

The characteristic of anxiety disorder among medical students of Universitas Udayana, Bali, Indonesia in the 2019 period



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ABSTRACT

Background: Anxiety is a normal stress reaction and can be beneficial in some dangerous situations. The symptoms are individual, whereas most of them include restlessness, feeling keyed up on edge, being easily fatigued, difficulty concentrating, irritability, muscle tension, and sleep disturbance. This study aims to determine the characteristic of anxiety disorder among medical students of Universitas Udayana, Bali, Indonesia, in the 2019 period.

Methods: A cross-sectional study was conducted among 75 medical students who met the inclusion criteria in this study. The characteristic of anxiety disorders depicted in this study was the prevalence, anxiety severity, characteristic of anxiety, and possible stressors. *Depression Anxiety and Stress Scale- 21* (DASS-21) used to assess anxiety among medical students. Data were analyzed

descriptively using SPSS version 21 for Windows and presented in percentages.

Results: From 75 medical students, 11 (14.67%) students were batch 2016, 25 (33.33%) students were batch 2017, and 39 (52.0%) students were batch 2018. Based on the DASS-21 score, there were 53 students (70.7%) experienced anxiety. According to the severity of anxiety, we found that the vast majority of students (45.3%) belong to the extremely severe anxiety group, followed by severe anxiety (20.8%), moderate anxiety (15.1%) and mild anxiety (11.3%).

Conclusion: The characteristic of anxiety disorder among medical students were predominant by the severe anxiety group based on the DASS-21 score.

Keywords: Anxiety, Characteristic, Medical Students.

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INTRODUCTION

Anxiety is a normal stress reaction and can be beneficial in some dangerous situations.¹ However, if anxiety causes disturbance and limitation in performing a daily activity, it can be classified as an anxiety disorder.¹ According to DSM V, general anxiety disorder is defined as excessive anxiety occurring more often(days) than not for at least 6 months about several events or activities. The symptoms include restlessness, feeling keyed up on edge, being easily fatigued, difficulty concentrating or mind going blank, irritability, muscle tension, and sleep disturbance.² According to large population-based surveys, the global prevalence of anxiety disorder is 33.3% approximately.² Studies that include 44 countries estimated that the current majority is between 2.4% until 29.8%, the highest prevalence held by European countries and the lowest belong to African and Asian countries.^{2,3} Even though Asia is one of the countries with the lowest prevalence of anxiety disorder, a study conducted in Indonesia shows that among 628,800

people with a mental disorder in Indonesia, around 6% of them have anxiety symptoms of 37,328 people.³ Notwithstanding that fact, Indonesia has low surveillance of mental health disorders, so it could be more people with anxiety or other mental illness that have not been recorded or even diagnosed in Indonesia.⁴

One of the populations that are prone to have an anxiety disorder is a medical student. The prevalence of anxiety among medical students is relatively high. One study reported that 35.5% of medical students proved to have an anxiety disorder, with a 16% higher prevalence among women.⁵ Another study shows that the prevalence rate of anxiety among medical students was 29.2% (95%CI=24.4%-34.3%), with 9.9% among them considered dropping out from medical students because of their mental illness.⁶ Females were more likely to have medium to severe anxiety than men.⁶ Some factors cause anxiety among medical students, such as parents' pressure, having non-physician parents, concerns about their future, and academic pressure.⁵ The latest study in Turkey also shows that

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35.8% of 928 medical students experienced mild and moderate anxiety and stress levels, with the most prevalent among first-year medical students. It was also 1,9 times higher among female students than male students.⁷

Anxiety among medical students deserves more attention since it can influence a student's academic performance. A study from Hakami et al. shows that medical students' anxiety significantly correlates with work and social life disabilities.⁸ It also affects their actual physical health that contributes to their low academic performance.⁸ Another similar study reports that a medical student's final score significantly declines with anxiety compared to normal students.⁹ Anxiety among medical students most likely to coexist with depression and students with anxiety and depression will significantly decline in the average final score.⁹ This study is also supported by another study where a student with higher anxiety scored tends to have a smaller GPA than their average peers.¹⁰

Based on those mentioned above, the researcher feels that it is important to see the anxiety among medical students due to the higher prevalence and negative effect on their academic performance as well as overall quality of life. Knowing about the prevalence and characteristics of anxiety disorder among Udayana University Medical Student, it is hoped that students' awareness about anxiety disorder will improve. After that, they seek help to improve their quality of life will be more frequent among them.

METHODS

This study is a descriptive study with a cross-sectional approach where data measurement will only be done once at the Faculty of Medicine Udayana University, Denpasar, Bali from November-December 2019, using simple random sampling. The target population in this study is all medical students in Bali. The sample population that will be used in this study is Udayana University's medical students. The batches involved will be students from batch 2016 - 2018 in Medical Faculty. The study sample is the medical students from the sample population that fulfill the inclusion and exclusion criteria. The inclusion criteria were all the medical students of Udayana University who registered as batch 2016-2018 and voluntarily participated in the study. Whereas, a student who refuses to participate in the study and a student with a chronic anxiety disorder or other psychiatric disorder diagnosed before admitted to the medical school was determined as exclusion criteria

The anxiety disorder is a feeling of worry experienced by someone who is over-occurring and

can be followed by several somatic symptoms that result in a disruption in the students' work or social function. This will be assessed with the DASS-21 questionnaire and classified as follow: Normal (0-7), Mild (8-9), Moderate (10-14), Severe (15-19), and Extremely Severe (>20).

Stressors that possibly caused the anxiety, which is assessed by the MSSQ-40 questionnaire and classified as: mild (0-1), moderate (1.01-2), high (2.01-3), and severe (3.01-4). *Depression Anxiety and Stress Scale- 21* (DASS-21) will assess anxiety among medical students. It consists of 21 questions and is divided into each diagnosis by 7 questions. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious effect. It will be given a scale from 0-3 with 0 means did not apply to me, 1 means as applied to me sometimes, 2 means a good part of the time, and 3 means almost every time. The sum of the score in every question will be counted and classified as defined in the variable's definition below. The stressor that can cause anxiety among medical students will be assessed with *The Medical Student Stressor Questionnaire- 40* (MSSQ) with 40 questions related to 6 domain stressors that perhaps cause anxiety among medical students. The scale will be 0-4, where 0 means causing no stress, 1 means causing mild stress, 2 moderate stress, 3 high stress, and 4 severe stress. The average score in every domain will be classified as defined in the variable's definition above.

Data collected from questionnaires will be coded and analyzed in SPSS version 21.0 for Windows. The analysis will be done descriptively for each data where the nominal data will be shown as frequency and percentage. Ordinal data will be shown as mean and standard deviation. Data will be described in a table and graph.

RESULTS

The study has been done among Udayana University Medical Students from batch 2016 until 2018. The questionnaires that have been given out are the Indonesian translated version of DASS-21 to assess anxiety and MSSQ to assess the stressor. A total of 75 students voluntarily participated in this study. They did not find any difficulty nor confusion when they filled in the questionnaires. Based on batch origin, 11 students participated in this study from batch 2016, 25 students from batch 2017, and 39 students from batch 2018.

The total score of DASS-21 was ranged from 0 to 45, with an average value of 14.20 ± 10.3 . The diagnosis and severity of anxiety are classified based on the explanation in chapter four where students who got a score below 7 are classified

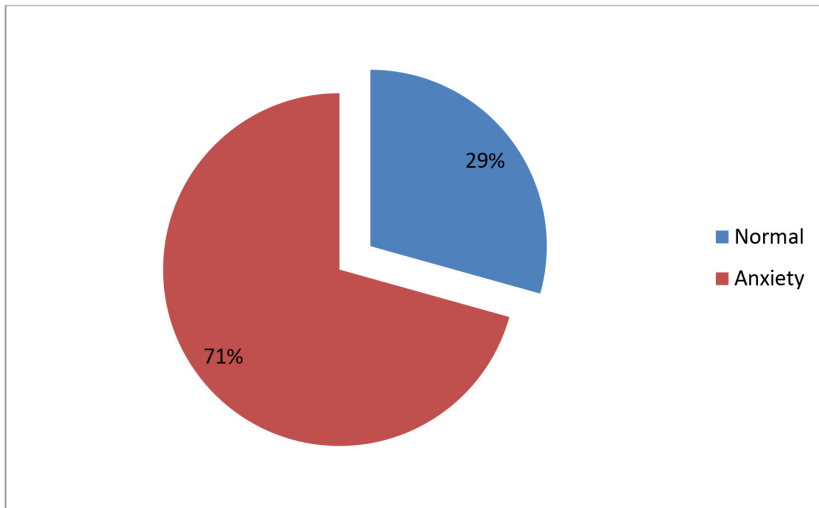


Figure 1. Prevalence of Anxiety Among Udayana University Medical Students

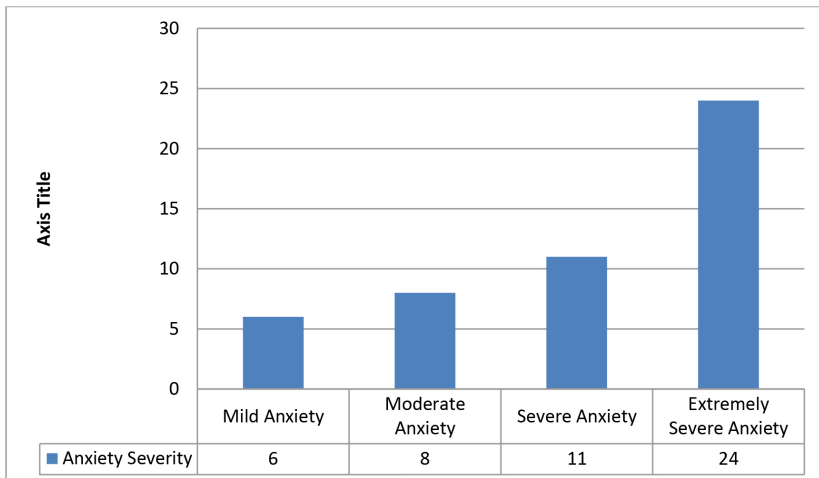


Figure 2. Anxiety Severity Among Udayana University Medical Students

as normal, score 8-9 classified as mild anxiety, score 10-14 classified as moderate anxiety, score 15-19 classified as severe anxiety and score ≥ 20 classified as extremely severe anxiety. We found out that there were 53 students (70.7%) experienced anxiety. Based on the severity, we found that the vast majority of students (45.3%) belong to the extremely severe anxiety group, followed by severe anxiety (20.8%), moderate anxiety (15.1%) and mild anxiety (11.3%). The detailed data can be seen in Figures 1 and 2.

From the participants' answers on the DASS-21 questionnaire, we can assess the anxiety manifestation pattern that the students have experienced during their study. In order to evaluate both depression and anxiety, the questions focused on anxiety belong to numbers 2, 4, 6, 7, 8, 9, 11, 12, 15, 19, and 20. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety,

and subjective experience of anxious impact. It will be given a scale from 0-3 with 0 means did not apply to me, 1 means as applied to me sometimes, 2 means a good part of the time, and 3 means almost every time.

In this study, we can see that most of the participants sometimes have experienced anxiety symptoms. We found out that almost half (48.0%) of the participants feel that sometimes they feel dryness sensation in their mouths—only 4% of them experienced that symptom all the time. Breathing difficulty has affected 26.7% of the participants sometimes and 10.7% of the participants in a good part of their time. Almost half of the participants (49.3%) sometimes tend to be over-reactive towards something. Around 30.7% of participants sometimes experienced tremblings on the hands, and only 1 person feels like experienced it most of the time. About 44% of students stated that sometimes they felt like they were using a lot of nervous energy.

Meanwhile, 12% of them experienced it a good part of the time. Participants who sometimes feel worried and panic if they make a fool of themselves were 42.7%, and there were 14.7% who experienced it almost every time. The detailed data can be seen in Table 1.

The MSSQ Questionnaire translated version was used to assess the probable factors that possibly cause a student's anxiety. Score 1 means mild stress, 2 moderate stress, 3 high stress, and 4 severe stress. From the study, we found the highest total score was 134 and the lowest was 40, with an average of 82.95 ± 22.3 .

The highest percentage on the score 4 was 18.7%, which shows that the participants think that conflict with their teacher and having insufficient medical skill practice will give them severe stress, followed by the need to do well because of others (17.3%), facing illness or death of the patients, getting poor marks and the uncertainty of expectations towards themselves which accounted for 16% participant respectively. In severe stress, the highest percentage was 41.3%, which shows that the test or examination and lack of time to review what they have been learning in class cause severe stress among Udayana University medical students. Around 52% of students feel that heavy workload as a medical student gives them a moderate level of stress, followed by falling behind in the reading schedule (50.7%). A large number of contents to be learned, talking to the patient about personal problems and family responsibilities (48% each), and conflicts with other students (46.7%) are seen as the stressor that can cause moderate stress among medical students (Table 2).

Table 1. Characteristics of Anxiety Among Udayana University Medical Students

Statements	0 n, (%)	1 n, (%)	2 n, (%)	3 n, (%)
I found it hard to wind down	19 (25.3)	42 (56.0)	14 (18.7)	0 (0.0)
I was aware of the dryness of my mouth	26 (34.7)	36 (48.0)	10 (13.3)	3 (4.0)
I couldn't seem to experience any positive feeling at all	41 (54.7)	28 (37.3)	5 (6.7)	1 (1.3)
I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	47 (62.7)	20 (26.7)	8 (10.7)	0 (0.0)
I found it difficult to work up the initiative to do things	21 (28.0)	42 (56.0)	10 (13.3)	2 (2.7)
I tended to over-react to situations	26 (34.7)	37 (49.3)	10 (13.3)	2 (2.7)
I experienced trembling (e.g., in the hands)	48 (64.0)	23 (30.7)	3 (4.0)	1 (1.3)
I felt that I was using a lot of nervous energy	30 (40.0)	33 (44.0)	9 (12.0)	3 (4.0)
I was worried about situations in which I might panic and make a fool of myself	18 (24.0)	32 (42.7)	14 (18.7)	11 (14.7)
I felt that I had nothing to look forward to	57 (76.0)	15 (20.0)	3 (4.0)	0 (0.0)
I found myself getting agitated	47 (62.7)	23 (30.7)	5 (6.7)	0 (0.0)
I found it difficult to relax	40 (53.3)	26 (34.7)	9 (12.0)	0 (0.0)
I felt down-hearted and blue	35 (46.7)	23 (30.7)	11 (14.7)	6 (8.0)
I was intolerant of anything that kept me from getting on with what I was doing	33 (44.0)	34 (45.3)	5 (6.7)	3 (4.0)
I felt I was close to panic	40 (53.3)	24 (32.0)	10 (13.3)	1 (1.3)
I was unable to become enthusiastic about anything	40 (53.3)	27 (36.0)	6 (8.0)	2 (2.7)
I felt I wasn't worth much as a person	58 (77.3)	12 (16.0)	4 (5.3)	1 (1.3)
I felt that I was rather touchy	20 (26.7)	32 (42.7)	15 (20.0)	8 (10.6)
I was aware of the action of my heart in the absence of physical exertion (increase heart rate, missing a beat)	39 (52.0)	26 (34.7)	9 (12.0)	1 (1.3)
I felt scared without any good reason	43 (57.3)	19 (25.3)	12 (16.0)	1 (1.3)
I felt that life was meaningless	52 (69.3)	20 (26.7)	1 (1.3)	2 (2.7)

DISCUSSION

In this study, we found that most of students have experienced anxiety during their medical study, with 45.3% of students with too severe anxiety, 20.8% with severe anxiety, 15.1% with moderate anxiety, and 11.3% mild anxiety. This result is higher than the prevalence of anxiety among medical students from the previous study. A study from Marzouk M et al. in 2018 found out that 43.6% of medical students in Tunisia who are in the clinical phase have definite anxiety.¹¹ A study from South India in the same year showed that medical students had a prevalence of anxiety, around 19.4%, with only 4.7% classified as extremely anxious.¹² The latest data from meta-analytical study worldwide shows that the global prevalence of anxiety among medical students was 33.8% (95.5%CI=29.2-38.7), with the most prevalent country in was Middle East (42.4%) and Asia (35.2%).¹³ The previous study done at Udayana University year 2017 shows that 76.9% of medical students experienced moderate anxiety, and the other 23.1% experienced mild anxiety based on the GAD-7 questionnaire. They also found that

the anxiety among medical students affected their examination result where most of the students who failed the test have moderate anxiety.¹⁴ Another study from Andalas University, West Sumatra, shows a low level of anxiety, with only 2.2% of preclinical students experienced moderate anxiety and 4.3% experienced mild anxiety assessed by the HRS-A questionnaire.¹⁵ The differences in this result can be caused by the researcher's tools to determine the anxiety. Some studies that compare the sensitivity and specificity between GAD-7 and DASS-21 questionnaire show that GAD-7 tend to have good sensitivity (79.5%) but low specificity (44.7%). This can cause a lower percentage of people who are classified as anxiety. In contrast, the DASS-21 has high sensitivity (89%) and specificity (82%). This could be the reason for the high percentage of students that experienced anxiety in this study.¹⁶

In this study, most of the students' stressors have come from academic burdens such as the need to do well, examinations, lack of time reviewing study material, and social problems such as conflicts with a teacher and other peers. Academic stressor

Table 2. Possible Stressors That Caused Anxiety Among Medical Students

Variables	1 n, (%)	2 n, (%)	3 n, (%)	4 n, (%)
Test/ examination	4 (5.3)	32 (42.7)	31 (41.3)	8 (10.7)
Talking to patient about personal problems	13 (17.3)	36 (48.0)	26 (34.7)	0 (0.0)
Conflicts with other students	23 (30.7)	35 (46.7)	12 (16.0)	5 (6.7)
Quota system in examination	30 (40.0)	34 (45.3)	8 (10.7)	3 (4.0)
Verbal/ physical abuse by other students	32 (42.7)	30 (40.0)	11 (14.7)	2 (2.7)
Parental wish for you to study medicine	45 (60.0)	17 (22.7)	8 (10.7)	5 (6.7)
Need to do well (self-expectation)	21 (28.0)	34 (45.3)	12 (16.0)	8 (10.7)
Not enough study material	14 (18.7)	33 (44.0)	20 (26.7)	8 (10.7)
Conflict with personels	21 (28.0)	33 (44.0)	19 (25.3)	2 (2.7)
Heavy workload	11 (14.7)	39 (52.0)	22 (29.3)	3 (4.0)
Participation in class discussion	35 (46.7)	37 (49.3)	2 (2.7)	1 (1.3)
Falling behind in reading schedule	14 (18.7)	38 (50.7)	20 (26.7)	3 (4.0)
Participation in class persentation	36 (48.0)	29 (38.7)	9 (12.0)	1 (1.3)
Lack of guidance from teacher	20 (26.7)	36 (48.0)	17 (22.7)	2 (2.7)
Feeling of incompetence	17 (22.7)	26 (34.7)	20 (26.7)	12 (16.0)
Uncertainty of what is expected of me	21 (28.0)	33 (44.0)	14 (18.7)	7 (9.3)
Not enough medical skill practice	12 (16.0)	22 (29.3)	27 (36.0)	14 (18.7)
Lack of time for family and friends	18 (24.0)	32 (42.7)	21 (28.0)	4 (5.3)
Learning context- full competition	20 (26.7)	34 (45.3)	19 (25.3)	2 (2.7)
Teacher lack of teaching skills	27 (36.0)	36 (48.0)	10 (13.3)	2 (2.7)
Unable to answer questions from patients	13 (17.3)	30 (40.0)	26 (34.7)	6 (8.0)
Inappropriate assignments	22 (29.3)	35 (46.7)	14 (18.7)	4 (5.3)
Having difficulty understanding the content	18 (24.0)	26 (34.7)	26 (34.7)	5 (6.7)
Facing illness or death of thepatirnts	20 (26.7)	28 (37.3)	15 (20.0)	12 (16.0)
Getting poor marks	13 (17.3)	24 (32.0)	26 (34.7)	12 (16.0)
Poor motivation to learn	11 (14.7)	29 (38.7)	26 (34.7)	9 (12.0)
Lack of time to review what have been learnt	13 (17.3)	24 (32.0)	31 (41.3)	7 (9.3)
Verbal or physical abuse by teacher	25 (33.3)	18 (24.0)	25 (33.3)	7 (9.3)
Frequent interruption of my work by others	29 (38.7)	33 (44.0)	11 (14.7)	2 (2.7)
Unable to answer the questions from teachers	17 (22.7)	31 (41.3)	19 (25.3)	8 (10.7)
Conflict with teacher	21 (28.0)	16 (21.3)	24 (32.0)	14 (18.7)
Unwillingness to study medicine	44 (58.7)	18 (24.0)	8 (10.7)	5 (6.7)
Large amount of content to be learnt	17 (22.7)	36 (48.0)	13 (17.3)	9 (12.0)
Need to do well (imposed by others)	19 (25.3)	30 (40.0)	13 (17.3)	13 (17.3)
Not enough feedback from teachers	28 (37.3)	34 (45.3)	11 (14.7)	2 (2.7)
Unjustified grading process	27 (36.0)	34 (45.3)	12 (16.0)	2 (2.7)
Lack of recognition for work done	23 (30.7)	33 (44.0)	14 (18.7)	5 (6.7)
Working with computers	47 (62.7)	22 (29.3)	4 (5.3)	2 (2.7)
Verbal or physical abuse by personles	30 (40.0)	34 (45.3)	10 (13.3)	1 (1.3)
Family responsibilities	23 (30.7)	36 (48.0)	7 (9.3)	9 (12.0)

means the burden that a student has to fulfill, such as the requirement of the class, the more advanced the study years, the more possibility that students might have developed abilities to handle the burdens of studying medicine and to adapt to the enormous workload, reducing the subsequent stress and anxiety.¹⁷ Some analytical studies found out that academic-related stressors were associated with medical students' anxiety (OR=1.78; 95% CI=1.23-2.58; p=0.002).¹⁸ Academic study is seen

as the most important domain stressor of medical students' life. This is most likely to happen because most medical students are at the top of the class in their previous schools.

Meanwhile, in medical school, their peers also show a good or better performance from them; therefore, unconsciously, they tend to push themselves to maintain their previous position. Furthermore, studying medicine gives students a high standard in terms of scores and grades,

which possibly caused more academic stress. Heavy workload as a medical student also contributes to stressing the students.¹⁹ A study conducted in Florida with 5000 medical students who participated in the study shows that academic workload contributed 38.2% of their severe stress source.²⁰ In contrast, conflict with people in the campus area contributes 29.5% of their stress. About 639 students mentioned that school workload and performance pressure are bothering them and become such a burden, whereas 102 students mention that peer's relation and other social environments in medical school can create stress for them.²⁰ From the qualitative result, some students stated that they feel overwhelmed about the volume of detailed information that they should be master, the amount of material they should also learn, the pace of curriculum that they think too fast for a tremendous amount of material should be remembered. Others also feel frustration from unnecessary academic requirements and extra work that doesn't impact their careers as doctors.

Regarding the medical school's social environment, some students stated that the competitive environment was often creating conflicts between their peers.²⁰ They have the pressure to be the best of the best and try everything to do that. Some other interactions with the teacher also can create conflicts sometimes, and the discrimination after conflicts stress the students out. Students who had a conflict with the teacher often get a lower grade and experiences different treatment.²⁰

This study uses a descriptive study design. There is no correlation between the variables that can be seen in this study. Total samples from each batch are not similar due to the differences in each batch's schedule and activities, which possibly affected the result of this study. Because of this study's time limitation, this study only uses the DASS-21 questionnaire to screen the anxiety among medical students, which is not a gold standard to diagnosed clinical anxiety.

CONCLUSION

From this study, we can conclude that 70.7% of Udayana University Medical Students experienced anxiety based on DASS-21 questionnaire answers. There were 45.3% of students with extremely severe anxiety, 20.8% with severe anxiety, 15.1% with moderate anxiety, and 11.3% with mild anxiety. The most severe stressor that they have experienced were conflicts with the teacher and the need to do well because of others. Further study with an analytical approach and samples from multiple centers can get more representative results. It is crucial to match each batch's schedule and activities to get an optimum total sample from each batch in the future

study. Anxiety diagnosis using a gold standard such as DSM-V TR and clinical diagnosis by professional psychiatric should be made in the prospective study to get a more accurate anxiety diagnosis.

CONFLICT OF INTEREST

There is no competing interest regarding the manuscript.

ETHICS CONSIDERATION

The ethics approval has been obtained from the Ethics Committee, Faculty of Medicine, Universitas Udayana, Bali, Indonesia, prior to the study being conducted.

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None

AUTHOR CONTRIBUTION

All of the authors equally contribute to the study from the conceptual framework, data gathering, and data analysis until reporting the study results through publication.

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