Article

Analysis of Factors Responsible for Preoperative Anxiety in Patients during the COVID-19 Pandemic at the Surgical Polyclinic of Sanglah General Hospital, Denpasar

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ABSTRACT

Surgery often causes anxiety in patients. Preoperative anxiety may cause delays of surgery due to physiological and psychological changes experienced by the patient. Preoperative anxiety is influenced by age, gender, education level, physical condition, and experience. The research objective was to analyze the influence of factors responsible for preoperative anxiety in patients at the Surgical Polyclinic of Sanglah General Hospital, Denpasar, during the COVID-19 pandemic. This research applied cross sectional design with 98 respondents who were selected by consecutive sampling method. Data were collected using the APAIS. Bivariate data analysis was performed using non-parametric Pearson's chi-squared test and multivariate analysis with logistic regression. All patients experienced preoperative anxiety, most of which were in the moderate category (41.8%). Factors responsible for preoperative anxiety in patients at the Surgical Polyclinic of Sanglah General Hospital, Denpasar, during the COVID-19 pandemic were gender ($p = 0.043$, $\alpha = 0.05$), education ($p = 0.000$, $\alpha = 0.05$), and experience ($p = 0.006$, $\alpha = 0.05$). The most dominant factor was experience with an odds ratio of 4.806. The influence of the three factors was 75.4% and the remaining 24.6% was influenced by other factors. Most respondents expressed their anxiety with fear and curiosity about surgical procedure so it is important for nurses to provide education about the surgery in order to reduce the level of preoperative anxiety in patients, especially female patients with lower levels of educational attainment who have never undergone surgery.

Keywords: Anxiety, factors of anxiety, preoperative

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Introduction

Data released by the WHO (World Health Organization) in 2016 stated that for more than a century, surgical treatment has been an important component of healthcare worldwide. It is estimated that each year, there are 234 million major surgeries performed worldwide, the equivalent of one for every 25 livings people [1]. In addition, there are 313 million surgical procedures performed worldwide each year [2]. Studies on populations in western Ethiopia reported the results of 60% - 80% preoperative anxiety. Meanwhile, in eastern Ethiopia, the incidence of preoperative anxiety occurred between 60-92% in surgical patients. In Nigeria, the prevalence of preoperative anxiety in adult patients varied from 11% to 80% [3].

Anxiety is an individual subjective experience that cannot be observed directly and is an emotional response without a specific object of unknown cause, which causes tension, insecurity, and worry about unpleasant conditions, followed by physiological and psychological changes. There are two factors that cause anxiety, namely, predisposing factors and precipitating factors. Predisposing factors are described as analytic theory, interpersonal theory, family theory, behavior theory, and biological theory. Precipitating factors are in the form of threats to physical integrity and threats to self-esteem. Physical threat refers to the inability or reduced ability of the body to meet its basic needs [6]. Surgery, or operation, is one of the actions that pose a physical threat to some people.

Surgery is a stressful and tough experience for all patients and may cause anxiety. Various negative possibilities that might endanger the patient could occur. The anxiety of a patient who is about to undergo surgery can also have a significant impact on several biological, psychological, social and spiritual aspects. Biologically, anxiety causes dizziness, heart palpitations, trembling, decreased appetite, shortness of breath, cold sweats, and fatigue as well as unfathomable and random changes in motor activities, such as bending toes and a tendency to be easily startled by sudden sounds. Meanwhile, psychologically, anxiety can cause worry, fear, uneasiness, confusion, brooding or daydreaming, sleeping difficulty, concentration difficulties, and nervousness [4].

Preoperative anxiety is a globally encountered problem in the healthcare field and is defined as fear that is experienced by patients who will undergo surgery. The causes of preoperative anxiety include waking up during surgery; failure to wake up after surgery: postoperative pain; nausea and vomiting; potential stay in intensive care; fear of needles, death, or incomprehensible babbling under anesthesia; and pain during surgery [3]. Preoperative anxiety in patients can result in the surgery being canceled or postponed. High levels of preoperative anxiety cause physical problems, such as dizziness, nausea, and headache, and affect postoperative anxiety. Moreover, high levels of preoperative anxiety increase the anesthesia dosage required during surgery and the analgesic dosage required for postoperative pain management and adversely affect cognitive functions [2,12]. In addition, anxiety may temporarily increase patient's blood pressure. If the patient's blood pressure elevates and the operation is performed, it can interfere with the anesthetic administered and can cause the patient to regain consciousness during the surgical procedure.

Surgery can also be canceled due to the current COVID-19 pandemic. The COVID-19 pandemic situation that has attack the world since December 2019, then entered Indonesia since the end of February 2020 and in the province of Bali since early March 2020 is one of the psychological factors that can increase the preoperative anxiety in patients. The patient's anxiety about the operation that will be undergoing is exacerbated by the fear of exposure to the COVID-19 virus. Patients also feel anxious about going to a health service such as a hospital for fear of contracting the virus.

Most patients experience different degrees of anxiety and fear before surgery [11]. Preoperative anxiety is caused by several factors, for example, age and stages of development, gender, education level, patient's physical condition, and individual experience [6]. Based on a preliminary study that was conducted at the Surgical Polyclinic of Sanglah General Hospital, Denpasar, from 31 August to 1 September 2020, it was found that the

average number of total patient visits from May to July 2020 was 3,797 patients per month with an average number of preoperative patients as many as 456 patients per month (12.01% of total visits). Meanwhile, the average number of first-time preoperative patients was 130 patients per month (28.51% of the total number of preoperative patients) with details of 56 patients in May, 152 patients in June, and 183 patients in July. The results of interviews conducted randomly with 10 patients who were going to undergo surgery obtained the following data. Eight patients (80%) said they had never had surgery and two patients (20%) said they had had surgery before. The number of patients who said they were ready to undergo surgery was two patients (20%), while five patients (50%) said they were still worried about surgery and three patients (30%) said they were afraid to undergo surgery. The number of patients who already understood the surgical procedure they were going to undergo was two patients (40%), while four patients (40%) said they were still puzzled and two patients (20%) said they had no idea. The number of patients who already understood anesthetic was 3 patients (30%), while 2 patients (20%) said they had little understanding of anesthetic, and 5 patients (50%) said they did not have understanding of anesthetic. From these data, it can be concluded that the number of preoperative patients in the Surgical Polyclinic of Sanglah General Hospital, Denpasar, was still large, namely, 12.01% per month. Most of these patients (80%) had never had surgery before and based on the measurement of anxiety according to the Amsterdam Preoperative Anxiety and Information Scale (APAIS), the majority of patients still experienced anxiety about the surgery they were going to undergo.

Materials and Methods

This research is quantitative research with cross-sectional approach. The study was conducted from November 2 to 14, 2020 at the Surgical Polyclinic of Sanglah General Hospital, Denpasar. The sampling technique was consecutive sampling with a total of 98 patients as respondents. The research inclusion criteria were first-time preoperative patients, who were cooperative, able to communicate well, literate, and aged 24-45 years.

The independent variables of the study were age, gender, level of education, physical condition, and experience. Meanwhile, the dependent variable was preoperative anxiety in patients. The study employed questionnaire instrument about preoperative anxiety in patients according to the Amsterdam Preoperative Anxiety and Information Scale (APAIS), which consists of six short statements: I am worried about the anesthetic, I am constantly thinking about the anesthetic, I would like to know as much as possible about the anesthetic, I am worried about the surgical procedure, I am constantly thinking about the surgical procedure, and I would like to know as much as possible about the surgical procedure [13]. The Amsterdam Preoperative Anxiety and Information Scale (APAIS) had validated with the newest validation and reliabilition test which was executed by Funda Centikaya, Esin Kavuran, Kevser Sevgi Unal Aslan (2018) showed that APAIS was valid and reliable scale with *Cronbach Alpha* rate result anxiety component 0,897 and information regulation 0,768. Factoral analysis result was 81,435% of all variants with eigen rate > 1 [24].

Data Analysis

Bivariate data analysis was performed using non-parametric Pearson's chi-squared test and multivariate logistic regression.

Results and Discussion

Results

The results showed the characteristics of age, gender, education level, physical condition, and experience and their and influence on preoperative anxiety in patients during the COVID-19 pandemic as in the following description:

Age

Most of the respondents, as many as 68 patients or 65.4%, were 36-45 years old. A total of 48 patients experienced moderate anxiety, or even panic. The data analysis showed the value of p = 0.782, which indicated that age factor had

no influence on anxiety in patients. The Characteristics of respondents based on age are presented in Table 1.

Table 1. The Characteristics of respondent based on age

No	Age (years)	Frequency (f)	Percentage (%)
1	Early adult 26-35 years old	30	30,6
2	Late adult 36-45 years old	68	65,4
	Total	98	100

Gender

Most of the patients, as many as 50 patients or 51.0%, were male, while 48 patients or 49.0% were female. Male patients experience mild anxiety more than women. Female patients were 2.07 times more likely to experience moderate anxiety or panic than male patients. The result of the analysis showed the value of p = 0.008, which indicated that gender had an influence on anxiety. The Characteristics of respondent based on gender are presented in Table 2.

Table 2. The Characteristics of respondent based on gender

No	Gender	Frequency (f)	Percentage (%)
1	Male	50	51,0
2	Female	48	49,0
	Total	98	100

Education Level

Most of the patients, as many as 45 people or 45.9%, graduated from academy or higher education institutions and there were 2 patients (2.0%) who had never attended school. Patients with high level of education, as many as 19 patients, experienced less moderate anxiety or panic than those with low level of education (51 patients). The result of the analysis showed the value p = 0.000, which indicated that there was an influence of education level on preoperative anxiety in patients. Patients without high level of education were 2.00 times more likely to experience moderate anxiety, or even panic, than patients with higher education. The Characteristics of respondents based on education level are presented in Table 3.

Table 3. The Characteristics of respondent based on education

No	Education level	Frequency (f)	Percentage (%)
1	Not educated	2	2.0
2	Elementary school	16	16.3
3	Junior high school	7	7.1
4	Senior high school	28	28.6
5	Collage	45	45.9
	Total	98	100

Physical Conditions

Most of the patients, as many as 78 patients or 79.6%, did not have comorbidities. Moderate anxiety or panic was more experienced by patients who did not have comorbidities, as many as 54 people, compared to those who had comorbidities. The result of the analysis test showed the value of p = 0.342, which denoted that physical condition factor was not correlated with anxiety. The Characteristics of respondents based on physical conditions are presented in Table 4.

Table 4. The Characteristics of respondent based on physycal conditions

No	Physical condition	Frequency (f)	Percentage (%)
1	Comorbities	20	20.4
2	No comorbities	78	79.6
	Total	98	100

Personal Experience

Most of the patients, as many as 57 patients or 58.2%, had no experience of undergoing surgery, while 41 people or 41.8% had

experience of undergoing surgery. Moderate anxiety was mostly experienced by patients who had no experience of undergoing surgery in which 44 patients were among them. Patients who had no experience of undergoing surgery were 4.80 times more likely to experience moderate anxiety or panic than patients who had experience of undergoing surgery. The result of the analysis test showed the value of p=0.006, which indicated that the experience factor was related to anxiety. The Characteristics of respondents based on personal experience are presented in Table 5.

Table 5. The Characteristics of respondent based on personal experience

No	Experience	Fre-quency (f)	Percent-age (%)
1	Never operated	57	58.2
2	Ever operated	41	41.8
	Total	98	100

Anxiety Levels among Preoperative Patients

A total of 41 respondents (41.8%) experienced moderate anxiety and there were 8 respondents (8.2%) who experienced panic. Those results are presented in Table 6.

Table 6. The Characteristics of responden based on personal experience

No	Anxiety level	Frequency (f)	Percentage (%)
1	Panic	8	8,2
2	Severe anxiety	21	21,4
3	Moderate anxiety	41	41,8
4	Mild anxiety	28	28,6
5	Not anxious	0	0
	Moderate anxiety-panic	70	71,4
	Mild anxiety	28	28,6
	Total	98	100

Discussion

The Influence of Age Factor

The results showed that older adult patients experienced more moderate and severe anxiety, or even panic, than younger adult patients. Age had no influence on preoperative anxiety in patients. Age is closely related to an individual's stage of development and coping ability to stress. Younger individual is more prone to experiencing anxiety disorders. Maturity in the thinking process of adults allows them to use adaptive coping mechanisms [6]. The difference in results of this research was due to the fact that respondents were both older and younger adults (aged 26-45 years), with the assumption that the respondents tended to be homogeneous with less varied data variations, which caused no correlation between age and preoperative anxiety in patients, especially at the Surgical Polyclinic of Sanglah General Hospital, Denpasar. The fear of older adult patients about surgery and more patients' curiosity about the surgery they were going to undergo indicated the patients' anxiety about the surgery. Meanwhile, younger adult patients tended to not want to know too much about the surgery they were going to undergo, so they were less afraid and anxious about the surgery.

The Influence of Gender Factor

The result showed that there was a correlation between gender and preoperative anxiety in patients. Men experienced mild anxiety more than women. Women tended to experience more severe anxiety or panic compared to men because women tend to be more sensitive than men. In general, psychological disorders can be experienced by women and men equally. However, the ability and resilience of men in dealing with anxiety and their coping mechanisms are generally higher. Therefore, 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. [6].

The Influence of Education Level Factor

The result of this research indicated that re-

spondents who were from low-education backgrounds (primary school, middle school, high school) experienced more moderate anxiety, severe anxiety, and panic, compared to respondents with high education. The categories of moderate anxiety to panic were mostly experienced by respondents with the latest education level of middle school (100%) and respondents who did not attend school (100%), while as many as 93.8% of respondents with elementary education level experienced moderate to severe anxiety. It denoted that the lower the education was, the more severe the level of anxiety became. Knowledge is the result of learning and it occurs through sensing a certain object. Sensing can occur through the five human senses, namely, sight, hearing, smell, taste, and touch. Most of human knowledge is acquired through sight and hearing. Knowledge that is included in the cognitive domain has six levels, namely: knowledge, understanding, application, analysis, synthesis, and evaluation. The higher the level of education is, the higher the level of knowledge becomes. Knowledge of the surgical procedure they will undergo will affect patient's adaptation attitude and behavior to preoperative anxiety. Patients with higher education will have sufficient knowledge and will not want to know much about the surgical and anesthesia procedures they will undergo so that they do not seem to feel fear and anxiety about the procedures.

The Influence of Physical Condition Factor

The result showed that statistically, there was no correlation between physical conditions and preoperative anxiety in patients. Patients who did not have comorbidities experienced mild anxiety more than patients who had comorbidities. More severe conditions of anxiety or panic were experienced by respondents who did not have comorbidities. Anxiety disorders can be triggered by a combination of neurobiological and environmental factors. Anxiety is caused by stress factors in everyday life, one of which is a history of illness or health status of an individual. Poor physical condition will have an impact on the psychological condition of an individual in the face of any significant event in their life. Someone suffering from a disease will experience anxiety more easily than healthy people.

The results of the research contradicted this theory. This was because most of the respondents did not have comorbidities (79.6%). Patients who did not have comorbidities experienced moderate to severe anxiety more than those who had comorbidities. Perhaps, it was because the patients had no experience of undergoing surgery and had coping mechanism that tended to be more sensitive.

The Influence of Experience Factor

The result showed that there was a correlation between experience of undergoing surgery and anxiety. Patients who had experience of undergoing surgery tended to experience mild anxiety more than those who had never experienced surgery. Meanwhile, panic was more experienced by patients who had no previous experience of undergoing surgery. Experience tends to be related to knowledge [6]. Previously gained knowledge about surgery will help an individual perceive something, so that they can reduce anxiety they experience. This knowledge itself is usually gained from information and experiences that the individual has had. The experience of undergoing surgery will provide information and an overview of the operation procedure that the patient will undergo. It will make the coping mechanism of patients during preoperative period more adaptive so that patients who have never had surgery before seem to be more afraid and anxious during preoperative period.

The Most Dominant Factor that Influenced preoperative anxiety in patients

The results in Table 7 showed that of the three influencing factors, namely, gender, education level, and experience, the most dominant factor was experience factor with an odds ratio of 4.806, while gender had an odds ratio of 2.07 and education had an odds ratio of 2. 00. The influence of these three factors was 75.4% and the remaining 24.6% was influenced by other factors. Both positive and negative experiences can affect the development of coping skills. The success of an

individual in the past can help them to develop skills in implementing coping strategies. Conversely, failure or emotional reactions cause an individual to apply maladaptive coping strategies to certain stressors. Individual experiences greatly influence their response to anxiety because experience can be used as a lesson so that if they have to undergo surgery, they will be better prepared mentally. Experience provides an individual with an overview of an event that has been experienced before, so that they are better prepared to deal with it if it happens again. This experience can affect patient's physical response to surgical procedures. The type of surgery they previously underwent, the level of discomfort, the degree of helplessness, and the overall level of treatment obtained are factors that the patient may recall.

Table 7. The influence of gender, education level and experience factors to pre operation patient's anxiety

No	Variable Factors	Odds Ratio (OR)	(95% CI)	P Value
1	Gender			
	Male	*Ref*.	(2,008-2,773)	0,029*
	Female	2,079		
2	Education			
	Higher education	*Ref*.	(2,001-2,034)	0,031*
	Not higher education	2,006		
3	Experience			
	Ever operated	*Ref*.	(0,350-22,481)	0,000*
	Never operated	4,806		

Recommendations

Patient education prior to surgery is important in the preoperative phase in order to prepare patients for surgery in the post-COVID-19 era so that patients do not experience anxiety in facing surgery.

Conclusion

There are three factors that influenced preoperative anxiety in patients during the COVID-19 pandemic at the Surgical Polyclinic of Sanglah General Hospital, Denpasar, namely: age, level of education, and experience. The influence of these three factors on anxiety was 75.4% and the remaining 24.6% was influenced by other factors. Experience factor was the most dominant factor.

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