

# Anxiety and coping mechanisms in facing clinical skills exam: A study among medical student

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**Abstract.** The prevalence of mental and emotional health disorders (depression and anxiety) nationally reached 9.8%. Medical students are required to master various competency areas that can cause students to feel pressure and potentially triggering anxiety. The OSCE (Objective Structured Clinical Examination) is an exam that known as a cause of higher anxiety than other exams. This study aims to analyse the factors that influence anxiety during OSCE for medical. This study is qualitative research with a phenomenological approach which aims to reveal and study the phenomena experienced by the subjects. The sample is all active medical students' class 2019, 2020 and 2021 who fulfil the specified inclusion and exclusion criteria. Data collection methods are Focused Group Discussion (FGD), observation and documentation. We analysed the results of the FGD and interviews using the content analysis method. The results of the research found large categories of research problems, including perceptions and anxiety facing OSCE, factors that cause anxiety during OSCE, and students' coping mechanisms. In dealing with stressors in the form of OSCE students will use two types of coping strategies, problem-focused coping and emotion-focused coping.

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## 1 Introduction

Based on the Basic Health Research (RISKESDAS) data in 2018, the national prevalence of mental and emotional disorders (depression and anxiety) was 9.8%, showing a significant increase compared to 6% in 2013 [1]. According to the Riskesdas report of Yogyakarta Special Region in 2018, the prevalence of mental and emotional disorders was 10.07%, with stress more prevalent among young adults than older adults [2].

The field of medicine is one of the most highly sought-after disciplines each year. Educational activities for medical students include expert lectures, tutorials, basic laboratories, clinical skills activities, and others [3]. One of the causes of anxiety among students is exams or assessments. The demands of education can create pressure, potentially triggering anxiety [4]. Anxiety negatively impacts students' academic performance, showing a significant negative correlation [5]. Research conducted at a selected college in Kerala, India also found a negative correlation between academic performance and anxiety during exams [6]. Clinical skills training provides medical students with the opportunity to learn basic clinical skills in a simulated doctor-patient setting. Learning during clinical skills training includes history taking, physical examination, and performing medical procedures such as IV insertion and resuscitation, culminating in Objective Structured Clinical Examination (OSCE) assessments [7].

Based on interviews conducted by the researcher on June 24, 2022, to sixth-semester medical students at Ahmad Dahlan University regarding clinical skills exams, they expressed anxiety about these exams. Reasons for anxiety included the OSCE setting, the breadth of material tested, personal readiness, examining professors, and role-playing requirements. Coping mechanisms mentioned in the interviews included extensive studying, trying to remain relaxed, and validating their feelings of anxiety.

Based on the background, the researcher is interested in studying the factors influencing anxiety during clinical skills exams among medical student at Universitas Ahmad Dahlan. This research is contributed to the development of psychiatry and medical education.

## 2 Material and Methods

This study aims to explore the experiences of students from the Faculty of Medicine, during Objective Structured Clinical Examination (OSCE). Data collection was done through Focus Group Discussions (FGD). Participants in this study were active students in the Medicine Program at Ahmad Dahlan University Yogyakarta, ranging from the 2021 cohort (second-year students) to the 2019 cohort (fourth-year students), who were screened beforehand using the TAI-G (German Test Anxiety Disorder) questionnaire and selected based on inclusion and exclusion criteria established by the researcher.

The sampling technique employed in this research was purposive sampling with a maximum variation sampling strategy. The variation in subjects selected by the researcher included the level of anxiety among students during Objective Structured Clinical Examination (OSCE) exams for each cohort. Therefore, the researcher included inclusion criteria for this study were active students of medical faculty, who had ever attended the Objective Structured Clinical Examination (OSCE), had no psychiatric-diagnosed anxiety disorder, was willing to be an informant by filling in informed consent, and had the highest and lowest level of alarm based on the TAI-G (German Test Anxiety Disorder) questionnaire completion scores. The exclusion criteria for this study were inactive students of medical faculty, never attended the OSCE, suffering from severe anxiety disorder diagnosed by psychiatrists unwilling to be informants, and the level of alarm is based on the TAI-G (German Test Anxiety Disorder) questionnaire completion scores.

### 3 Results and Discussion

The participants in this study totalled 12 informants. Specifically, 6 informants participated in the FGD session for the highest anxiety level group, and 6 informants participated in the FGD session for the lowest anxiety level group. Data obtained from the Focus Group Discussions (FGDs) included broad categories of research issues such as students' perceptions of OSCE, anxiety symptoms during OSCE, factors causing anxiety during OSCE, and coping mechanisms used by students when facing OSCE.

Data that has been grouped into categories of research issues is then coded for each research issue. On the issue of perception and anxiety facing the OSCE obtained five coding which was then categorized into two which is OSCE is a test to train skill and anxiousness when facing OSCE. On the question of factors causing anxieties when OSCE got eleven coding that was then classified into internal factors and external factors. And on the matter of mechanisms of coping in the face of OSCE received ten coding's that were then categorised into problems of focused coping and emotional focus coping.

The research findings indicate that overall, participants expressed that OSCE is a practical exam to assess the learning process of clinical skills. (The transcription of FGD has been translated from Bahasa Indonesia into English Language).

*"OSCE is an exam to train medical students' skills."* (FGD 6, fourth year student)

*"OSCE is a clinical skills exam, so after we usually have skills lab in lectures, then the exam is in the form of OSCE."* (FGD 12, fourth year student)

In addition, specific findings from participants in the highest anxiety group suggest that OSCE is perceived as a high-pressure exam and is considered a stressor.

*"OSCE is a very, very stressful exam and can make you feel really hopeless."*  
(FGD 1, second year student)

*"In my opinion, OSCE is one of the stressors."* (FGD 5, fourth year student)

Participants' experiences and feelings during OSCE varied significantly. In general, these can be generalized as anxiety, based on coding that indicates symptoms of anxiety experienced by participants during OSCE.

*"Yeah, it's nerve-wracking for sure, and sometimes when you enter the room and see the doctor, if it feels uneasy like that, it's like, oh no, how am I going to handle this, it can make you blank, especially if you feel like you're being watched closely, that can make you nervous and then I don't know what to do."* (FGD 2, second year student)

*"For me, my stomach acts up, my stomach always acts up when I'm stressed, especially during OSCE, even though I've eaten, it continues like that, and I'm not trembling but my legs can't stay still, they keep moving, so I keep thinking afterwards it's not still, can't stay still, because I'm anxious."* (FGD 3, third year student)

Not all participants feel anxious during OSCE. Some participants in the low anxiety group described their feelings during OSCE as relieving, enjoyable, and fun.

*"For me, before OSCE, it's relieving because there are so many things, and the first time is 15 minutes, then we use a rubric, for me it's more exciting, more challenging, more confusing, but more exciting, acting is more intense, so acting is not just typical, not too stiff, and it's fun for me, especially in the first session, it's fun for me."*

(FGD 11, fourth year student).

Based on the research findings, participants define OSCE as a practical exam to assess the learning process of clinical skills taught during clinical skill workshops throughout one semester. This aligns with the definition of OSCE as presented by Lyndon et al. [8] and Sitepu [9]. Some participants in the high anxiety group stated that OSCE is a highly stressful exam and one of the stressors. This is consistent with what Risma [10] and Rizani et al. [11] have mentioned. The research results show that some participants experience anxiety when facing OSCE. This anxiety is evidenced by the symptoms experienced during the OSCE period,

such as physical changes like palpitations, tremors, diarrhea, insomnia, gastric, cold sweats, and stuttering, as well as psychological changes such as worry, panic, and anxiety. The anxiety symptoms experienced by the participants are in line with Maramis' anxiety theory [12]. The symptoms experienced by the participants are bodily responses due to increased activity of the autonomic nervous system [13].

**Table 1.** Results of Content Analysis Regarding Students' Perceptions of OSCE.

FGD Group	Highest Anxiety		Low anxiety	
Category	OSCE: exam to train skills	Anxiety During OSCE	OSCE: exam for practice skills	Anxiety During OSCE
Code	1. OSCE: clinical skills practice evaluation exam (skills lab) 2. OSCE is a high-pressure exam 3. OSCE is a stressor	1. Physical changes: palpitations, tremors, diarrhea, insomnia, gastric ulcer, cold sweats, and stuttering speech 2. Psychological changes: worry, panic, and anxiety	OSCE: Objective Structured Clinical Examination	1. Physical changes: Palpitations and tremors 2. Psychological changes: Anxiety 3. Relief, more enjoyable and fun

Not all participants experience anxiety when facing OSCE; some participants in the low anxiety group find the OSCE experience relieving, exciting, and enjoyable. According to research conducted by Chakraborty [14], students who have positive expectations about exam results, a positive attitude, and good mental regulation tend to experience lower levels of anxiety. This is likely due to the nature of the participants' personalities and their frequent participation in OSCE. This is consistent with research by Waqas et al. [15] that shows students who take exams more often tend to have better anxiety coping mechanisms.

In this study, data revealed that the main factors causing anxiety to originate from both internal and external factors. Internal factors contributing to anxiety in the high anxiety group include lack of confidence and being naturally anxious individuals. Conversely, in the low anxiety group, internal factors causing anxiety are typically within their control.

*"For me, the anxiety is more about my own working method, being afraid of the outcomes and wondering if I did everything right. Even though I study, I always feel like I might have made mistakes and when it's reviewed, I feel like I'm lacking."*

(FGD 4, third year student).

*"The more I think about it, it might also be because of experience, because if I've gone through several OSCEs before, each OSCE differs from the last semester's OSCE and the first semester's OSCE. We don't know what OSCE will be like. Over time, the anxiety decreases as I progress through semesters because I know how OSCE will be, and how the doctors will evaluate."* (FGD 12, fourth year student)

The study also indicates that most participants highlight external factors as causes of anxiety rather than internal factors. Commonly noted external factors include examiner attitudes during testing, room atmosphere, and differences in instructors' perceptions of the material during OSCE.

*"... It's true what was mentioned earlier, sometimes during OSCE we have many approaches, so like Doctor A teaches this, Doctor B teaches that, so when we study*

*together, we have different beliefs. So it becomes a thought, which one is correct, like ROSC tilts left or right, so it might also be a cause of anxiety in my opinion."*

(FGD 12, Fourth year student)

*"When I was in the room, we were surviving on our own. We really face the exam alone, so that's what makes it even more nerve-wracking because we are truly being observed, we are really the center of attention there, which adds to the anxiety."*

(FGD 3, Third year student)

Furthermore, specific findings of external factors causing anxiety during OSCE in the high anxiety group include environmental factors such as feeling pressured when seeing more skilled peers, simulations where the patients are perceived as poorly prepared, and notably, participants stated that the countdown timer during exams increases their anxiety.

*"Sometimes the participant didn't understand their condition. For example, when we asked about the anamnesis, they would answer something unexpected. Maybe the briefing was insufficient, they didn't understand their condition, so if their left foot hurts, they pointed to their right foot."* (FGD 1, Second year student)

*"For me, the factors are first agreeing with friends that the doctor watching us. Because you can really feel the difference between the doctors who monitor you in this station, Doctor A, I definitely feel if this is what I remember, not blank, and suddenly, if the next station is Doctor B, you can really feel the difference. Another factor that I don't like during OSCE is the countdown. The timer is five minutes left, three minutes left, and so on, which adds more pressure."*

(FGD 5, fourth year student)

Finally, specific findings of external factors causing anxiety in the low anxiety group include the sudden announcement of exam schedules.

*"If we talk about time, A is right. The time is not long for learning OSCE because the day after the block exam is on Saturday, and the OSCE announcement is on Monday, Tuesday. So we only have one day to learn OSCE, while there are many materials and some materials using mannequins that need practice. So, we have to go to campus first, study at campus, and on campus it is sometimes inefficient because we all study together. So, if we don't know how to do it, whether it's right or not, we don't know, so we waste a lot of time from there."* (FGD 10, third year student).

The research results indicate that the factors causing anxiety among students during OSCE are divided into two categories: internal factors originating from within the participants and external factors originating from outside the participants. Exam anxiety-prone individuals are one of the internal factors causing anxiety during OSCE. Based on Yusefzadeh et al.'s research [16], anxiety experienced during exams can affect students' performance; students with lower anxiety levels tend to perform better than those with higher anxiety levels. Lack of confidence also affects anxiety during OSCE. This is consistent with research by Febriyanto [17], which found a significant relationship between confidence levels and academic anxiety.

Lack of experience in participating in OSCE is also an internal factor causing anxiety during OSCE. This is consistent with research conducted by Labaf et al. [18]. Furthermore, inadequate preparation for OSCE is an internal factor that is considered a trigger for anxiety during OSCE. Similar findings were mentioned by Rizani et al. [11] and Risma [10], stating that preparation also plays a crucial role in exam anxiety. According to Praptiningsih and Emilia [19], students who are better prepared for OSCE tend to have lower anxiety levels compared to those who do not prepare well for OSCE. According to Pegram and Fordham-Clarke [20], to reduce anxiety related to lack of experience and inadequate preparation, students can engage in standardized simulation or practice and peer learning according to OSCE standards. Finally, one participant mentioned that consuming coffee before exams was

an internal factor causing anxiety. According to Prasetyo [21], caffeine consumption can cause anxiety disorders.

**Table 2.** Results of Content Analysis regarding Anxiety during OSCE According to Students.

FGD Group	Highest anxiety		Low anxiety	
Category	Factors causing anxiety during OSCE		Factors causing anxiety during OSCE	
Sub-category	Internal Factors	External Factors	Internal Factors	External Factors
Code	<ol style="list-style-type: none"> <li>1. Anxious individuals during exams</li> <li>2. Lack of self-confidence in one's own abilities</li> </ol>	<ol style="list-style-type: none"> <li>1. Difference in perception among instructors regarding the material</li> <li>2. Examiner's attitude influencing participants' concentration during the exam</li> <li>3. Environment inside the room affecting exam participants</li> <li>4. Concern about OSCE results/grades</li> <li>5. Family expectations for the best results</li> <li>6. Difficulty in borrowing evaluated equipment</li> <li>7. Feeling pressured by seeing more proficient peers</li> <li>8. Countdown timer for each station's exam duration may cause lack of focus</li> <li>9. - Simulation patients being perceived as insufficiently prepared</li> </ol>	<ol style="list-style-type: none"> <li>1. Lack of experience in participating in OSCE</li> <li>2. Inadequate preparation for facing OSCE</li> <li>3. Consuming coffee before the exam</li> </ol>	<ol style="list-style-type: none"> <li>1. Difference in perception among instructors regarding the material</li> <li>2. Examiner's attitude affecting participants' concentration during the test</li> <li>3. Atmosphere inside the room influencing exam participants</li> <li>4. Concern about OSCE results/grades</li> <li>5. Family environment demanding the best results</li> <li>6. Difficulty in borrowing evaluated equipment</li> <li>7. Announcement of exam schedules often being sudden</li> </ol>

In students with high anxiety, internal factors causing anxiety tend to focus on personalities that are somewhat difficult to control, such as anxious individuals and lack of confidence. Personality is a characteristic pattern that encompasses consistent and unique thoughts, feelings, and behaviors of an individual. Individuals with anxious personalities tend to have negative thinking patterns, see situations as threats, and exaggerate in anticipating possible risks or dangers [22]. In students with low anxiety, internal factors causing anxiety tend to be factors that can be controlled, such as inadequate preparation and caffeine consumption before exams.

The subsequent codes discuss how participants responded to the stressors experienced during OSCE, specifically focusing on coping mechanisms. Findings related to this category resulted in codes that can be sub-categorized into problem-focused coping and emotional-focused coping.

Common findings from the research regarding participants' responses to anxiety during OSCE, which are forms of problem-focused coping, include studying before OSCE:

*"If before OSCE, so I don't feel insecure or anything, I mean I have to study for it, ohh I know I studied this and that, I know I studied so during OSCE I'll be calmer..."*  
(FGD 12, fourth year student)

A specific finding of problem-focused coping among the high anxiety group is studying until morning, and interestingly, studying accompanied by their mother. Here are statements from participants regarding these coping mechanisms:

*"Yeah, studying for sure, praying yes, usually if there's time I go home, because when I have my mom around, I feel more at ease, sometimes if there's no time to go home, I'll call my mom, just ask her to accompany me studying, because it makes me feel more calm."* (FGD 2, second year student)

In addition to studying before OSCE, specific findings of problem-focused coping among the low anxiety group include studying with friends, studying well in advance, studying by watching YouTube, seeking information on previous OSCE scenarios, and practicing or simulating OSCE, all of which help reduce OSCE anxiety:

*"For me, it's more about guessing the stations, so we have a lot, and then some are combined into one station, a few examinations combined into one station like that, I'm more into the long preparation, gathering and guessing ohh this seems to be combined with this, combined with this, and then studying like aaa entering the room there's a scenario, creating like creating a scenario like that, yeah a scenario-like thing, entering like that, for me, studying usually takes about 2 weeks."* (FGD 11, fourth year student)

Meanwhile, common findings in the form of emotional-focused coping include asking for parents' prayers, praying before OSCE, and notably, surrendering.

*"... Definitely praying, asking to be prayed for, and then yeah like when it's getting closer, like one day before that, it's more about surrendering and being confident in what has been learned, just trusting what the doctors have given us, so because there are many schools of thought, and then during the OSCE if suddenly feeling nervous or suddenly panicking, I try to guess, like what station is this and what the case is, and then the station that has been done, so there's time to rest, during the break they gave us a piece of paper to scribble on, so usually I list all the stations, so if I've done four stations, during the break I can review the four stations I haven't done yet like that."* (FGD 12, 2019 cohort)

A specific finding of emotional-focused coping among the high anxiety group found in the transcript includes seeking parental support and calling their mother:

*"Calling mom, even though she might scold me a bit because I complain, but her voice or her words, she said, I mean, because my parents aren't pressuring me to always be good, always perfect like that, so that's what makes me feel calm."* (FGD 3, third year student)

Lastly, a specific finding of emotional-focused coping among the low anxiety group found in the transcript is doing positive affirmations to oneself:

*"First, praying and then telling myself that I can do this, like that, then internalizing it, but sometimes there are teachers who invite us to chat like 'don't be nervous' and that makes me more relaxed ohh yeah, but there are teachers who are straight to the point 'you're wrong' then suddenly nervous and blank."* (FGD 8, fourth year student).

**Table 3.** Results of Content Analysis Regarding Coping Mechanism.

FGD Group	The Highest Anxiety		The Lowest anxiety	
	Problem Focused Coping	Emotional Focused Coping	Problem Focused Coping	Emotional Focused Coping
Code	<ol style="list-style-type: none"> <li>1. Study before OSCE</li> <li>2. Study until morning</li> <li>3. Study accompanied by mother</li> </ol>	<ol style="list-style-type: none"> <li>1. Ask for parents' prayers</li> <li>2. Pray before OSCE</li> <li>3. Surrender to the test results</li> <li>4. Ask for parental support</li> <li>5. Call mom</li> </ol>	<ol style="list-style-type: none"> <li>1. Study before OSCE</li> <li>2. Study with friends before the OSCE</li> <li>3. Learn by watching YouTube</li> <li>4. Study OSCE well in advance</li> <li>5. Look for previous OSCE overview information</li> <li>6. Carrying out OSCE practice or simulation</li> </ol>	<ol style="list-style-type: none"> <li>1. Ask for parents' prayers</li> <li>2. Pray before OSCE</li> <li>3. Surrender to the test results</li> <li>4. Do positive affirmations to yourself</li> </ol>

Some students consider OSCE to be a stressor. According to Hofbauer and Holzinger [33] stressors will elicit a response from the individual. The response referred to according to Stuart [23] is in the form of activating coping resources. The research results showed that participants' responses regarding anxiety when facing the OSCE were divided into two, namely problem focused coping and emotional focused coping. The division of coping mechanisms chosen by researchers is based on the theory of coping strategies proposed by Lazarus and Folkman [24].

Problem focused coping is an effort aimed at solving problems and is usually chosen if the individual feels that the problem they are facing can still be overcome [24]. According to Ramdani et al. [25] problem focused coping is a coping mechanism that focuses on solving a problem by taking constructive action with the aim of changing and overcoming a stressful situation. This opinion is in line with Pitaloka and Mamahit [26], according to which problem focused coping is a strategy to reduce anxiety by taking constructive action to be free from stressful situations. The research that supports this is that according to Rizani et al. [11] preparation is the main key coping strategy in overcoming anxiety during the OSCE. Another research that supports this was also conducted by Abbiati et al. [27]. According to him, medical students tend to use problem focused coping to overcome the sources of stress they face. Problem focused coping techniques are effective for dealing with academic stress [28,29]. The research results show things that are in line with the explanation above. The actions taken by participants to face the OSCE such as studying before the OSCE, studying until morning, studying accompanied by their mother, studying with friends, studying by watching YouTube, studying from afar, looking for information about the previous OSCE and carrying out OSCE practice or simulations are forms of effort. which was carried out to control the stressors and anxiety felt by participants.

Emotional focused coping is a form of coping mechanism with the aim of controlling the emotions felt towards stressful situations [24]. One of the studies discussing the use of

emotional focused coping techniques among students was put forward by Husniah and Fauzi [30]. He found that emotional focused coping techniques can overcome the academic stress felt by students and are able to manage negative thoughts. In line with what was found by Salimzadeh et al. [31] in previous research, students used emotional focused coping in the form of positive reinterpretation in dealing with stress. Hofbauer and Holzinger [33] also stated that medical students need to have recreation and relaxation time (denial) to overcome anxiety. In general, the research above confirms that emotional focused coping techniques are a type of coping that is able to overcome anxiety when facing stressors. Andriyani [32] and Hofbauer and Holzinger [33] stated that emotional focused coping techniques tend to be used by individuals if they feel that the problems they are facing cannot be controlled. The research results presented by participants such as asking for parents' prayers, praying before OSCE, surrendering to the exam results, asking for support from parents, calling mother and giving positive affirmations to oneself are forms of emotional focused coping which are carried out to control the anxiety that is felt.

In general, from the research results, it can be concluded that the low anxiety group tends to use problem focused coping to overcome the anxiety felt during the OSCE. This is in line with research conducted by Abbiati et al. [27]. In the research, medical students used problem focused coping more often, namely 61%, compared to using emotional focused coping, only 45%. Research conducted by Iqramah et al. [34] also found that 56% of students dealt with stress using problem focused coping and the remaining 44% used emotional focused coping. According to Abbiati et al. [27] there is a relationship between problem focused coping and individual awareness and learning methods. A high level of awareness allows an individual to have good problem management, a tendency towards achievement orientation, and good and efficient planning to overcome stress during exams. The research results showed that in the high anxiety group they tended to use emotional focused coping when facing the OSCE. Meanwhile, the low anxiety group tends to use problem focused coping, which shows that the OSCE exam is a source of stress (stressor) which can characteristically be controlled or anticipated through problem focused coping to reduce the risk of anxiety. According to Iqramah et al. [34] differences in the use of coping strategies are influenced by oneself and the situation at hand.

## 4 Conclusion

Based on the research findings, it can be concluded that some students experience anxiety when facing OSCE, regardless of their level or length of study. The factors causing anxiety during OSCE are divided into internal factors originating from within and external factors originating from outside. In dealing with OSCE as a stressor, students use two types of coping mechanisms: problem-focused coping and emotional-focused coping. Problem-focused coping is chosen when individuals can address the stressors they face, while emotional-focused coping is chosen when individuals feel unable to change or overcome the stressors.

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