

Psychological stress in students from undergraduate courses in health professions: contribution to promote mental health

Estresse psicológico em estudantes de cursos de graduação da área da saúde: subsídios para promoção de saúde mental

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ABSTRACT: This study aimed at detecting the presence of psychological stress and associated symptoms among students of different undergraduate courses in the health area of the same public institution. This was a cross-sectional study carried out with a structured questionnaire and a psychometric inventory. Participants included 102 students from Physiotherapy, Speech Therapy, Medicine, Nutrition and Occupational Therapy courses, distributed by course at their various stages (initial, intermediate and final) in proportion to the number of students enrolled. All participants answered a questionnaire of social and demographic characterization and underwent a validated instrument for detection of stress and its symptoms in adults. Statistical analysis of the differences between the proportions of students with and without stress was carried out using Fisher's test ($p \leq 0.05$). Among the 102 students, the presence of stress was detected in 71 (70%), ranging from 61% (Physiotherapy) to 88% (Occupational Therapy). There were no statistically significant differences between courses. There were also no differences between the different stages of the courses, which varied between 23% (beginning and intermediate) and 26% (final). There was no statistically significant difference between the proportions of women (75%) and men (63%) with stress. Among the students with stress, 57 (80%) presented psychological symptoms, 11 (15%) had physical symptoms and 11 (15%) showed physical

and psychological symptoms concomitantly. We conclude that relatively high proportions of the students at the various stages of different undergraduate courses in the health area of the same public institution present stress, and this is often associated with psychological and physical symptoms. Data indicate that in the health sciences area, the presence of stress is independent of the nature of the course. These findings reinforce the need to increase knowledge about this phenomenon, which will allow more adequate planning and greater effectiveness of institutional measures for mental health promotion.

Keywords: Psychological stress; Mental health; Health promotion; Health education; Students, health occupations.

RESUMO: O objetivo deste estudo foi detectar a presença de estresse psicológico e sintomas associados entre estudantes de diferentes cursos de graduação da área da saúde de uma mesma instituição pública. Foi um estudo tipo corte transversal empregando questionário estruturado e inventário psicométrico. Participaram 102 estudantes de Fisioterapia, Fonoaudiologia, Medicina, Nutrição e Terapia Ocupacional, distribuídos por curso e suas etapas (inicial, intermediária e final) proporcionalmente ao número de matriculados. Os participantes responderam a um questionário de caracterização social e demográfica e se

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submeteram a instrumento validado de detecção de estresse e seus sintomas em adultos. A análise estatística das diferenças entre as proporções de estudantes com e sem estresse foi feita por meio do teste de Fisher ($p \leq 0,05$). O estresse foi detectado em 71 (70%) dos 102 estudantes, em proporções por curso variando entre 61% (Fisioterapia) a 88% (Terapia Ocupacional). Não houve diferenças estatisticamente significativas entre os cursos quanto a essas proporções. Não houve também diferenças entre as etapas dos cursos, com frequências variando entre 23% (início e meio) e 26% (final). Não houve diferença significativa entre as proporções de mulheres (75%) e homens (63%) com estresse. Dentre os estudantes com estresse, 57 (80%) apresentavam sintomas psicológicos, 11 (15%) apresentavam sintomas físicos e outros 11 (15%) tinham sintomas físicos e psicológicos. Estes resultados

INTRODUCTION

Stress can be defined as a complex process that is established as a result of the interaction between disturbing situations or events and the reactions of the organism¹. This process is also considered as part of a syndrome of general adaptation of the individual to the presence of an aggressor stimulus, which can cause different types of reactions, such as fight or flight². Stress is characterized as a condition involving physical, psychological, mental and hormonal components, which are capable of triggering imbalance in bodily functions, decreased immunity and propensity for disease to appear³. According to Selye², stress is composed of three phases: alertness, resistance and exhaustion. Lipp³ suggests the inclusion of a “near-exhaustion” phase, in between the resistance and exhaustion phases, thus proposing a four-phase stress model.

The symptoms of stress are diverse, depending on the stage at which you are. In the alert phase, considered by many as positive, there is an increase in productivity, coupled with a state of readiness and wholeness. The resistance phase results from the permanence of the stressor agent or an increase in its intensity, requiring an adaptive response from the organism to maintain internal homeostasis. If the stressors persist, there is a breakdown in the resistance, leading to the “near exhaustion” phase. At this stage, the process of illness begins; the state of tension is high and difficult to control, with depreciation of physical and emotional capacity. If there is no relief from symptoms through the use of coping strategies, the stress reaches its final phase, that of exhaustion. At this stage, it is impossible for the body to react to the stressor, which can lead the body to physical and psychological exhaustion^{3,4}.

Stress and academic life

The literature points out that stress can have negative consequences for university students, such as the emergence of anxiety and mood disorders⁵⁻¹¹. High levels of stress in this population are related to drug abuse, difficulty in interpersonal relationships, depression and suicide¹².

Increasingly, students have access to higher

permitted to conclude that elevated proportions of students at various stages of different courses of graduation in the area of health from a same public institution present stress, frequently associated to the presence of psychological and physical symptoms. These data also indicate that the presence of stress is independent of the nature of the course in the area of health. These findings reinforce the need to increase knowledge about this phenomenon, which will allow for more adequate planning and greater effectiveness of institutional measures for promotion of mental health of students.

Descritores: Estresse psicológico; Saúde mental; Promoção da saúde; Educação em saúde; Estudantes de ciências da saúde.

education. The demands of this stage of life, especially for health undergraduates, require an adjustment to routine life changes and studies, separation from family environment and establishment of new interpersonal bonds, as well as contact with illness, pain and suffering, making them a population likely to be vulnerable to stress. During their training, these students become early caregivers, as well as the caretakers of suffering and expectations of family members and patients^{13,14}.

Stress can impair the health student's academic performance, reducing his/her attention and concentration, affecting their decision-making skills, impairing the establishment of an effective relationship with patients¹⁵. Research with medical students point out that stress in this population is a cause for concern, because in, the short term, it may be a public health problem, since, by impairing the education of future physicians, it will also cause harm to users^{13,16}.

Although there are several studies in Brazil and in other countries indicating considerable levels of stress in medical students^{6,9,12,16,17,20-23} and other courses in the health area^{5,7,8,10,14,15,18,19,24,25}, there are, at the same time, few investigations being made in the different courses of the same institution. This information is important to adequately address this potential problem that affects the quality of life and health of students, including planning interventions specifically aimed at promoting mental health. Thus, the objective of this study was to detect the presence of stress among undergraduates of different health courses studying at the same Higher Education Institution (HEI), at different stages of their training, in order to establish perspectives of mediation that aim to support students in coping with the emotional difficulties encountered throughout their academic life in a more adaptive and functional way.

MATERIALS AND METHODS

Study Design

This was a cross-sectional study developed through a questionnaire and a psychometric inventory, carried out over a semester. The subjects were students from five

undergraduate courses of the Ribeirão Preto Medical School (FMRP), a HEI linked to the University of São Paulo, a public university maintained by the State of São Paulo.

Ethical Considerations

The study design was elaborated according to the ethical norms established by the National Health Council²⁶ (Resolution No. CNS 510/2016) and was initially submitted for examination by the Undergraduation Commission of the Faculty for approval. After approval by this collegiate, it was submitted to the Research Ethics Committee of the University Hospital of the Ribeirão Preto Medical School, where it was also approved (Statement number: 2,204,637).

Participation of the students in the study was voluntary; before the application of the instruments they were informed about the nature of the research and its methods and, after possible clarification of doubts of the participants, and before the application of the instruments,

the students were requested to sign two copies of the terms of free and informed consent.

Participants

The sample consisted of 102 students from five HEI undergraduate courses (Physiotherapy, Speech Therapy, Medicine, Nutrition and Occupational Therapy). This number and the desired distribution of the students between the courses, at their different stages, were defined statistically in a stratified form, with proportional sharing of the total number of students of each course and at each stage. For all courses, the first semester was defined as the initial stage; the fourth, fifth and sixth semesters as an intermediate stage, and the final stage corresponded to the period of professional training internships, which, depending on the curricular structure of the course, varied between the eighth and twelfth semesters. The numbers of participants per course and per stage are presented in Table 1.

Table 1. Distribution of the participating undergraduate students by each of the five institutional courses and by stage of the training

COURSE	STAGES			
	INITIAL	INTERMEDIATE	FINAL	Total
Physiotherapy	6	6	6	18
Speech Therapy	5	5	5	15
Medicine	15	15	15	45
Nutrition	5	5	5	15
Occupational Therapy	3	3	3	9
Total	34	34	34	102

Source: prepared by the authors.

The majority of the sample was composed of women (60%), in the age group of 21 to 23 years (37%).

Instruments

All the participants answered a questionnaire with identification and social demographic data, especially developed for this study. They also answered the "Stress Symptoms Inventory for Adults (ISSA)" developed by Lipp and published in 2000³. This instrument is designed for investigating the existence of stress and to identify its phase, as well as to estimate the prevalence of resulting physical and psychological symptoms. It is based on a "quadriphasic model" developed by the author, which considers the three phases of stress proposed by Selye in 1965² - alertness, resistance and exhaustion - and adds an intermediate phase, near-exhaustion³.

Data analysis

The results were expressed as proportions of students from each course, at each of the stages, presenting stress in

its different phases and the resulting symptoms. Statistical analysis of the differences between the proportions was calculated using Fisher's exact probability test, in its two-tailed mode, using the GraphPad Prism program (version 4.00 for Windows, GraphPad Software, San Diego, California, USA). Differences associated with p values equal to or less than 0.05 were considered significant.

RESULTS

Among the 102 students of the five courses studied, the presence of stress was detected in 71 (70%). In all courses, the proportion of students with stress was high, ranging from 61% (Physiotherapy course) to 88% (Occupational Therapy course). In Medicine, the second lowest value of this proportion was observed (64%). These data are presented in Figure 1. There were no statistically significant differences between the courses regarding the proportion of students with and without stress.

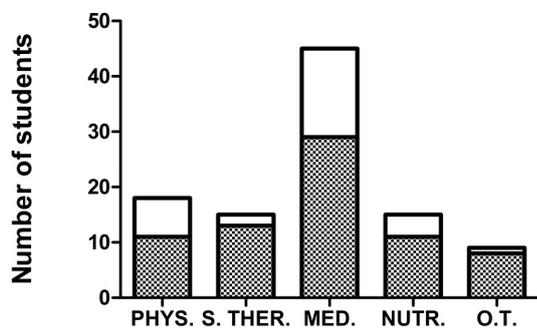


Figure 1 - Number of students with stress (filled bars) and no stress (clear bars) in five different undergraduate courses of the same institution. The presence of stress was detected by the application of the “Lipp Stress Symptom Inventory for Adults”²³

Including all the courses studied, the proportions of students with stress detected in the various stages of each course were very similar, varying between 23% (beginning and middle) and 26% (final), as shown in Figure 2.

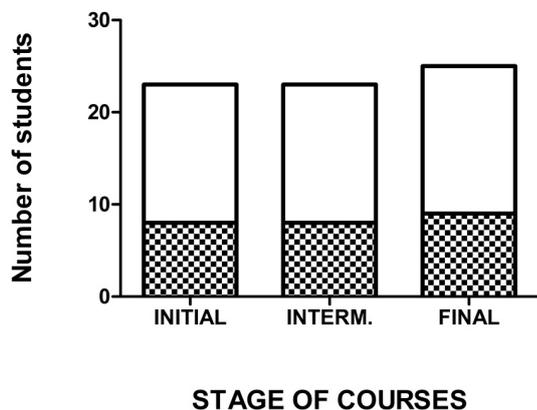


Figure 2 - Number of students with stress (bars filled) and without stress (clear bars) in the different stages (beginning, middle and end) of the five different undergraduate courses (Physiotherapy, Speech Therapy, Medicine, Nutrition and Occupational Therapy). The presence of stress was detected by the application of the “Lipp Stress Symptom Inventory for Adults”²³

Among the 71 students with stress, most were classified as being in the resistance phase (Table 2). Of these students with stress, 57 (80%) presented psychological symptoms, 11 (15%) presented physical symptoms and another 11 (15%) showed evidence of the concomitance of physical and psychological symptoms.

The proportion of women with stress (75%) in the five courses studied was slightly higher than that of men (63%), but this difference was not statistically significant.

Table 2 - Distribution of the students of the five studied courses (Physical Therapy, Speech Therapy, Medicine, Nutrition and Occupational Therapy) in the different phases of stress. Presented are the absolute numbers (N) and, in parentheses, the percentages. The presence of stress was detected by the application of the “Lipp Stress Symptom Inventory for Adults”²³

Stress Phase	N
Alertness	1 (2)
Resistance	57 (80)
Near-exhaustion	2 (3)
Exhaustion	11 (15)
TOTAL	71 (100)

DISCUSSION

The results of this study indicate that high proportions of undergraduate students from various health courses of the same HEI present stress, and many of them show an association with physical and psychological symptoms. In fact, a prevalence of stress of 70% was detected among the 102 students of the health area in the five courses investigated, which constitutes a percentage greater than that identified in other studies. Padovani¹³ reported a 52.88% stress index among 783 undergraduate students investigated for these symptoms. Aguiar¹⁷, with the same instrument used in this study, found that 49.7% of the 200 medical students at the basic or clinical phases of a Federal University of Ceará had the presence of stress. Montoya¹⁰ in a sample of several undergraduate courses in the health area of the University of Medellin identified that 48% of undergraduates had the presence of stress.

The proportions of students with stress were high in the five courses studied, whereas in the Physical Therapy course there was a relatively lower incidence (61%) and in the Occupational Therapy course the highest incidence (88%) was observed. These results are in line with other studies in courses of the same nature. A study carried out with graduating students of the Occupational Therapy course of a public university showed that of the 31 students, 84% were found to be at some stage of stress¹⁸. In order to evaluate the possible negative effects of stress on Physical Therapy students at a private Brazilian college, it was observed that the prevalence of psychological disorders in the sample studied was 37.76%¹⁹. In relation to medical students, in a sample of 456 students, the presence of stress was verified in 60.09% (n = 274). These data corroborate with the results obtained by other studies on the same theme^{21,22,23}. The absence of differences between the courses indicates that in the health area the presence of stress is independent of the nature of the course.

Regarding the different graduation phases, the proportions of student with stress varied between 23% (beginning and middle) and 26% (end of course). In this

study the main sources of stress were not determined in each participant, but it is possible to infer, despite the similar frequency, that the causes are diverse. For example, there is evidence that stress at the beginning of the course is related to difficulties in adapting to new environments and contexts, while stress at the end of the course can be related to the tension generated by entering the labor market and related questions to the future plans of life, as pointed out by studies that investigated the students' degree of stress in different stages of the health area^{16,17,25,26,27}.

A significant portion of the students (80%) identified with stress symptoms are in the resistance phase. This data resembles that of other studies, indicating that the investigated students still present psychological resources to deal with stress^{6,12,13,17,24,25}.

It is important to consider that the results obtained in this research should be confirmed in studies in other institutions and with a bigger caseload, and it is also necessary to broaden the understanding of the sources of stress in each student at the different stages of graduation, as well as the mechanisms used to face the situations generating stress.

Notwithstanding, these results demonstrate the need for investment in promoting mental health within

the university population. To better plan for such care, it is important to increase knowledge about all aspects of the emotional well-being of these students. In this context, HEIs must know this reality in order to mediate programs of mental health promotion with the possibility of ensuring that stress remains at a manageable level. By paying greater attention to this part of the student population, it is possible to establish a healthy environment for academic life, allowing for better use of training and learning activities and higher levels of satisfaction with the course, which should contribute to the establishment of a better relationship of the student (the health professional) with patients.

CONCLUSIONS

High proportions of students from the various stages of different undergraduate courses in the health area of the same public HEI present stress in its various phases, and this is often associated with the presence of psychological and physical symptoms. These findings reinforce the need to increase knowledge about this phenomenon, which will allow for more adequate planning and greater effectiveness of institutional measures to promote mental health.

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