

## Anxiety and spirituality in university students: a cross-sectional study

*Ansiedade e espiritualidade em estudantes universitários: um estudo transversal*

*Ansiedad y espiritualidad en estudiantes universitarios: un estudio transversal*

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### ABSTRACT

**Objective:** to study anxiety and spirituality and the relationship between them in university students. **Method:** the State-Trait-Anxiety Inventory (STAI) and Pinto and Pais-Ribeiro Spirituality Scales were used for data collection. **Results:** six hundred and sixty-nine students participated in the study, of whom 91.5% had moderate and high levels of trait anxiety and 92.9% of state anxiety; 93.8% had high spirituality scores. The multiple linear regression test showed a significant relationship between anxiety and the presence of physical discomfort, unusual body movements, and the need for treatment. Furthermore, higher levels of anxiety were associated with the female gender, the lack of leisure activities, and low levels of optimism in the spirituality scale. **Conclusion:** it is important to develop strategies for coping with anxiety, which in turn can be oriented toward protective factors such as spirituality.

**Key words:** Anxiety; Spirituality; Students Health Occupations.

### RESUMO

**Objetivo:** investigar a ansiedade e a espiritualidade de estudantes universitários e a relação entre elas. **Método:** para a coleta de dados, foi utilizado o Inventário de ansiedade traço-estado (IDATE) e a Escala de Espiritualidade de Pinto e Pais-Ribeiro. **Resultados:** participaram 609 alunos, sendo que 91,5% apresentam níveis moderados e altos de ansiedade-traço; 92,9%, os mesmos níveis de ansiedade-estado e 93,8% alto escore de espiritualidade. O teste de regressão linear múltipla apontou relação significativa entre a ansiedade e a presença de desconfortos físicos, de movimentos pouco comuns e necessidade de tratamento. Os maiores níveis de ansiedade estiveram associados ao sexo feminino, à ausência de atividades de lazer e aos baixos níveis de otimismo da escala de espiritualidade. **Conclusão:** é importante o desenvolvimento de estratégias de enfrentamento da ansiedade que, por sua vez, podem estar voltadas a fatores protetores, como a espiritualidade.

**Descritores:** Ansiedade; Espiritualidade; Estudantes de Ciências da Saúde.

### RESUMEN

**Objetivo:** identificar la ansiedad y espiritualidad de los estudiantes universitarios, y investigar la relación entre ellas. **Método:** para la colección de datos se utilizó el Inventario de Ansiedad Estado-Trazo y la escala de espiritualidad de Pinto y Pais-Ribeiro. **Resultados:** participaron del estudio 609 estudiantes y 91,5% tienen niveles moderados y altos de ansiedad trazo y estado de ansiedad del 92,9%, y 93,8% tenía una puntuación alta de la espiritualidad. La prueba de regresión lineal múltiple indica una relación significativa entre la ansiedad y la presencia de molestias físicas, movimientos inusuales y de la necesidad de llevar a cabo el tratamiento. Sin embargo, los niveles más altos de ansiedad se asociaron con el sexo femenino, la falta de práctica de láser y los niveles bajos de la escala dimensión optimismo de la espiritualidad. **Conclusión:** es importante desarrollar estrategias para hacer frente a la ansiedad que a su vez pueden estar orientados hacia los factores de protección, como la espiritualidad.

**Palabras clave:** Ansiedad; Espiritualidad; Estudiantes del Área de la Salud.

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## INTRODUCTION

The entry into university life is full of adaptations and changes in students' routines and life habits, who begin not only to face challenges related to independent living as they live on their own and must be autonomous, but also to face academic challenges, which result in situations that favor depression, stress, and anxiety, the latter having the highest incidence among this population<sup>(1)</sup>.

Researchers<sup>(2)</sup> have stated that the initial period in the university is a moment of transition that can result in anxiety, depending on the organization of the basic study cycle and its disciplines, on the schedule given, and on the number of demands. In addition, students' individual characteristics and the way they perceive their experience may affect the anxiety condition and turn it into a real threat to students' health, thus hampering their professional qualification<sup>(2)</sup>.

Since the 1970s, Spielberg, Gorsuch, and Lushene<sup>(3)</sup> have defined anxiety as a natural response that encourages individuals to achieve their goals; however, at high levels it may become pathological, and instead of helping them to face situations, it limits, makes it difficult, and sometimes hampers the ability to adapt and face situations experienced every day. These authors also described two types of anxiety: state anxiety and trait anxiety. State anxiety refers to a temporary moment, which can be characterized by worry, tension, and an increase in autonomic nervous system activity depending on the individual's perception of a given situation. In contrast, trait anxiety is related to each individual's personality and concerns the differences between reactions when facing situations considered as threatening. In this way, individuals who have a high degree of trait anxiety tend to consider a higher number of situations as dangerous, and consequently their state anxiety is increased. Based on this definition, the authors created an instrument to assess anxiety named the State-Trait Anxiety Inventory (STAI), which is extensively used in the literature<sup>(4)</sup>.

Also referred to as a nursing diagnosis, anxiety (00146) can be described by different characteristics such as: restlessness; unusual body movements; difficulty in concentrating; sleep disorder; fatigue; muscle contraction; abdominal pain; and tremors; among others<sup>(5)</sup>. These symptoms almost certainly have negative consequences on individuals' personal lives and professional qualification, because people with high levels of anxiety tend to have negative perceptions of their motor and intellectual skills<sup>(2)</sup>. Thus, professionals who are involved in the process of students' qualification must be careful not only to identify clinical expressions of anxiety in students, but to provide suitable support services<sup>(1,6)</sup>.

Different strategies may be used as support for students or be included in the treatment of anxiety, such as participation in leisure activities<sup>(7)</sup>, individual counseling<sup>(1)</sup>, and even activities based on the person's religion or spirituality<sup>(8)</sup>.

Researchers<sup>(8)</sup> have suggested treatment protocols for anxiety that include religious or spiritual belief, and an easing of symptoms has been observed. Spirituality seems to be an efficient coping mechanism that students can use to face or deal with anxiety and also with the challenges of academic life.

Spirituality provides structure and meaning to values,

behaviors, and human experiences and is very often integrated with religious belief<sup>(9)</sup> or includes a wide range of significations between holistic wellbeing and mysticism<sup>(10)</sup>.

When Pinto and Pais-Ribeiro<sup>(9)</sup> studied spirituality in the context of health, they created an assessment scale of the phenomenon whose psychometric properties are related to the identification of psychosocial variables that affect the optimization of health and quality of life. The instrument points to the existence of two spiritual dimensions. The first is a vertical one, named *belief*, which is associated with a relationship with transcendence and that, within a Judeo-Christian society, is closely related to religious practice. The second is a horizontal one, existentialism, in which are included the sense of hope and an attribution of meaning to life as a result of the relationship with oneself, with others, and with the environment, which was named *hope-optimism*.

The interconnection between spirituality and health is rather old<sup>(9)</sup>, and it has been identified as a supporting factor for mental health improvement. A study that assessed the spiritual experiences of cancer patients obtained reports that such experiences are associated with relief of suffering<sup>(10)</sup>. Another study conducted with university students noted that those who had strong religious or spiritual beliefs had greater self-esteem and lower levels of depression and anxiety<sup>(11)</sup>. Therefore, as with any construct that implies a good relationship with health, spirituality must also be the object of investigation.

In view of the above, the objective of this study was to investigate anxiety and spirituality profiles and the relationship between them in university students.

## METHOD

This is a cross-sectional study, approved by the Research Ethics Committee under number CAAE 02823512.9.0000.5142, in compliance with the principles established in Resolution 466/12 of the Ministry of Health. The population comprised 810 students from the first to seventh semester of the nursing, physical therapy, dentistry, and pharmacy undergraduate courses of a federal university. Out of these, 609 students participated in the study between September 2012 to January 2013, and comprised a simple random sample with the following inclusion criteria: to be aged over 18; and to be duly enrolled in one of the aforementioned life sciences courses. Individuals who had not attended classes for three consecutive days were excluded from the study, in addition to those who refused to participate. After the invitation was accepted, all subjects signed a free and informed consent form.

For data collection, the following instruments were used: the State-Trait Anxiety Inventory (STAI)<sup>(12-13)</sup> and Pinto and Pais-Ribeiro Spirituality Scale<sup>(14)</sup>.

The State-Trait Anxiety Inventory (STAI), which was translated and adapted to Brazil by Biaggio<sup>(12)</sup>, is an instrument comprised of 40 statements regarding subjects' feelings, and it is divided into two parts: state anxiety and trait anxiety. Each part consists of 20 descriptive assertions, and answers are given in a four-point Likert scale (1 - not at all to 4 - very much so). Scores of each part range from 20 to 80 points, and indicate either a

low degree of anxiety (0-30), a moderate degree of anxiety (31-40), or a high degree of anxiety (equal to or over 50)<sup>(13)</sup>.

The Spirituality Scale proposed by Pinto and Pais-Ribeiro<sup>(9)</sup> and validated in Brazil by Chaves et al.<sup>(14)</sup> is self-applicable and is composed of five items divided into two dimensions: beliefs and hope-optimism. The answers are given in a Likert scale, with four possible answers, from *disagree* to *fully agree*. The average score on the scale is 10; therefore, scores below 10 correspond to low scores and scores above 10 correspond to high scores.

For subjects' characterization, the following features were investigated: sociodemographic profile (gender, age, and course); physical or psychological discomfort (sleep disorder, restlessness, unusual body movements, fatigue, muscular tension, difficulty in concentrating, headaches, among others); anxiety-related therapies (pharmacological and non-pharmacological); and the performance of leisure and physical activities.

When performing an internal consistency analysis of the set of items from the STAI with the study population, Cronbach's alpha was 0.913 and 0.904 for trait and state, respectively. Analysis of the Pinto and Pais-Ribeiro Spirituality Scale had a Cronbach's alpha of 0.761. For *Beliefs* the Cronbach's alpha was 0.834, and for *Hope-Optimism* it was 0.690. Therefore, both instruments were suitable for use with this population.

Data analysis was preceded by the creation of a database, done with *Microsoft® Office Excel* (2007), in order to encode variables and validate by means of double typing. For statistical analysis, the *Statistical Package for the Social Sciences* (SPSS) version 22.0 was used. Descriptive statistics were used to describe and summarize the variables studied. Nominal variables were described by frequency analysis and by a contingency table. Multiple linear regression was used to investigate the relationship between variables. The significance level was 5%.

## RESULTS

Out of the 609 participating students, 501 (82.3%) were females and 108 (17.7%) were males; 84 (13.8%) were studying nursing; 177 (19.2%) were studying physical therapy; 175 (28.7%) were studying dentistry; and 233 (38.3%) were studying pharmacy. The average age of participants was  $21 \pm 2.5$  years old.

Data concerning students' anxiety (Table 1) showed that 91.5% had moderate or high levels of trait anxiety and 92.9% had state anxiety. The average state anxiety was 44.36 (SD = 10.27) and 44.53 (SD = 11.39) for trait anxiety.

**Table 1 -** Distribution of students from life sciences courses regarding anxiety levels, Minas Gerais, 2013 (N = 609)

	Level of Anxiety	f(%)
<b>STAI State</b>	Low level	43(7.1)
	Medium level	390(64)
	High level	176(28.9)
<b>STAI Trait</b>	Low level	52(8.5)
	Medium level	368(60.4)
	High level	189(31)

**Table 2 -** Distribution of life sciences students regarding seeking treatment for anxiety, Minas Gerais, 2013 (N = 609)

Variable studied	f(%)
<b>Behavioral Therapy</b>	Yes 16(4.3%)
	No 583(95.7%)
<b>Complementary Integrative Psychotherapy</b>	Yes 40(6.6%)
	No 569(93.4%)
<b>Use of drugs</b>	Yes 188(30.9%)
	No 421(69.1%)

The investigation of clinical expressions of anxiety showed that 73.9% of students interviewed had some physical or psychological discomfort, the most frequent being: unusual body movements (66%); difficulty in concentrating (33.5%); muscular tension (32.7%); restlessness (23.5%); sleep disorder (23.2%); fatigue (14.9%); abdominal pain (9.2%); and tremors (4.8%). Only 159 (26.1%) of students did not have any physical discomfort at the moment of the interview.

Among the 609 students who participated in the study, 244 (40%) had already undergone some kind of treatment for anxiety (Table 2). Furthermore, 475 (78.4%) performed leisure activities and 255 (41.9%) performed physical exercises.

Regarding the investigation of spirituality, 571 (93.8%) students had high scores for spirituality and 38 (6.2%) had low scores. For the *Belief* dimension, 508 (83.4%) students had high scores for spirituality and 101 (16.6%) had low scores. For the *Hope-Optimism* dimension, 557 (91.5%) students had high scores for spirituality and 52 (8.5%) students had low scores.

When we correlated anxiety with the variables studied, we found a statistically significant association between: the performance of leisure activities; the absence of physical discomfort; sleep disorder; restlessness; fatigue; difficulty in concentrating; unusual body movements; performance of a non-pharmacological treatment; performance of a pharmacological treatment; and spirituality (Table 3). The other variables studied were not statistically significant.

## DISCUSSION

The greatest number of participants in this study had moderate levels of anxiety, followed by those with high levels. Indeed, researchers have pointed to the fact that intellectual and social challenges experienced by students<sup>(6)</sup>, in addition to the transition period from teenage to adult life<sup>(2)</sup>, may result in emotional pressure, which increases the risk of anxiety.

Different academic circumstances may be associated with conditions of state and trait anxiety among students. Anxiety state is related to a particular situation experienced by students, such as entry into the university itself as well as everyday situations that arise in the academic environment, resulting in a temporary emotional state. In contrast, anxiety trait is related to individual characteristics and the way of dealing with different events<sup>(2)</sup>, which may affect academic performance. Average state and trait anxiety was similar among students in this study, which supports the assumption that trait anxiety scores may be

**Table 3** - Relationship between the anxiety profile and the variables studied, according to estimates of parameters of multiple linear regression models, Minas Gerais, 2013

	STAI TRAIT			STAI STATE		
	Parameter	Standard Error	P Value	Parameter	Standard Error	P Value
<b>Interception*</b>	38.242	1.075	0.000	40.915	1.099	0.000
<b>Gender</b>	2.893	0.962	0.003	2.129	0.957	0.027
<b>Performance of leisure activities</b>	3.386	0.889	0.000	4.461	0.876	0.000
<b>Absence of physical discomfort</b>	-3.06	0.971	0.002	-2.528	0.922	0.006
<b>Sleep disorder</b>	2.67	0.906	0.000	2.56	0.894	0.004
<b>Restlessness</b>	3.901	0.897	0.000	2.329	0.888	0.009
<b>Fatigue</b>	3.736	1.048	0.000	-	-	-
<b>Difficulty in concentrating</b>	0.933	0.855	0.024	-	-	-
<b>Unusual body movements</b>	2.28	0.914	0.013	-2.549	0.782	0.001
<b>Performance of non-pharmacological treatment</b>	7.368	2.029	0.000	-	-	-
<b>Performance of pharmacological treatment</b>	-	-	-	5.481	2.341	0.020
<b>Spirituality</b>	5.36	1.272	0.000	5.443	1.266	0.000
<b>R<sup>2</sup></b>	0.325	-	-	0.249	-	-

very accurate predictors of state anxiety<sup>(2)</sup>; that is, people whose condition is associated with their personal characteristics are more likely to be anxious in everyday situations.

It was also found that the female gender has higher anxiety levels than the male gender, with statistically significant differences in state and trait conditions. This confirms the results obtained in other studies<sup>(4,15)</sup> in which female and male students differed in terms of anxiety levels, as females had higher levels. This may be due to biological and psychosocial factors such as social roles<sup>(16)</sup> and physiological state<sup>(17)</sup>.

It was also observed that higher levels of state and trait anxiety are related to a lack of leisure activities. This was also highlighted by Zobairy, Aliabadi, and Zobayri<sup>(18)</sup>, who found that a higher frequency of leisure activities was significantly associated with lower anxiety levels in female high school students. In view of the above, the same authors have suggested the creation of sporting facilities, both inside and outside the school environment, so that students have adequate opportunities to develop physical and mental health. Both physical and leisure activities are important supporting factors of health and quality of life.

In our study, students who had no physical discomfort also had lower levels of state and trait anxiety (below average) when compared to individuals who had some discomfort. Symptoms such as sleep disorder, restlessness, fatigue, and difficulty in concentrating were statistically significant regarding the presence of anxiety. In a study carried out in Canada, it was observed that the incidence of psychological issues is higher among university students than in the general population<sup>(7)</sup>. Furthermore, within the academic environment, the advent of such changes seems to be more frequent in the area of medical studies<sup>(4)</sup>. Although many variables may contribute to the emergence of these symptoms, most the common factors concerned academic performance, stressful social factors, financial

problems, and the adaptation inherent in the transition from a family environment to an academic environment<sup>(19)</sup>.

The presence of unusual body movements was one of the most frequently mentioned discomforts and it had a significant relationship with anxiety. Despite this discomfort being considered as a defining feature of nursing diagnosis, anxiety (00146)<sup>(5)</sup> has been little explored in the literature, although the presence of abnormal movements—short and quick, sudden, incidental, and irresistible—can be defined as twitches, which in turn can be exacerbated by anxiety<sup>(20)</sup>.

After the investigation of treatments undergone by students, it was observed that a non-drug therapy had a closer relationship with trait anxiety; that is, people whose anxiety is related to their own personality seek other forms of treatment. As for the search for treatment with anxiolytic drugs by university students, there was a statistically significant relationship with state anxiety.

Whatever the strategy used to deal with anxiety, it should be based on a holistic model that is not only oriented toward students' personalities, but that is also comprehensive and considers their relationship with the environment or the moment experienced. In that sense, spirituality is referred to as an important feature of human beings that determines their singularities as people, along with the biological, intellectual, emotional, and social features<sup>(9)</sup>. Therefore, researchers have found that people who have some spiritual knowledge are less anxious<sup>(10)</sup>, and the incorporation of spirituality has been beneficial in the treatment of anxiety.

In this study, the *Optimism* dimension of the spirituality construct had a statistically significant relationship with anxiety, both for trait and state, and individuals who had low scores for hope-optimism had scores above average regarding state and trait anxiety. As for the dimension of spiritual and religious belief, it had no relationship with students' anxiety.

Addressing the topic of spirituality both in research and in a university environment is a challenging task, since this concept is not easy to apply or measure. Despite the fact that the instrument used in this study to assess spirituality is oriented toward both dimensions, beliefs and optimism, it is worth highlighting that this phenomenon is very personal and subjective, and there is no universal definition. This is an important limitation for studies on the topic. New studies with longitudinal and multicenter designs are necessary in order to generalize the results.

Finally, this study confirms the increasing body of knowledge that has shown a significant association between spirituality and mental health, especially in regard to a positive relationship between the spiritual dimension and the easing of anxiety. Of course, more studies are necessary in order to explore this relationship with different populations; however, investment in the search for similar results to those obtained will support the development of strategies for the prevention and treatment of anxiety.

## CONCLUSIONS

Most students of life sciences disciplines had moderate to high levels of state and trait anxiety, which were significantly associated with the presence of physical discomfort

and unusual body movements and the need for treatment of anxiety, with or without drugs. Therefore, it is worth highlighting that the search for non-pharmacological treatments such as cognitive-behavioral therapies was more frequent among those who had a personality-related anxiety.

Moreover, higher levels of anxiety were associated with the female gender, with the lack of leisure or physical activities, and with low scores in the *optimism* dimension of spirituality. Such findings are relevant for the definition of strategies to face anxiety, and they can be related to protective factors, such as spirituality, which in turn may help in the promotion and preservation of students' lives, whether related to religiosity or not.

The university environment is certainly filled with situations that may affect or trigger the development of anxiety in university students and even lead them to risk situations and to unhealthy habits such as a sedentary lifestyle. In this context, understanding students' mental health must be the object of specific research, with a comprehensive approach that is able to ensure better professional qualification of scholars.

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