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Artigo original

Self-statements of medical students about the fear of speaking in public

Autoavaliação dos acadêmicos de medicina sobre o medo de falar em público

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Abstract

Objective: to evaluate the perception of medical students from two institutions in the north of Minas Gerais regarding the fear of public speaking and the association with sociodemographic, economic and anxiety level variables. **Materials and Methods:** cross-sectional, analytical study, consisting of 346 students using identification data, Self-Statements during Public Speaking Scale (SSPS) and Beck Anxiety Inventory. **Results:** the mean age was 22.36 years with a predominance of females. The total SSPS score was 17.72 for the positive rating subscale and 5.28 for the negative subscale. Academics over 22 years old, with more than six minimum wages and with minimal to mild anxiety had a higher average on the positive subscale and those aged up to 22 years, less than six minimum wages, with moderate to severe anxiety and those in the initial periods had a higher average on the negative subscale. The practice of public speaking carried out in the first period was evaluated as positive. **Conclusion:** the variables age, income and level of anxiety were statistically significant for the positive and negative subscales of fear of public speaking, and academics in the initial periods of the course were significant for the negative subscale.
Keywords: Anxiety. Students, medical. Public speaking. Phobia, social.

Resumo

Objetivo: avaliar a percepção dos acadêmicos de medicina de duas instituições do norte de Minas quanto ao medo de falar em público e a associação com variáveis sociodemográficas, econômicas e ansiedade. **Materiais e Métodos:** estudo transversal, analítico, composto por 346 estudantes utilizando dados de identificação, Escala para Autoavaliação ao Falar em Público (SSPS) e Inventário de Ansiedade de Beck. **Resultados:** a média de idade foi 22,36 anos com predomínio do sexo feminino. O escore total no SSPS foi de 17,72 para a subescala de avaliação positiva e 5,28 para a subescala negativa. Os acadêmicos acima de 22 anos, com mais de seis salários e com ansiedade mínima a leve apresentaram maior média na subescala positiva e aqueles com até 22 anos, menos de seis salários mínimos, com ansiedade moderada a severa e os dos períodos iniciais obtiveram maior média na subescala negativa. A prática de falar em público realizada no primeiro período foi avaliada como positiva. **Conclusão:** as variáveis idade, renda e nível de ansiedade foram estatisticamente significativas às subescalas positivas e negativas do medo de falar em público e acadêmicos em períodos iniciais do curso foram significativos à subescala negativa.
Palavras-chave: Ansiedade. Estudantes de medicina. Falar em público. Fobia social.

Introduction

Modern society has been increasingly demanding that university students have social skills, including the ability to speak in public[1]. This demand is even greater in undergraduate courses in which practice requires the professional's capacity for social interaction[2].

People with severe fear of public speaking are highly prevalent and lack of preparation for this activity can function as a psychosocial stressor, as the anxiety that develops in such situations causes many different symptoms that can have a negative impact on academic education[3,4]. The fear that is triggered during public speaking is responsible for a series of neuroendocrine, metabolic, immunologic, and cardiovascular responses, and causes great anxiety in public performance situations[5].

Activities developed during the undergraduate course, like expressing opinions within a group and giving seminars, can contribute to students' qualification in such situations, reducing the reactions triggered by anxiety[6]. The greater the ability to speak in public, the lower the frequency with which the speaker averts his/her eyes and the shorter the avoidance time, that is, time during which the speaker remains in silence. Moreover, the time available for the presentation is better used and, consequently, assessment will be better[6].

Training communication skills helps to enhance public presentations. Fear is mentioned with greater intensity by people who have less experience in speaking to an audience[7]. Communication techniques can be learned and improved, which can minimize negative impacts on communication[8].

This study aimed to evaluate the perception of medical students from two institutions in the north of Minas Gerais regarding the fear of public speaking and the association with sociodemographic, economic and anxiety level variables.

Materials and Methods

A cross-sectional, analytical study was carried out with undergraduate medical students from two colleges, one private and one public, located in Montes Claros, a city in the north of the state of Minas Gerais. The sample was constituted of 346 students: 223 from the private college and 123 from the public college, randomly selected.

Medicine students from two colleges have, in the first period of the course, the Module of Communication Skills and Attitudes. In addition to group discussions about subjects extracted from papers and books - activities that enable students to develop the ability to speak in public -, there are two sessions at the end of the semester in which students deliver an oral and individual presentation

that lasts three minutes, using a multimedia projector. The student chooses the theme based on specific subjects previously discussed in the tutorial sessions. The presentation is filmed so that it can be subsequently evaluated and feedback can be provided by the student him/herself, the colleagues and the teacher, reinforcing the positive points and raising awareness of the negatives. In the second session, the presentation is performed so that students can master the skill of using a microphone and a laser pointer.

A questionnaire containing identification data such as gender, age and course semester was administered to the students. The other aspects that were approached in the questionnaire were family income, city of origin, housing situation, developed activities (jobs or previous undergraduate courses), and one question referring to the Module of Communication Skills and Attitudes. In addition, the Beck Anxiety Inventory[9] was administered to measure students' level of anxiety, as well as the Self-Statements during Public Speaking scale (SSPS).

The dependent variable of the study was fear of public speaking, assessed by the Self-Statements during Public Speaking scale, which was developed by Hofmann and DiBartolo[10] and translated and adapted to Portuguese by Osório, Crippa and Loureiro[11]. It is formed by a positive assessment subscale and a negative assessment, each composed of five items that range from zero to five, where zero means "totally disagree" and five "totally agree with the statement. Items 1, 3, 5, 6 and 9 compose the positive assessment subscale, and items 2, 4, 7, 8 and 10, compose the negative assessment subscale.

The Beck Anxiety Inventory (BAI)[9] is an instrument used to assess typical somatic symptoms of anxiety. Each of the twenty-one symptoms is scored from 0 (absent) to 3 (severe), which reflects the increasing level of severity. The score ranges from 0 to 63 points. The anxiety level is classified according to the score: 0 to 10 - minimal anxiety, 11 to 19 - mild anxiety, 20 to 30 - moderate anxiety, 31 to 63 - severe anxiety.

The categorical variables were dichotomized to investigate possible associations, with a level of significance $p \leq 0.05$. The data were processed in the statistical program *Predictive Analytics Software* (PASW® STATISTIC) version 18.0, using descriptive statistics such as absolute and relative frequency, mean and standard deviation. The Kolmogorov-Smirnov test was performed and, as the dependent variable is not normally distributed, the nonparametric Mann-Whitney U test was performed.

The study was explained to the students and they were invited to participate in it. After they agreed and signed a consent document, they filled in the questionnaires. Throughout the study, the

ethical aspects related to research with human beings were taken into account, in compliance with Resolution 466/2012. The project was approved by the Research Ethics Committee under number 1.134.066.

Results

The study's sample was composed of 346 students from the Medicine course. The mean age was 22.36 years (SD±3.96), the minimum age was 18 and the maximum, 50 years.

Concerning city of origin, 168 students (48.6%) are from Montes Claros and the other participants come from many other cities located in the states of Minas Gerais, Bahia, Goiás, São Paulo, Rio de Janeiro, Pará and Espírito Santo.

The sociodemographic and economic characteristics of the studied sample are presented on Table 1.

Table 1. Characterization of the sample. (n=346).

Variables	n	%
Sex		
Female	204	59.0
Male	142	41.0
Age group		
≤ 20	125	36.4
21 to 30	206	60.1
≥ 31	12	3.5
Course semester		
First periods	213	61.5
Final periods	133	38.5
Family income (Minimum salary: R$ 724.00)		
1 to 3	62	17.9
4 to 6	130	37.6
7 to 12	90	26.0
13 to 20	43	12.4
More than 20	21	6.1
Housing situation (with whom student lives)		
Family	233	67.3
Friends	44	12.7
Alone	42	12.1
Hostel	11	3.2
Others	16	4.6
Job		
Does not have a job and this is the first higher education course	278	80.3
Does not have a job and this is not the first higher education course	34	9.8
Has a job and this is the first higher education course	19	5.5
Has a job and this is not the first higher education course	15	4.3

The data obtained with the Self-Statements during Public Speaking scale were organized according to the score of each item. The mean score of the items ranged from 0.82 to 3.88. The three items with the highest scores belonged to the positive assessment subscale and were, in descending order: *"Mesmo que não dê certo, não é o fim do mundo"* (Even if things don't go well, it's no catastrophe) (3.88), *"Esta é uma situação difícil, mas posso dar conta dela"* (This is an awkward situation but I can handle it) (3.73), and *"Em vez de me preocupar, poderia me concentrar no que quero dizer"* (Instead of worrying I could concentrate on what I want to say) (3.63). The three items with the highest scores in the negative assessment subscale were, in descending order: *"Eu me sinto desajeitado e tolo, certamente eles vão notar"* (I feel awkward and dumb; they're bound to notice) (1.41), *"Qualquer coisa que eu disser, vai parecer bobagem"* (What I say will probably sound stupid) (1.26) and *"Um fracasso nessa situação seria mais uma prova de minha incompetência"* (A failure in this situation would be more proof of my incapacity) (1.08).

Information regarding the mean, standard deviation and percentage of each score is presented on Table 2. The total value for all academics interviewed was 17.77 for the positive evaluation subscale and 5.39 for the negative subscale.

Table 2. Distribution of the items of the Self-Statements during Public Speaking scale according to mean score, standard deviation and percentage of scores from 0 to 5.

Item	Mean	SD	Scores (%)					
			0	1	2	3	4	5
1.What do I have to lose it's worth a try (O que tenho a perder? Vale a pena tentar)	3.49	1.50	5.5	6.6	12.1	19.9	21.1	34.7
2. I'm a loser (Sou um fracasso)	0.82	1.26	59.5	19.1	9.2	6.9	2.6	2.6
3.This is an awkward situation but I can handle it (Esta é uma situação difícil, mas posso dar conta dela)	3.73	1.36	4.9	3.5	7.5	16.8	32.1	35.3
4. A failure in this situation would be more proof of my incapacity (Um fracasso nessa situação seria mais uma prova de minha incompetência)	1.08	1.51	54.6	16.8	9.8	9.0	4.0	5.8
5. Even if things don't go well, it's no catastrophe (Mesmo que não dê certo, não é o fim do mundo)	3.88	1.39	4.3	4.6	6.1	13.9	25.7	45.4
6. I can handle everything (Posso dar conta de tudo)	3.04	1.43	7.2	9.2	13.9	28.0	25.4	16.2

	SD							
7. What I say will probably sound stupid (Qualquer coisa que eu disser, vai parecer bobagem)	1.26	1.39	40.5	24.9	15.0	10.1	6.9	2.6
8. I'll probably "bomb out" anyway (Acho que vou me dar mal de qualquer jeito)	0.82	1.24	57.8	22.0	9.5	5.2	2.6	2.9
9. Instead of worrying I could concentrate on what I want to say (Em vez de me preocupar, poderia me concentrar no que quero dizer)	3.63	1.48	5.2	6.1	8.7	20.2	20.2	39.6
10. I feel awkward and dumb; they're bound to notice. (Eu me sinto desajeitado e tolo, certamente eles vão notar)	1.41	1.53	39.9	21.7	13.0	13.6	6.4	5.5

SD - Standard Deviation.

The data obtained from the Self Statements during Public Speaking Scale were organized according to the mean score of the items of the positive and negative assessment subscales and presented according to the semester in which the students were. This information is provided by Table 3. There was a difference in the negative subscale between the initial and final periods of the course, both for public and private institutions.

Table 3. Means of the positive and negative assessment subscales of the Self-Statements during Public Speaking scale according to course semester.

Course Semester	Private n (%)	Mean		Public n (%)	Mean	
		Positive Subscale	Negative Subscale		Positive Subscale	Negative Subscale
First periods	125 (56,1)	17.43	6.12	88 (71.5)	17.39	6.35
Final periods	98 (43,9)	18.40	4.04	35 (28.5)	17.43	4.20
p-value*		0.084	0.004		0.881	0.047

(*) Mann-Whitney Test.

It can be observed that for both the positive and negative subscales there was a statistically significant difference with regard to age, income and anxiety level. Academics aged over 22 years, with more than six minimum wages and those with minimal to mild anxiety had a higher average on the positive subscale and those aged up to 22 years, less than six minimum wages and with moderate to severe anxiety had a higher average on the negative subscale. Regarding the semester, the result was statistically significant in the negative subscale, students from the first semesters obtained higher scores. This information is presented on Table 4.

Table 4. Mean of the positive and negative subscales of the Self-Statements during Public Speaking scale and p-value.

Variables	n	Mean			
		Positive Subscale	p-value*	Negative Subscale	p-value*
University					
Private	223	17.86	0.159	5.21	0.471
Public	123	17.40		5.74	
Course semesters					
First semester	213	17.41	0.113	6.22	**< 0.001**
Final semester	133	18.14		4.08	
Sex					
Male	142	17.87	0.748	4.77	0.117
Female	204	17.57		5.83	
Age					
≤ 22 years	197	17.35	**0.034**	5.92	**0.007**
> 22 years	146	18.31		4.57	
Income					
≤ 6 salaries	192	17.19	**0.014**	5.89	**0.011**
> 6 salaries	154	18.32		4.78	
Housing situation					
With family	233	169.20	0.250	173.86	0.923
Others	113	182.36		172.76	
Level of anxiety					
Minimal or mild	275	18.17	**< 0.001**	4.32	**< 0.001**
Moderate or severe	71	15.83		9.56	

(*) Mann-Whitney Test.

Table 5 presents the students' opinion about the public speaking activities performed in the Module of Communication Skills and Attitudes. The 91 students who were in the first period were excluded because when the data were collected, this activity had not been performed yet. The activity in the first period contributed both didactically and to reduce anxiety about public speaking for 40.8% of students, and for 40.0%, it didactically contributed to future presentations.

Table 5. Students' opinion about the activities performed in the Module of Communication Skills and Attitudes. (n=255).

Answer	n	%
They contributed both didactically and to reduce public speaking anxiety	104	40.8
They contributed didactically to improve future presentations	102	40.0
They did not contribute anything	23	9.0
They contributed to reduce public speaking anxiety	20	7.8
Other	5	2.0
Missing	1	0,4

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Discussion

In the analysis of the data in the present study, we observed that the general mean is similar to the one obtained by Osório, Crippa and Loureiro[11], whose mean ranged from 0.72 to 3.80 and the mean total score was 17.32 for the positive evaluation subscale and 5.08 for the negative subscale. Furthermore, the items with the highest scores of the positive and negative subscales were the same in both studies.

The results were better than another study carried out with undergraduate students from a higher education institution (health sciences, humanities, exact sciences and fine arts) whose average score for the positive scale was 16.73 and for the negative assessment scale was 9.34[8]. Probably, this difference is due to the active methodology in the Medicine course, of both institutions, as well as the experiences of presentations carried out that help to minimize the negative impacts.

Analyzing the answers obtained in the periods, we observed a more negative assessment in the first period of the course. In a study carried out with people in the city of São Paulo (state of São Paulo), it was found that the people who had a substantial fear of speaking in public had a lower level of schooling compared to the people who did not have this fear[4].

Older students presented a higher mean score in the positive assessment subscale and a lower score in the negative subscale compared to the younger ones. In the study conducted by D'El Rey et al (2005)[4], of the people who had a substantial fear of speaking in public, more than half were in the age group 30-44 years and the mean age for the onset of the fear of speaking for a large audience was 15 years.

A positive assessment was found among those whose family income was higher than six minimum salaries. The study carried out by D'El Rey et al (2005)[4] found that, among the individuals with a substantial fear of speaking in public were people without paid activities and with no monthly earnings.

The moderate to severe anxiety of the Beck Anxiety Inventory[9] was associated with the most negative assessment. This result was expected, as in moderate and severe anxiety, there is a reduction in the perceptual field, attention ranges from reduced to limited, the person has a sensation of dissatisfaction and cannot concentrate. Furthermore, in severe anxiety, feelings of fear or terror are involved[12].

A study conducted with female students showed that higher levels of anxiety were reported by those with high scores in the negative assessment subscale. Moreover, these students reported low satisfaction and expectation concerning their own performance in public speaking situations[10]. As in

research with university students from various areas (humanities, health, exact sciences and arts)[13], the result of the present study was not statistically significant between the gender, but it can be observed that women tended to have a greater negative impact than men. Public speaking seems to be more challenging for women, they feel insecure and tense, probably because they perceive more negative elements during communication[14,15].

As for the practice of public speaking in the Module of Communication Skills and Attitudes, which is offered in the first semester of Medicine, the balance was positive. Similar data was found in a study carried out with students in which 89.3% would like to include classes on public speaking[8].

Students can develop communication skills by watching peers perform, as well as being instructed by teachers on assertive behaviors[16]. Research found that individuals with a fear of public speaking benefited from the practice of brief presentations and should be put into practice at various times and in different contexts to reduce fear[17]. The more communicative skills the individual acquires, the lower the chances of fear of public speaking[13,16,18] leading to a positive assessment of their own performance[19]. It is important to identify positive points to be strengthened and negative points to be improved.

Very few studies in Brazil have evaluated the prevalence of fear of speaking in public and its impact on university students' psychosocial sphere. This study aims to provide new information on the matter and to stimulate further research in the area.

Conclusion

Students over 23 years of age, with a family income of six or more minimum wages and those with minimal/mild anxiety had a higher mean on the positive subscale, and those aged 22 years or less, with an income of less than six minimum wages, with moderate/severe anxiety and first semesters of graduation had the highest average in the negative subscale. The practice of public speaking performed in the first semester was evaluated as positive.

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Contribution of the authors

All authors approved the final version of the manuscript and declared themselves responsible for all aspects of the work, including guaranteeing its accuracy and integrity.

Conflict of interest

The authors declare not to have any interest conflicts

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