

# Anxiety levels among standardized patients according to simulation scenario type: a cross-sectional study

## Niveles de ansiedad en pacientes estandarizados según el tipo de escenario de simulación: un estudio transversal

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### ABSTRACT

**Objectives:** To examine the association between the type of simulation scenario and the level of anxiety experienced by standardized patients. **Methods:** A cross-sectional analytical study was conducted at a Clinical Simulation Center. Forty-six standardized patients (SPs) voluntarily participated. The State-Trait Anxiety Inventory (STAI), validated in Spanish (Cronbach's  $\alpha = 0.93$ ), was used to assess anxiety immediately after each simulation. Emotional scenarios included receiving bad news, psychiatric evaluations, obstetric and emergency cases. Non-emotional scenarios involved physical examinations, preventive consultations, and imaging sessions. Descriptive statistics summarized demographic characteristics, and Fisher's exact test was used to assess the association between scenario type and anxiety level ( $p < 0.05$ ). **Results:** The mean age of the participants was  $40.9 \pm 13.9$  years; 63.0% were women, and 93.5% had acting training. All SPs exhibited anxiety: 10.9% mild, 87.0% moderate, and 2.2% severe. The mean STAI score was  $47.9 \pm 6.2$ . No significant difference in anxiety levels was found between emotional and non-emotional scenarios (Fisher's exact test  $p = 0.999$ ). **Conclusions:** Although all the SPs experienced predominantly moderate measurable anxiety, no significant association with the simulation scenario was identified. However, these findings should be interpreted with caution due to limited statistical power and sample size. Anxiety was consistently observed across participants, suggesting it may be a common response to simulation activities. Further studies with larger samples and longitudinal designs are needed to clarify the determinants of anxiety among SPs.

**Keywords:** Patient Simulation; Simulation Training; Anxiety; Medical Education (source: MeSH NLM).

### RESUMEN

**Objetivos:** Examinar la asociación entre el tipo de escenario de simulación y el nivel de ansiedad experimentado por los pacientes estandarizados. **Materiales y métodos:** Se realizó un estudio analítico transversal en un Centro de Simulación Clínica. Participaron voluntariamente 46 pacientes estandarizados (PE). La ansiedad se evaluó inmediatamente después de cada simulación mediante el Inventario de Ansiedad Estado-Rasgo (STAI), validado en español ( $\alpha$  de Cronbach = 0,93). Los escenarios emocionales incluyeron recepción de malas noticias, evaluaciones psiquiátricas, casos obstétricos y de emergencia; mientras que los escenarios no emocionales comprendieron exámenes físicos, consultas preventivas y sesiones de imágenes. Se utilizaron estadísticas descriptivas para resumir las características demográficas y la prueba exacta de Fisher para evaluar la asociación entre el tipo de escenario y el nivel de ansiedad ( $p < 0,05$ ). **Resultados:** La edad media de los participantes fue de  $40,9 \pm 13,9$  años; el 63,0 % fueron mujeres y el 93,5 % contaba con formación actuarial. Todos los PE presentaron ansiedad: 10,9 % leve, 87,0 % moderada y 2,2 % severa. La puntuación media del STAI fue de  $47,9 \pm 6,2$ . No se encontraron diferencias significativas en los niveles de ansiedad entre los escenarios emocionales y no emocionales (prueba exacta de Fisher:  $p = 0,999$ ). **Conclusiones:** Aunque todos los pacientes estandarizados experimentaron ansiedad medible, predominantemente de nivel moderado, no se identificó una asociación significativa. Sin embargo, estos hallazgos deben interpretarse con cautela debido a la limitada potencia estadística y al tamaño muestral reducido. La ansiedad se observó de manera consistente entre los participantes, lo que sugiere que podría constituir una respuesta común frente a las actividades de simulación. Se requieren estudios futuros con muestras más amplias y diseños longitudinales para esclarecer los determinantes de la ansiedad en pacientes estandarizados.

**Palabras clave:** Simulación de Paciente; Entrenamiento Simulado; Ansiedad; Educación Médica (fuente: DeCS Bireme).

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## INTRODUCTION

Standardized patients (SPs) are individuals trained to accurately and consistently portray clinical conditions, allowing health sciences students to practice and refine their diagnostic, communication, and interpersonal skills in a safe learning environment [1-3]. Simulation-based education has become a cornerstone of medical and nursing curricula worldwide, as it promotes experiential learning, critical thinking, and the integration of theoretical and practical knowledge [4,5]. Within this pedagogical approach, SPs contribute realism and emotional depth to clinical encounters, helping learners develop empathy, professionalism, and patient-centered communication [6].

However, portraying complex clinical roles can place significant psychological demands on SPs. During simulated encounters, they may express and internalize emotions such as anger, fear, guilt, confusion, and sadness [6]. Evidence shows that up to 73% of SPs experience negative physical or emotional symptoms during or after simulations [7], and emotionally charged scenarios, such as receiving bad news, portraying psychiatric symptoms, or acting as distressed relatives, may evoke personal memories or trigger emotional distress [6,8,9]. The realism that enhances the learner's experience may simultaneously expose SPs to stress and anxiety [2,10,11].

Anxiety, defined as the anticipation of a perceived future threat, represents a normal physiological and psychological reaction that prepares the body for challenges [12]. Nevertheless, when anxiety becomes excessive, persistent, or generalized to non-threatening contexts, it can impair concentration, emotional regulation, and task performance [13]. In SPs, sustained anxiety may interfere with the consistency of role portrayal, the quality of feedback provided, and their willingness to participate in future simulations [14,15]. Despite their crucial role in medical education, the psychological well-being of SPs has received considerably less attention than that of students or instructors [16].

The type of simulated scenario appears to be an important contextual factor influencing the emotional responses of SPs. Emotional scenarios, particularly those involving conflict, grief, or psychiatric distress, may generate a higher psychological burden than routine, non-emotional scenarios such as physical examinations or preventive consultations [17-21]. Identifying whether these emotionally demanding contexts contribute to heightened anxiety is essential for improving SP training, support systems, and institutional policies aimed at safeguarding their mental health [2,10,15].

Therefore, this study aimed to analyze the association between the type of simulation scenario, classified as emotional or non-emotional, and anxiety levels among SPs

participating in educational sessions. This research seeks to provide evidence to inform strategies that promote psychological safety and well-being in simulation-based education.

## METHODS

### Study Design

A cross-sectional, analytical, observational study was conducted.

### Setting

The study was conducted in 2023 at the Clinical Simulation Center of the Universidad Científica del Sur (UCSUR), located in Lima, Peru. This center implements structured simulation programs that integrate SPs into a variety of emotional and non-emotional scenarios designed for undergraduate health sciences students. The report followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines to ensure transparency and methodological rigor.

### Participants

The study population consisted of all SPs actively participating in simulation programs during the study period. Eligibility criteria included being 18 years of age or older, having at least one month of experience performing simulation activities, and providing written informed consent. SPs were excluded if they declined participation or had incomplete data in the anxiety inventory. In total, 46 SPs met the inclusion criteria and were included in the final analysis. A formal sample size calculation was not performed. The sample represented a census of all available SPs during the study period.

### Study Variables

The primary dependent variable was the level of anxiety experienced by each SP immediately after completing a simulation activity. Anxiety was defined as a psychological and physiological response characterized by tension, apprehension, and heightened autonomic activity triggered by perceived stressors or potential threats. In this study, anxiety represented a state response to simulation exposure rather than a chronic psychological condition. Anxiety was measured using the State-Trait Anxiety Inventory (STAI), which differentiates between state anxiety, a transient emotional condition reflecting situational stress, and trait anxiety, which denotes a stable predisposition to perceive situations as threatening. The total anxiety level was categorized into four degrees of

intensity (mild, moderate, severe, and panic), according to the instrument's standardized scoring system.

The independent variable was the type of simulated scenario, operationally defined according to the degree of emotional intensity required during role performance. Two categories were established. Emotional scenarios were those requiring high emotional engagement from the SP, typically involving complex or distressing interactions such as receiving bad news, portraying psychiatric patients, participating in obstetric cases, or responding to emergency situations. These scenarios were designed to elicit emotional realism and empathy but could also increase psychological stress. In contrast, non-emotional scenarios were characterized by minimal emotional load and focused primarily on clinical or procedural tasks such as physical examinations, preventive checkups, outpatient consultations, and imaging assessments. These scenarios were intended to simulate neutral professional encounters that required consistency and accuracy rather than emotional depth.

To account for potential sources of variability and confounding, several covariates were collected and analyzed, including age, sex, acting training background, use of relaxation techniques, usual role portrayed (patient or family member), and duration of experience as an SP (in months). These variables were selected because demographic and experiential factors may influence how SPs perceive and respond to emotionally demanding tasks. For example, greater acting experience or familiarity with relaxation techniques might reduce situational anxiety, whereas limited experience or personal identification with certain roles could increase it. Including these covariates allowed for a more comprehensive interpretation of the relationship between scenario type and anxiety, ensuring that differences observed were not solely attributable to individual characteristics.

### **Data Collection Procedures**

Data collection was performed using a structured, self-administered questionnaire completed by SPs immediately after their participation in simulation activities. The questionnaire included eight sociodemographic and occupational questions addressing age, sex, duration of experience, acting background, and use of relaxation techniques.

Anxiety was assessed using the Spanish-validated version of the STAI [17-19]. Participants were instructed to complete first the State Anxiety Inventory (SAI), which assessed their situational anxiety at the time of the simulation, followed by the Trait Anxiety Inventory (TAI), which evaluated their general tendency toward anxiety. Both subscales consist of 20 items rated on a four-point Likert scale ranging from

1 to 4. Each subscale yields scores ranging from 20 to 80, with higher scores indicating greater levels of anxiety.

### **Instrument Validity and Reliability**

The STAI is one of the most widely used psychometric instruments for evaluating anxiety and has demonstrated strong internal consistency and reliability, with a Cronbach's alpha of 0.93 and an intraclass correlation coefficient of 0.80 [17,18]. Previous studies have confirmed its validity and reliability in Spanish-speaking populations, including those in Peru [22,23]. Although the instrument has not been specifically validated for SP populations, its widespread use in clinical and educational settings supports its contextual applicability. Future studies should further evaluate its psychometric properties among SPs to ensure cultural and occupational relevance.

### **Statistical Analysis**

Descriptive statistics were used to summarize participant characteristics. Categorical variables were presented as frequencies and percentages, whereas continuous variables were expressed as means and standard deviations or medians and interquartile ranges (IQR), depending on data distribution.

Due to the small sample size and the presence of low expected cell frequencies in contingency tables, Fisher's exact test was used as the primary method to assess the association between the type of simulated scenario and anxiety level. The chi-square test was not considered appropriate because its underlying assumptions were not met.

No multivariable analysis was performed because the limited sample size and insufficient statistical power did not support reliable adjustment for potential confounders. Therefore, variables such as age, experience, and use of relaxation techniques were considered only descriptively.

A p-value < 0.05 was considered statistically significant. All analyses were conducted using Stata 17 (StataCorp LLC, College Station, TX, USA).

### **Ethical Considerations**

Participation was entirely voluntary, and all SPs provided informed consent before data collection. No identifying information was recorded, thereby ensuring anonymity and confidentiality. The study protocol was reviewed and approved by the Research Ethics Committee of the UCSUR under approval No. 219-CIEI-CIENTIFICA-2023. All procedures adhered to the principles of the Declaration of

Helsinki and institutional standards for research involving human participants.

## RESULTS

A total of 46 SPs were included in the analysis. The sample comprised 29 females (63.0%) and 17 males (37.0%), with a mean age of  $40.9 \pm 13.9$  years (range: 20–65 years). The median duration of experience as an SP was 22 months (IQR: 11–46), ranging from 1 to 94 months. Regarding prior acting experience, 43 SPs (93.5%) reported having received formal acting training, whereas 3 (6.5%) had not. Most participants usually portrayed the role of a patient (87.0%), while 6 (13.0%) commonly portrayed family members. In addition, 34 SPs (73.9%) reported using at least one relaxation technique, such as deep breathing, listening to music, or meditation, whereas 12 (26.0%) did not use any relaxation strategy. Table 1 summarizes the main demographic and professional characteristics of the participants.

All participants exhibited some degree of anxiety according to the STAI. The mean total anxiety score was  $47.9 \pm 6.2$  points, with scores ranging from 33 to 64. Based on the STAI classification, 5 participants (10.9%) presented mild anxiety, 40 (87.0%) moderate anxiety, and 1 (2.2%) severe anxiety. No case of panic-level anxiety or absence of anxiety was identified. The mean trait anxiety score was 25.4 points, corresponding to mild trait anxiety according to the standard classification.

When stratified by the type of simulated scenario, no statistically significant association was observed between anxiety level and scenario type. Among emotional scenarios, 2 SPs (8.7%) presented mild anxiety, 20 (87.0%) moderate anxiety, and 1 (4.3%) severe anxiety. Among non-emotional scenarios, 3 SPs (13.0%) presented mild anxiety and 20 (87.0%) moderate anxiety. Fisher's exact test showed no statistically significant association between anxiety level and scenario type ( $p = 0.999$ ) (Table 2). Due to the limited sample size, no formal statistical comparisons were performed for additional variables such as sex, age, acting training, or duration of experience.

**Table 1.** Characteristics of the participants included in the study.

Variable	n (%)
Sex	
Male	17 (37.0)
Female	29 (63.0)
Age in years*	$40.9 \pm 13.9$
Role of the SP	
Patient	40 (87.0)
Family member	6 (13.0)
Acting Training	
Yes	43 (93.5)
No	3 (6.5)
Use of relaxation techniques	
Yes	34 (73.9)
No	12 (26.0)
Months of experience (IQR)	22 (11–46)
STAI Score*	$47.9 \pm 6.2$ points
Anxiety Level	
Mild Anxiety	5 (10.9)
Moderate Anxiety	40 (87.0)
Severe Anxiety	1 (2.2)
Panic-Level Anxiety	0 (0.0)
Absence of Anxiety	0 (0.0)

IQR: Interquartile Range, SP: Standardized Patient, STAI: State-Trait Anxiety Inventory.

\*Mean  $\pm$  standard deviation

## DISCUSSION

This study explored the relationship between type of simulation scenario and anxiety levels among SPs. Although no statistically significant association was identified, this finding should not be interpreted as evidence of absence of an effect. The small sample size, the concentration of observations within a single anxiety category, and the resulting low statistical power substantially limited the ability to detect meaningful differences between groups. Therefore, the results should be considered inconclusive. The consistent presence of anxiety across participants suggests that simulation activities may involve a certain degree of emotional

**Table 2.** Relationship between the type of simulated scenario and anxiety level.

Simulated Scenario	Mild Anxiety	Moderate Anxiety	Severe Anxiety	p-value <sup>a</sup>
Emotional	2	20	1	0.999
Non-Emotional	3	20	0	
Total	5	40	1	

<sup>a</sup> Fisher's exact test

activation. However, the current study design does not allow differentiation between the effect of scenario type and individual baseline characteristics. Factors such as prior acting experience, coping strategies, or trait anxiety may play a more relevant role than the emotional content of the scenario itself [1-3].

Previous studies have reported that SPs often experience mild to moderate anxiety while performing their roles in simulation-based education. Sarikoc *et al.* [10] found that all the SPs in their study experienced anxiety, with 84.2% presenting moderate anxiety, closely aligning with the findings of the present study. Similar results have been described by Bokken *et al.* [7,9] and Plaksin *et al.* [2], who reported that simulation performance may generate stress and emotional burden among SPs, particularly when scenarios involve sensitive or psychologically complex situations. Emotional content, such as receiving bad news, portraying psychiatric symptoms, or acting as distressed relatives, has been associated with greater psychological strain [6,8,15,16]. Despite this, our results did not demonstrate significant differences between emotional and non-emotional scenarios. This may suggest that anxiety experienced by SPs could be influenced more by internal or situational factors than by scenario type itself; however, this interpretation should be made with caution given the study limitations [1].

Several factors could explain the lack of association between scenario type and anxiety in this study. First, most participants had prior acting experience and formal performance training, which may have provided coping mechanisms and emotional regulation skills to manage the demands of complex scenarios [4,5,15]. Second, the structured pre-briefing and debriefing procedures implemented at the UCSUR Clinical Simulation Center likely contributed to psychological safety, an aspect recognized as fundamental for reducing participant distress in simulation environments [1]. Third, anxiety may reflect a relatively stable personality trait. According to the STAI, the moderate levels of trait anxiety observed among participants indicate a predisposition to anxious responses independent of external stimuli [17-19,22,23]. This finding supports the hypothesis that anxiety among SPs may stem from inherent psychological characteristics rather than from the emotional intensity of a given scenario.

Although anxiety is often viewed as detrimental, moderate levels may also be adaptive. Within the framework of the Yerkes-Dodson law, a moderate degree of arousal may enhance alertness, focus, and performance quality, thereby improving the realism of the simulation and the learning experience for students [12-14]. However, excessive or chronic anxiety can impair concentration, emotional regulation, and motivation, potentially compromising both

SP well-being and the consistency of role portrayal [2,14,20]. Recognizing this dual nature of anxiety highlights the need to balance authenticity in simulation with the psychological safety of SPs. Our findings also reinforce prior qualitative research emphasizing the psychological demands associated with being a SP. Pritchard *et al.* [20] and Triviño *et al.* [21] described how SPs engaged in emotionally complex roles, such as those related to the human immunodeficiency virus or end-of-life care, reported heightened stress and fatigue. Similarly, Dawson *et al.* [15] and McNaughton *et al.* [16] underscored that portraying intense emotional states may require SPs to draw on personal memories or empathic imagination, potentially resulting in lingering emotional effects. Although the present study did not identify statistically significant associations, the consistent presence of anxiety across all scenarios suggests that institutional monitoring and psychological support may be necessary to preserve the mental well-being of SPs.

This study has several limitations. Its cross-sectional design precludes establishing causal relationships between the type of simulated scenario and anxiety levels. The sample size was relatively small and derived from a single institution, which may limit both generalizability and statistical power. Multivariable analyses to control for potential confounders, such as age, sex, and prior experience, were not performed because of the limited sample size. The heterogeneity of participants in terms of age, SP experience, usual role, and relaxation practices may have introduced variability in anxiety responses and limited comparability between groups. Additionally, although the STAI has been validated in Spanish-speaking populations, it has not been specifically validated for SP contexts, which may affect construct precision. Anxiety was measured immediately after simulation sessions, thereby reflecting acute responses rather than long-term psychological effects.

In conclusion, this study did not identify a statistically significant association between the type of simulation scenario and anxiety level among SPs. However, due to methodological limitations, particularly the small sample size and limited statistical power, these findings should be interpreted with caution. Anxiety was consistently observed across participants, suggesting that it may represent a common response to simulation activities. Further studies using larger samples and longitudinal designs are needed to better understand the factors influencing anxiety among SPs.

#### Author contributions

AXJY: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review

& editing. MFChR: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. AFSo: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. CZC: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft, Writing – review & editing. All authors assume full responsibility for the content of the manuscript.

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### Conflicts of interest statement

The authors declare no conflicts of interest.

### Generative Artificial Intelligence use statement

The authors declare that no artificial intelligence was used in any part of the manuscript preparation process.

### Data availability statement

The datasets utilized and analyzed in the present study are accessible upon reasonable request to the corresponding author.

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## REFERENCES

- Cleland JA, Abe K, Rethans JJ. The use of simulated patients in medical education: AMEE Guide No. 42. *Med Teach*. 2009;31(6):477-486. doi: [10.1080/01421590903002821](https://doi.org/10.1080/01421590903002821).
- Plaksin J, Nicholson J, Kundrod S, Zabar S, Kalet A, Altshuler L. The Benefits and Risks of Being a Standardized Patient: A Narrative Review of the Literature. *Patient*. 2016;9(1):15-25. doi: [10.1007/s40271-015-0127-y](https://doi.org/10.1007/s40271-015-0127-y).
- Wind LA, Van Dalen J, Muijtjens AMM, Rethans JJ. Assessing simulated patients in an educational setting: the MaSP (Maastricht Assessment of Simulated Patients). *Med Educ*. 2004;38(1):39-44. doi: [10.1111/j.1365-2923.2004.01686.x](https://doi.org/10.1111/j.1365-2923.2004.01686.x).
- Valencia Castro JL, Tapia Vallejo S, Olivares Olivares SL. La simulación clínica como estrategia para el desarrollo del pensamiento crítico en estudiantes de medicina. *Investig Educ Med*. 2019;8(29):13-22. doi: [10.1016/j.riem.2016.08.003](https://doi.org/10.1016/j.riem.2016.08.003).
- Das V, Daniels B, Kwan A, Saria V, Das R, Pai M, et al. Simulated patients and their reality: An inquiry into theory and method. *Soc Sci Med*. 2022;300:114571. doi: [10.1016/j.socscimed.2021.114571](https://doi.org/10.1016/j.socscimed.2021.114571).
- Aldridge MD. Standardized patients portraying parents in pediatric end-of-life simulation. *Clin Simul Nurs*. 2017;13(7):338-342. doi: [10.1016/j.ecns.2017.05.012](https://doi.org/10.1016/j.ecns.2017.05.012).
- Bokken L, Van Dalen J, Rethans JJ. Performance-related stress symptoms in simulated patients. *Med Educ*. 2004;38(10):1089-1094. doi: [10.1111/j.1365-2929.2004.01958.x](https://doi.org/10.1111/j.1365-2929.2004.01958.x).
- Janzen KJ, Jeske S, MacLean H, Harvey G, Nickle P, Norenna L, et al. Handling Strong Emotions Before, During, and After Simulated Clinical Experiences. *Clin Simul Nurs*. 2016;12:37-43. doi: [10.1016/j.ecns.2015.12.004](https://doi.org/10.1016/j.ecns.2015.12.004).
- Bokken L, Van Dalen J, Rethans JJ. The impact of simulation on people who act as simulated patients: a focus group study. *Med Educ*. 2006;40(8):781-786. doi: [10.1111/j.1365-2929.2006.02529.x](https://doi.org/10.1111/j.1365-2929.2006.02529.x).
- Sarikoc G, Sarmasoglu S, Tuzer H, Elcin M, Burn CL. Intervention for Standardized Patients' Anxiety After "Receiving Bad News" Scenarios. *Clin Simul Nurs*. 2018;25:28-35. doi: [10.1016/j.ecns.2018.10.012](https://doi.org/10.1016/j.ecns.2018.10.012).
- Gaba DM. Simulations that are challenging to the psyche of participants: how much should we worry and about what? *Simul Healthc*. 2013;8(1):4-7. doi: [10.1097/SIH.0b013e3182845a6f](https://doi.org/10.1097/SIH.0b013e3182845a6f).
- American Psychiatric Association. DSM-5: manual diagnóstico y estadístico de los trastornos mentales. 5th ed. Madrid: Editorial Médica Panamericana; 2014.
- Bouras NN, Mack NR, Gao WJ. Prefrontal modulation of anxiety through a lens of noradrenergic signaling. *Front Syst Neurosci*. 2023;17:1173326. doi: [10.3389/fnsys.2023.1173326](https://doi.org/10.3389/fnsys.2023.1173326).
- Szuhany KL, Simon NM. Anxiety Disorders: A Review. *JAMA*. 2022;328(24):2431-2445. doi: [10.1001/jama.2022.22744](https://doi.org/10.1001/jama.2022.22744).
- Dawson RM, Lawrence K, Gibbs S, Davis V, Mele C, Murillo C. "I felt the connection": a qualitative exploration of standardized patients' experiences in a delivering bad news scenario. *Clin Simul Nurs*. 2021;55:52-58. doi: [10.1016/j.ecns.2021.04.012](https://doi.org/10.1016/j.ecns.2021.04.012).
- McNaughton N, Tiberius R, Hodges B. Effects of Portraying Psychologically and Emotionally Complex Standardized Patient Roles. *Teach Learn Med*. 1999;11(3):135-141. doi: [10.1207/S15328015TL110303](https://doi.org/10.1207/S15328015TL110303).
- Ferreira R, Murray J. Spielberger's State-Trait Anxiety Inventory: Measuring anxiety with and without an audience during performance on a stabilometer. *Percept Mot Skills*. 1983;57(1):15-18. doi: [10.2466/pms.1983.57.1.15](https://doi.org/10.2466/pms.1983.57.1.15).
- Gustafson LW, Gabel P, Hammer A, Lauridsen HH, Petersen LK, Andersen B, et al. Validity and reliability of State-Trait Anxiety Inventory in Danish women aged 45 years and older with abnormal cervical screening results. *BMC Med Res Methodol*. 2020;20:89. doi: [10.1186/s12874-020-00982-4](https://doi.org/10.1186/s12874-020-00982-4).

19. Skapinakis P. Spielberger State-Trait Anxiety Inventory. In: Michalos AC, editor. *Encyclopedia of Quality of Life and Well-Being Research*. Dordrecht: Springer; 2023. p. 6261-6264. doi: [10.1007/978-3-031-17299-1\\_2825](https://doi.org/10.1007/978-3-031-17299-1_2825).
20. Pritchard SA, Denning T, Keating JL, Blackstock FC, Nestel D. "It's Not an Acting Job ... Don't Underestimate What a Simulated Patient Does": A Qualitative Study Exploring the Perspectives of Simulated Patients in Health Professions Education. *Simul Healthc*. 2020;15(1):21-29. doi: [10.1097/SIH.0000000000000400](https://doi.org/10.1097/SIH.0000000000000400).
21. Triviño X, Ferrer L, Bernales M, Cianelli R, Moore P, Peragallo N. Effect of emotionally complex roles on HIV-related simulated patients. *Hisp Health Care Int*. 2013;11(2):72-78. doi: [10.1891/1540-4153.11.2.72](https://doi.org/10.1891/1540-4153.11.2.72).
22. Bazan Izquierdo LC. Adaptación, validez y fiabilidad del inventario ansiedad rasgo-estado para adultos de la ciudad de Trujillo. *Rev Investig Psicol*. 2021;24(1):101-116. doi: [10.15381/rinyp.v24i1.20614](https://doi.org/10.15381/rinyp.v24i1.20614).
23. Castro Magán IM. Propiedades psicométricas del inventario de ansiedad rasgo-estado (IDARE) [Internet]. *Paian* []. 2016;7(1) [cited 2026 Apr 8]. Available from: <https://revistas.uss.edu.pe/index.php/PAIAN/article/view/312/313>