Original Articles

Anxiety and performance in a structured objective clinical examination of undergraduate physical therapy students

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ABSTRACT

Exam anxiety is a common experience among healthcare students, and this phenomenon is accentuated during evaluations such as the Objective Structured Clinical Examination (OSCE). This study aimed to examine the relationship between anxiety and undergraduate students' performance on an OSCE. A descriptive cross-sectional survey was conducted among physical therapy students at Andrés Bello University in Chile, specifically in the Physical Agents course, employing the OSCE. Prior to the examination, students' anxiety levels were assessed using the State-Trait Anxiety Inventory (STAI). The odds ratio and correlations were analyzed to investigate the relationship between anxiety and OSCE performance. The passing score for the exam was established at 39 points out of a maximum of 55. The study analyzed the OSCE performance of 113 students, revealing an average score of 41.6 (SD±6.6) and a passing rate of 61%. Among the participants, 61 were evaluated for state anxiety and 68 for trait anxiety. However, the odds ratio did not demonstrate significance for state anxiety (STAI-S: 0.49, 95% CI: 0.23,1.05, p=0.06) or trait anxiety (STAI-T: 1.49, 95% CI: 0.68,3.33, p=0.99). The absence of significant correlations between anxiety and performance confirmed this. Despite its high prevalence among students, anxiety did not emerge as a risk factor for failing the OSCE. Moreover, there were no discernible gender differences in anxiety levels and performance correlations. Exploring other influential variables and employing regression models to assess their impact on OSCE performance is suggested.

Keywords: Physical therapy specialty, Undergraduate medical education, Anxiety, Performance anxiety, Clinical competence, Academic performance

Introduction

Physical therapists excel at mastering diverse clinical skills to enhance individual patient function [1]. These skills involve patient-centered reasoning, interaction, and the application of procedures like therapeutic exercises, physical agents, and patient education [1, 2]. Due to their direct impact on patient health, mastering these skills is essential for making effective clinical decisions and adapting to diverse professional contexts [1, 3].

The acquisition of clinical skills in healthcare professional training is very important and has become necessary [4]. Nevertheless, assessing these skills in education remains challenging, often due to instruments lacking objectivity, validity, and reliability [5]. This poses significant difficulties for assessment during the training process [6].

Physical therapists utilize physical agent modalities, including electrotherapy, ultrasound, and temperature-based techniques like heat or cold, to enhance treatment outcomes [7]. Nevertheless, using these resources is not without risks and requires a comprehensive understanding, continuous practice, and clinical experience to guarantee their secure and efficient application [7, 8].

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Its use should be based on adequate formation and training of these clinical skills, with strategies to develop and evaluate the ability to use physical agents [9, 10].

In recent years, the OSCE has emerged as a widely employed method for assessing clinical skills in training healthcare undergraduates [11-13]. This exam is characterized by its structured approach to evaluating performance components, with an emphasis on objectivity [14]. The OSCE provides a controlled environment to evaluate various clinical skills with unbiased stations and evaluators. Moreover, it allows extensive coverage of the contents of a course and uses simulated patients and clinical materials to reduce dependence on real patients and the risks associated with the intervention [12, 14]. The OSCE can be challenging due to its costly and time-consuming preparation, which can lead to logistical and financial complications [11, 15].

It is widely acknowledged that practical exams like the OSCE can induce stress and anxiety in students, impacting their learning and memory in diverse ways [16, 17]. Student anxiety, characterized by restlessness and insecurity, varies based on factors like preparation, content difficulty, and rest [17, 18]. Anxiety is linked to the fear of not meeting personal or familial expectations, resulting in physiological symptoms such as palpitations and sweating, as well as behavioral consequences like procrastination and study avoidance [16, 18, 19].

The State-Trait Anxiety Inventory (STAI) is a widely employed instrument in psychology and education to assess anxiety across two dimensions: state (A/S) and trait (A/T) [20]. The A/S dimension assesses a temporary, modifiable emotional state characterized by heightened autonomic nervous system activity, increased attention, and apprehension. In contrast, A/T pertains to a stable anxious predisposition in individuals who perceive situations as threatening. The inventory consists of two separate self-assessment scales, each comprising 20 criteria for measuring both dimensions [21].

As the use of the OSCE in higher education expands, conducting a more comprehensive analysis of non-cognitive factors, such as exam-related anxiety, becomes pertinent. This analysis can elucidate its influence on academic performance, thereby expediting the implementation of supportive strategies aimed at enhancing academic well-being [13-16]. These strategies, while assisting students in anxiety management, also hold the potential to positively impact the educational environment. Hence, the aim of this study was to explore the correlation between anxiety levels and the performance of physical therapy students in an OSCE and to discern whether anxiety serves as a risk factor for performance outcomes in this exam.

Materials and Methods

Type of study

Non-experimental, cross-sectional descriptive study

Participants

The study encompassed a cohort of 118 students (62 males and 56 females) with an average age of 21.3 years (SD ± 1.9). These students were enrolled in the Physical Therapy program at the Santiago campus of Andrés Bello University (UNAB), Chile, and were participating in the Physical Agents course during the first semester of 2022. This course is an integral component of the mandatory curriculum for the seventh semester, spanning 116 semester hours. The course structure entails 2.5 hours of in-person instruction and 5 hours of independent study per week, contributing to a total of 5 standard academic credits.

The Physical Agents course is an integral component of the disciplinary field and is designed to conduct a comprehensive analysis of the various physical resources employed in physical therapy. It assesses their physical, physiological, and therapeutic impacts. Throughout this course, students develop the capacity to judiciously apply and evaluate non-ionizing physical resources in diverse clinical contexts, addressing the needs and issues of individuals with varying health conditions. The course evaluation with Objective Structured Clinical Examination (OSCE) comprehensively covers the entire course content.

Selection criteria

The study included participants who were physical therapy students in the fourth level of the program and were actively enrolled in the physical agents course, which featured the OSCE assessment. Exclusion criteria comprised students who did not grant written consent for their results to be used, as well as those who formally withdrew from the course or did not complete the OSCE.

Instruments: OSCE

The OSCE methodology was introduced at the outset of the course and was developed collaboratively by the course instructors to align with the program's learning outcomes [11]: (LO1) analyze the physical and physiological effects of non-ionizing physical agents; (LO2) evaluate various modalities of physical agents in professional contexts to address deficiencies; and (LO3) evaluate deficiencies and functional problems related to health, considering intervention with physical agents.

During a three-month period, the course comprehensively explored the biophysical fundamentals, physiological effects, and practical applications of physical agents and resources, with a specific emphasis on transcutaneous electrical nerve stimulation (TENS), interferential currents, Russian currents, and therapeutic ultrasound. Practical activities, clinical case resolutions, and peer simulation stations were implemented to train students for the OSCE. **Table 1** illustrates the OSCE's structure, outlining the distinct features of each station and its intended purpose.

Table 1. Physical agents OSCE stations

Number	Station Name	Learning Outcome	Station Modality	Station Aim	Station Criteria	Instrument	Station Score
S1	Connective tissue flexibility	LO 1 LO 2 LO 3	Standardized patient	Administer therapeutic ultrasound to enhance connective tissue flexibility	1. Choose conventional ultrasound 2. Explain the procedure to the user 3. Pose at least two key questions (red flags) to assess the risk 4. Position the user comfortably, considering joint support 5. Apply the treatment in the designated area 6. Program the treatment frequency as per therapeutic goals 7. Select an appropriate duty cycle based on therapeutic objectives 8. Choose a suitable head for the targeted area 9. Set an appropriate treatment time for the area 10. Adjust the power density according to therapeutic goals 11. Apply sufficient gel to enhance the treatment 12. Keep the head moving 13. Clean the treatment area and the ultrasound applicator post-application	Checklist dichotomic	13
S2	Pain management	LO 1 LO 2 LO 3	Standardized patient	Administer Transcutaneous Electrical Nerve Stimulation (TENS) for pain relief	1. Choose transcutaneous nerve stimulation 2. Clearly explain the procedure to the user 3. Ask at least two key questions (red flags) to assess potential risks 4. Position the user comfortably, considering joint support 5. Set an appropriate treatment frequency for the therapeutic goal 6. Program an adequate phase duration for the therapeutic objective 7. Select an appropriate stimulation current intensity for the therapeutic aim 8. Apply electrodes in an area that aligns with the pain modulation mode 9. Safe and risk-free installation of electrodes 10. Program the appropriate treatment duration 11. Safely uninstall the equipment and assist the user afterward	Checklist dichotomic	11
S3	Oedema drainage	LO 1 LO 2 LO 3	Standardized patient	Administer neuromuscular electrical stimulation (NMES) for edema reduction	1. Choose a neuromuscular electrical stimulation (NMES) modality 2. Clearly explain the procedure to the user 3. Ask at least two key questions (red flags) to assess potential risks 4. Position the user comfortably 5. Program a treatment frequency appropriate for the therapeutic goal 6. Program a phase duration suitable for the therapeutic objective 7. Select an intensity level where muscle contractions are visible 8. Apply electrodes in a targeted area aligned with the therapeutic objective 9. Safely install the electrodes to minimize risks 10. Set an adequate treatment duration to meet the therapeutic goal 11. Properly uninstall the equipment and assist the user post-application	Checklist dichotomic	11
S4	Muscle strengthening	LO 1 LO 2 LO 3	Standardized patient	Conduct electric muscle strengthening to enhance muscle tropism	1. Select Russian currents (Kots). 2. Explain the procedure to the user. 3. Ask at least two key questions (red flags) to assess potential risks 4. Position the user comfortably 5. Program a treatment frequency appropriate for the therapeutic goal. 6. Choose a motor level intensity. 7. Develop a training program with NMES training for the therapeutic objective. 8. Apply electrodes to an area associated with the therapeutic goal. 9. Safe and risk-free installation of the electrodes. 10. Set an adequate treatment duration to achieve the therapeutic objective. 11. Properly uninstall the equipment and assist the user after the application.	Checklist dichotomic	11
S5	Electrotherapy installation	LO 2	Dummy (phantom)	Install electrotherapy equipment safely	1. Position the user in accordance with the therapeutic objective 2. Set an appropriate treatment duration 3. Apply electrodes in the designated area 4. Program a treatment frequency suitable for the therapeutic goal 5. Program a phase duration appropriate for the therapeutic objective 6. Ensure complete and uniform electrode contact 7. Properly hydrate the electrodes 8. Secure the electrodes with full contact on the treatment area 9. Safely uninstall the equipment and assist the user after the application	Checklist dichotomic	9

The OSCE consisted of five stations, with four involving standardized patients (S1–S4) and one utilizing a phantom (S5). Each station underwent an assessment based on a checklist that had been reviewed and validated by course instructors and peers. A week prior to the examination, a pilot exam was conducted involving actors and teachers to fine-tune timing, review assessment criteria, and provide additional training to actors for handling clinical cases. A total of 40 minutes were allotted for the entire OSCE, allowing for eight minutes to complete each station.

Students were organized into time blocks on the day of the exam. Before beginning the OSCE, instructions regarding exam time, number of stations, and direction of rotation were provided. A teacher monitored the exam time and guided the students in the rotations. Post-examination, data were collected, and tabulated the total and station scores as a measure of student performance. The OSCE comprised a total of 55 points, derived from the summation of scores allocated to individual stations (S1: 13 points; S2: 11 points; S3: 11 points; S4: 11 points; S5: 9 points). A passing score of 39 points was established, equating to 70% of the maximum achievable score, according to institutional guidelines.

State-trait anxiety inventory (STAI)

Student anxiety was evaluated using the STAI inventory, considering both its STAI-S (state anxiety) and STAI-T(train anxiety) dimensions [21]. The instrument was administered to the cohort one day before the OSCE to gather information about their anxiety levels preceding the exam.

The STAI offers various categories for assessing anxiety levels, with scores differentiated by gender [19, 21]. For the STAI-S dimension, anxiety levels are classified as follows: low anxiety (men: 14–18; women: 15–19), average (men: 19; women: 20–22), moderate anxiety (men: 20–28; women: 23–31), and high anxiety (men: 29–60; women: 32–60). Regarding the STAI-T dimension, scores are represented as follows: low anxiety (men: 14–18; women: 15–19), average (men: 19; women: 24–25), moderate anxiety (men: 20–25; women: 26–32), and high anxiety (men: 26–60; women: 33–60).

The STAI scores in its two dimensions (STAI-S and STAI-T) were recorded by one of the researchers (HDB) in a Microsoft Excel® sheet.

Statistical analysis

The statistical analysis included the assessment of normality for the variables, including observed performance in OSCE (OSCE scores) and anxiety (STAI-S and STAI-T), which was verified using the Shapiro-Wilk test [22]. To analyze the likelihood of not approving the OSCE when experiencing anxiety, the odds ratio (OR) with a 95% confidence interval (CI) was calculated [23]. An OR less than 1 was interpreted as a protective association, while an OR greater than 1 indicated an association that increased proportionally with higher values.

A correlation analysis between observed performance and anxiety was conducted in the entire cohort as well as in subgroups by gender. The correlation coefficients employed included Pearson's correlation coefficient (r) and Spearman's correlation coefficient (Rho), chosen based on data distribution [24]. Analyses were performed using Statistical Package for the Social Sciences (SPSS) software version 26.

Results and Discussion

In the Physical Agents course, 118 students were officially enrolled. Of this group, 113 met the study selection criteria, excluding 5 due to their absence from the exam, which represented a participation rate of 96% of the cohort.

STAI score

Table 2 presents a summary of the STAI results in both its STAI-S and STAI-T dimensions, following the analysis of scores from the 113 students who participated in the OSCE. Notably, a non-normal distribution is evident in both STAI dimensions. Central tendency statistics reveal that for STAI-S, the average score stands at 28.4 (±6.6) with a median of 28, while for STAI-T, the average is 29.4 (±7.5) with a median of 29. To categorize anxiety levels, a cutoff point of 28 points for STAI A/S and 29 points for STAI A/T delineates the presence of 'high anxiety.' Conversely, STAI categories representing average and low anxiety were combined into the 'low anxiety' group.

Within the cohort, 54% exhibited anxiety based on the STAI-S, and 60% did so based on the STAI-T. When the data was stratified by gender, it was found that 27% of both men and women demonstrated anxiety according to the STAI-S, while 30% of men and 29% of women exhibited anxiety according to the STAI-T dimension.

Table 2. State-Trait Anxiety Inventory results (n=113)

STAI	Distribution*	mean	SD	median	P_{25}-P_{75}	minimum score	maximum score	Anxiety cutoff score	High Anxiety n (%)	Low anxiety n (%)	High anxiety (men) n (%)	Low axiety (men) n (%)	High anxiety (women) n (%)	Low anxiety (women) n (%)
STAI A/S	$p < 0.01$	28.4	6.6	28	24-33	15	60	28	61 (54%)	52 (46%)	31 (27%)	29 (26%)	31 (27%)	22 (19%)
STAI A/T		29.4	7.5	29	24-35	15	60	29	68 (60%)	45 (40%)	35 (30%)	25 (22%)	33 (29%)	20 (17%)

*The distribution was determined with the Shapiro-Wilk test (95% confidence interval)

OSCE scores

Table 3 provides a comprehensive view of 113 students' scores, categorized by station and analyzed with central tendency statistics. Notably, scores for individual stations (S1–S5) deviate from a normal distribution, suggesting variations in station difficulty or student performance. Conversely, the cumulative exam score adheres to a normal distribution, indicating an even distribution of student performance on the overall exam.

The OSCE results indicate that 61% of the students successfully passed the exam. The exam displayed an average score of 41.4 (±6.6) and a median of 42, signifying an overall performance level exceeding the passing score for most students. Among the specific stations, station S1 achieved the highest pass rate at 81%, whereas station S2 had the lowest pass rate, standing at 58%. Relevantly, the interquartile range (P25–P75) spans from 37 to 46, underscoring that students who didn't pass were near the passing score. This highlights the potential for a marginal difference in scores for those who did not meet the passing criteria.

Table 3. OSCE scores achieved for individual stations (n=113)

Station number	Station name	Station score	Distribution*	mean	SD	median	P_{25}–P_{75}	minimum score	maximum score	passing score	approved n (%)	not approved n (%)
S1	Connective tissue flexibility	13		10.8	1.9	11	10-12	5	13	9	91 (81%)	22 (19%)
S2	Pain management	11		7.5	2.7	8	5-10	2	11	8	65 (58%)	48 (42%)
S3	Oedema drainage	11	$p < 0.01$	8.0	2.5	9	7-10	2	11	8	78 (69%)	35 (31%)
S4	Muscle strengthening	11		7.9	2.5	9	7-10	2	11	8	77 (68%)	36 (32%)
S5	Electrotherapy installation	11		7.2	1.4	8	6-8	3	9	7	78 (69%)	35 (31%)
S1-S5	overall	55	$p > 0.05$	41.4	6.6	42	37-46	26	55	39	69 (61%)	44 (39%)

*The distribution was determined with the Shapiro-Wilk test (95% confidence interval)

Odds ratio of failing OSCE due to anxiety

Table 4 provides an OR analysis concerning the likelihood of failing the OSCE and its individual stations. This analysis considers anxiety levels, specifically focusing on its STAI-S and STAI-T dimensions, which are considered potential risk factors (25).

The findings do not demonstrate a statistically significant association between anxiety in its two dimensions and the overall OSCE performance, nor with non-passing in stations S2 and S4 ($p > 0.05$). However, a noteworthy relationship emerges in the STAI-T dimension for stations S2 and S5, where the presence of anxiety increases the risk of not passing by 8.5 and 3.5 times, respectively ($p < 0.05$). Conversely, it was observed that the presence of STAI-S serves as a protective factor for performance in S3 ($p < 0.05$).

Table 4. The likelihood of failing OSCE due to anxiety

		OSCE overall score				
STAI dimension	Level of anxiety	Not approved	approved	OR	CI 95%	p-value
STAI-S	High Anxiety	19	42	0.49	0.23,1.05	p = 0.06
	Low anxiety	25	27			
STAI-T	High Anxiety	29	39	1.49	0.68,3.3	p = 0.992
	Low anxiety	15	30			
		S1: Connective tissue flexibility				
STAI-S	High Anxiety	12	49	1.02	0.4,2.6	p = 0.95
	Low anxiety	10	42			
STAI-T	High Anxiety	20	48	8.95	1.9,40.5	p < 0.01*
	Low anxiety	2	43			
		S2: Pain management				
STAI-S	High Anxiety	24	37	0.75	0.33,1.66	p = 0.73
	Low anxiety	24	28			
STAI-T	High Anxiety	27	41	0.75	0.33,1.67	p = 0.73

	Low anxiety	21	24			
		S3: Edema drainage				
STAI-S	High Anxiety	12	49	0.31	0.13,0.71	p < 0.01
	Low anxiety	23	29			
STAI-T	High Anxiety	18	50	0.59	0.26,1.33	p = 0.21
	Low anxiety	17	28			
		S4: Muscle strengthening				
STAI-S	High Anxiety	17	44	0.67	0.30,1.48	p = 0.32
	Low anxiety	19	33			
STAI-T	High Anxiety	21	47	0.89	0.39,1.99	p = 0.78
	Low anxiety	15	30			
		S5: Electrotherapy installation				
STAI-S	High Anxiety	18	43	0.86	0.38,1.91	p = 0.37
	Low anxiety	17	35			
STAI-T	High Anxiety	26	42	2.47	1.02,5.96	p < 0.05*
	Low anxiety	9	36			

*p<0.05

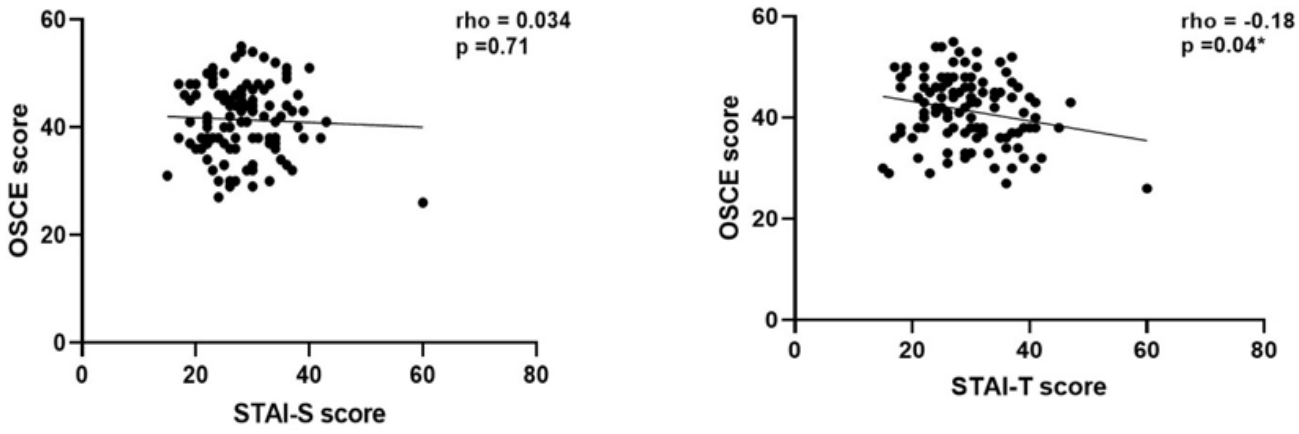
Table 5 summarizes the correlations between STAI-S and STAI-T dimensions and overall OSCE scores by station and gender. Notably, no statistically significant correlations were found between anxiety and overall OSCE performance ($p > 0.05$). However, exceptions include a weak, negative correlation for STAI-T anxiety with overall performance and similar correlations for male students. **Figures 1 and 2** illustrate the primary correlations in the study.

Table 5. Correlation between STAI dimensions and OSCE scores

	Overall OSCE score n Rho	S1 score n Rho	S2 score n Rho	S3 score n Rho	S4 score n Rho	S5 score n Rho	Men OSCE score n Rho	Women OSCE score n Rho
STAI-S	113 0.034 *p = 0.71*	113 0.009 *p = 0.99*	113 0.018 *p = 0.84*	113 0.079 *p = 0.39*	113 0.018 *p = 0.84*	113 0.010 *p = 0.90*	60 -0.028 *p = 0.82*	53 0.075 *p = 0.59*
STAI-T	113 -0.18 *p = 0.04**	113 -0.17 *p = 0.07*	113 -0.049 *p = 0.60*	113 -0.024 *p = 0.80*	113 -0.065 *p = 0.49*	113 -0.16 *p = 0.08*	60 -0.30 *p = 0.02**	53 -0.041 *p = 0.76*

n = number of observations

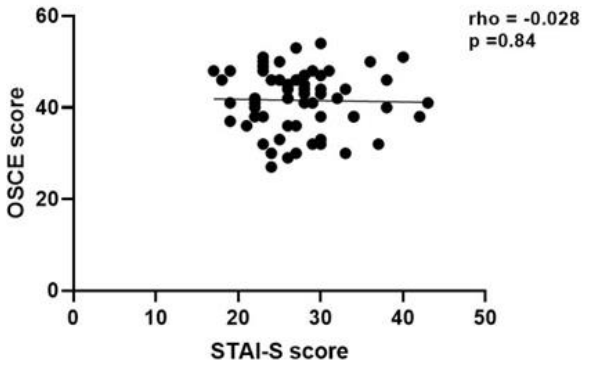
The correlation was determined using Spearman's Rho test. *p<0.05



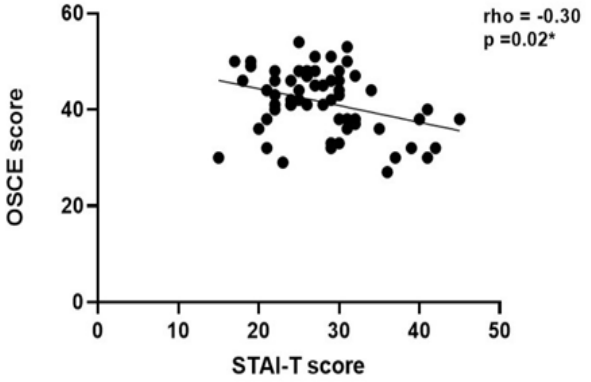
a) Correlation of STAI-S-OSCE score

b) Correlation of STAI-T-OSCE score

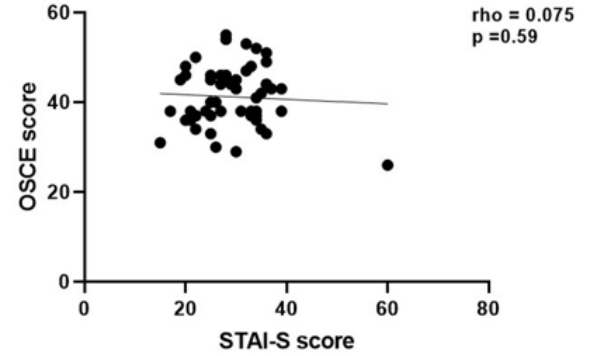
Figure 1. Correlation between anxiety and performance



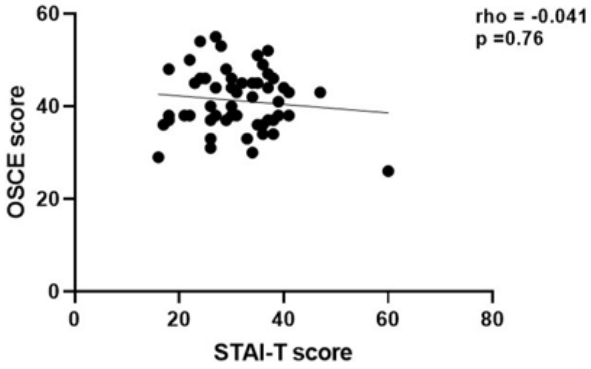
a) Correlation of STAI-S-OSCE score (men)



b) Correlation of STAI-T-OSCE score (men)



c) Correlation of STAI-S-OSCE score (women)



d) Correlation of STAI-T-OSCE score (women)

Figure 2. Correlation between anxiety and performance by gender

In this observational study, the principal aim was to examine anxiety levels among physical therapy students and their correlation with OSCE exam performance. Additionally, the study aimed to investigate the likelihood of not passing the exam by considering anxiety as a potential risk factor. The research hypothesis posited that heightened anxiety levels would be linked to diminished performance on the OSCE among students.

The primary findings suggest that the presence of anxiety in the STAI-S and STAI-T dimensions does not appear to pose a risk of failing the physical therapy OSCE. This is supported by the absence of a significant correlation between the STAI scores and the overall OSCE score. Nevertheless, upon closer examination of performance at individual stations, it becomes evident that there is an association between anxiety and performance at certain stations. This underscores the necessity for a more targeted and specific analysis of these station-specific relationships.

Anxiety in students

It is well established that assessment scenarios often trigger elevated stress and anxiety among students, particularly during their initial and intermediate training cycles, especially when they encounter their first clinical interactions [25-27]. Anxiety levels vary by profession, with higher rates observed in health students [26]. Moreover, the COVID-19 pandemic has contributed to increased anxiety among university students, placing a greater burden on their mental health [27].

Anxiety is often prominent in contexts requiring precise and efficient procedures, creating significant performance pressure [28]. In psychology, this is known as performance anxiety, which manifests as tension when performing tasks that are under evaluation, like exams [29]. It can detrimentally impact student performance and overall well-being [30].

Identifying anxiety in students accurately is challenging due to its diverse symptoms and manifestations [30, 31]. This identification can be complicated by symptom overlap with other medical conditions and the social stigma surrounding mental health [31]. Among the primary factors identified as determinants of academic anxiety are emotional and economic factors, residence location during the academic year, the need to balance work and studies, family responsibilities, changes in social support networks, and the perception of inadequate support [30]. Furthermore, intrinsic factors, such as exam preparation, the student's stage of training, and the utilization of study resources like textbooks, also play a significant role in influencing anxiety levels during assessments [30, 32, 33].

Anxiety in the OSCE

The OSCE has been recognized as a rigorous assessment method for evaluating clinical skills. It systematically evaluates performance and its components in a structured manner, with a strong emphasis on maintaining objectivity throughout the examination process [14]. A factor that significantly influences students' attitudes is the presence of stress and anxiety when facing interactions with real or simulated users or clinical procedures for the first time [16, 24].

According to the study, anxiety in its STAI-S and STAI-T forms is not a major risk factor for overall performance on the OSCE. This is shown by the fact that there was no significant inverse

correlation. These findings align with prior research investigating the link between anxiety and performance, which similarly concluded that neither anxiety nor stress significantly correlates with performance on the OSCE [16, 34].

Existing literature has documented higher rates of anxiety disorders in women; however, the impact of gender on the age of onset and severity of these disorders remains less comprehensively understood [35]. Nevertheless, this study does not reveal a distinct correlation between gender, anxiety, and performance on the OSCE. Intriguingly, it was found that initial anxiety levels were higher in men, both supporting and challenging previous research in this regard [16, 30]. These findings emphasize the intricate nature of the link between gender and anxiety, underscoring the necessity for ongoing research in this area.

Given the wide range of factors capable of inducing anxiety, it is crucial to acknowledge that OSCEs and other training-related examinations, while occasionally linked to elevated anxiety in specific students, should not be solely attributed to the exclusive source of this emotional response. As a result, the OSCE or other exams may have a limited impact compared to these factors, which each student may perceive as anxiety-inducing [17]. Therefore, while significant levels of anxiety have been identified, we cannot directly attribute them solely to the exam, and further investigation of these factors is essential for a comprehensive understanding.

In this context, a viable strategy for quantifying the impact of various factors on performance could involve the use of logistic regression models [36]. This methodology is particularly suitable when aiming to predict the presence or absence of a specific characteristic, such as academic performance, by considering the values of a set of predictors, which may encompass variables related to anxiety [37].

The researchers propose that several factors could have contributed to the reduction in anxiety within the analyzed context. These factors encompass the depth of content, regular peer interactions during weekly training sessions, and the practice of conducting mock tests. Additionally, the academic cycle in which students are positioned may have played a role, with the experience gained in previous courses emerging as a significant influencing factor. Furthermore, highlighting the rigorously validated instrument is essential. This process minimizes evaluation biases, instilling student confidence in its objectivity and reliability.

Another factor to consider is the weight assigned to the OSCE, which constitutes 30% of the total course grade. This weight does not exert a decisive impact on the overall course grade, irrespective of the result obtained. It is hypothesized that assessments or exams with greater significance could exert a more direct influence on anxiety levels. This aspect underscores the necessity for research in more pivotal stages of the training process.

A hypothesis has been postulated concerning State anxiety as a plausible protective factor in station S3, with Trait anxiety being deemed a potential risk factor in stations S1 and S5. The subject matter covered in station S3 received comprehensive practice during pre-exam training sessions due to its difficulty. This exposure may have induced anxiety in students, as they anticipated encountering it in the actual exam. However, this anxiety could have served as a motivating factor, prompting them to prepare more diligently and potentially converting it into a protective element. This is evident in its notably high pass rate, positioning it as the second-best performing station. In contrast, the researchers found that stations S1 and S5 had a higher level of specificity and complexity, which could be seen as possible risk factors for initial anxiety levels (STAI-T). This underscores the importance of enhancing practice for these procedures to reduce the potential influence of anxiety.

Conclusion

Despite the widespread presence of anxiety among students, this study does not reveal significant correlations between anxiety and performance on the OSCE, nor does it establish anxiety as a predictive factor for failure. Furthermore, no substantial gender-related effects on anxiety levels or the risk of lower OSCE performance were discerned. It is recommended that further comprehensive research be conducted to investigate the variables influencing anxiety in university students. Additionally, the development of regression models is encouraged to provide a more profound understanding of how anxiety interacts with other factors to affect OSCE performance.

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Conflict of interest: None

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Ethics statement: The study protocol and its ethical aspects were approved by the Department of Physical Therapy and Faculty of Rehabilitation Sciences of Andrés Bello University on April 5, 2022 (reference number 50423).

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