



Feeling of anguish and social isolation among undergraduate healthcare students during the COVID-19 pandemic

Sentimento de angústia e isolamento social de universitários da área da saúde durante a pandemia da COVID-19

Sentimiento de angustia e aislamiento social de universitarios del área de la salud durante la pandemia de la COVID-19

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ABSTRACT

Objective: To identify the prevalence of self-reported anguish and related factors, as well as adherence to social isolation among undergraduate healthcare during the COVID-19 pandemic. **Methods:** This is a cross-sectional study conducted at a private and philanthropic university located in the municipality of Fortaleza, Ceará, Brazil, with data collected in June 2020. Participants were 541 undergraduate healthcare students (≥ 18 years old) who completed an electronic form that collected demographic data relating to the COVID-19 pandemic and feelings of anguish and concern. Bivariate and multivariate analyses were performed to assess any correlations with the outcome 'feeling of anguish'. **Results:** Of all the university students, 89.5% (n=489) reported feeling anguished, 90.4% (n=489) were in favor of social isolation and 93.5% (n=503) adhered to social isolation to fight COVID-19. In the multivariate analysis, the feeling of anguish reported by the university students was correlated with concern with the world (OR=4.099; p=0.000). **Conclusion:** The feeling of anguish reported by the university students was correlated with concern with the world and with being predominantly in favor of social isolation, and hence they adhered to this measure for fighting the new coronavirus.

Descriptors: Health Science Students; Coronavirus Infections; Emotions; Social isolation.

RESUMO

Objetivo: Identificar a prevalência do sentimento de angústia autorreferido e seus fatores relacionados, bem como a adesão ao isolamento social de universitários da área da saúde durante a pandemia da COVID-19. **Métodos:** Trata-se de um estudo transversal, desenvolvido em uma universidade privada e filantrópica, localizada no município de Fortaleza, Ceará, Brasil, com coleta de dados em junho 2020. Participaram 541 universitários (≥ 18 anos) da área da saúde, que responderam um formulário eletrônico para coletar as variáveis demográficas relacionadas à pandemia da COVID-19, sentimentos de angústia e preocupação.



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Realizaram-se análises bivariada e multivariada para avaliar as relações com o desfecho sentimento de angústia. **Resultados:** Do total dos universitários, 89,5% (n=489) disseram estar angustiados, 90,4% (n=489) eram favoráveis ao isolamento social e 93,5% (n=503) aderiram ao isolamento social como combate à COVID-19. Na análise multivariada, o sentimento de angústia relatado pelos universitários apresentou relação com a preocupação com o mundo (OR=4,099; p=0,000). **Conclusão:** O sentimento de angústia apresentado pelos universitários esteve relacionado ao sentimento de preocupação com o mundo e a serem predominantemente favoráveis ao isolamento social, e, por isso, aderiram a essa medida de enfrentamento do novo coronavírus.

Descritores: Estudantes de Ciências da Saúde; Infecções por Coronavírus; Emoções; Isolamento Social.

RESUMEN

Objetivo: Identificar la prevalencia del sentimiento de angustia auto referido y sus factores relacionados así como la adhesión al aislamiento social de universitarios del área de la salud durante la pandemia de la COVID-19. **Métodos:** Se trata de un estudio transversal desarrollado en una universidad privada y filantrópica localizada en el municipio de Fortaleza, Ceará, Brasil con la recogida de datos en junio de 2020. Participaron 541 universitarios (≥ 18 años) del área de la salud que han contestado un formulario electrónico para recoger datos de las variables demográficas relacionadas con la pandemia de la COVID-19, los sentimientos de angustia y la preocupación. Se realizó los análisis bivariado y multivariado para evaluar las relaciones con el desenlace sentimiento de angustia. **Resultados:** Del total de los universitarios, el 89,5% (n=489) relataron estar angustiados, el 90,4% (n=489) estaban de acuerdo al aislamiento social y el 93,5% (n=503) adhirieron al aislamiento social para combatir la COVID-19. En el análisis multivariado, el sentimiento de angustia relatado por los universitarios presentó relación con la preocupación con el mundo (OR=4,099; p=0,000). **Conclusión:** El sentimiento de angustia presentado por los universitarios se relacionó con el sentimiento de preocupación con el mundo y ellos estaban favorables al aislamiento social y, por ello, adhirieron a esa medida de afrontamiento contra el nuevo coronavirus.

Descriptores: Estudiantes del Área de la Salud; Infecciones por Coronavirus; Emociones; Aislamiento Social.

INTRODUCTION

The World Health Organization (WHO) used the term “new coronavirus 2019” to refer to a coronavirus that affected the lower respiratory tract of patients with pneumonia in Wuhan, China, on December 29, 2019, resulting in the disease named COVID-19⁽¹⁻³⁾.

The same organization declared, on January 30, 2020, that the outbreak of the disease caused by the new coronavirus constitutes a public health emergency of international concern, which is the Organization's highest level of alert as provided for in the International Health Regulations. On March 11, 2020, WHO declared the new coronavirus pandemic⁽⁴⁾.

With the duration and severity of the pandemic, the measure used by most regions of Brazil was the extended social distancing (ESD), when people from all sectors of society need to stay at home for as long as local authorities determine⁽⁵⁾. Thus, in addition to protective measures to prevent respiratory diseases, public and private education institutions (schools and universities) adhered to ESD according to the guidelines of the Ministry of Education (MoE)⁽⁶⁾.

On March 13, 2020, a normative act was published through Ordinance No. 343, of March 17, 2020, to support higher education institutions (HEIs) so that, in the face of the COVID-19 pandemic, they could substitute face-to-face classes for online classes until the situation lasted⁽⁷⁾.

As requested by the Brazilian Association of Higher Education Trustees (*Associação Brasileira de Mantenedoras de Ensino Superior - ABMES*), the use of means and technologies to replace face-to-face classes for an initial period of 30 (thirty) days during the COVID-19 pandemic was authorized on an exceptional basis and could be extended if suggested by the Ministry of Health (MoH)⁽⁷⁾.

University students experiencing remote learning need to feel motivated and have autonomy to seek knowledge⁽⁸⁾. Otherwise, this situation can generate feelings of anguish and loneliness, leading them to feel unmotivated by the lack of interaction, attention, and support on the part of students and professors⁽⁹⁾. This virtual experience reinforces the need for social support networks during this period as the lack of physical and social interactions are responsible for important negative psychological impacts on health^(10,11).

Mental health is the emotional balance between one's needs and external demands or experiences. It is the ability to manage one's own life and emotions in various situations while doing what is necessary. It is understood as being at ease with yourself and with others. It is accepting life's demands, knowing how to deal with positive and negative emotions, such as joy/sadness, courage/fear, love/hate, serenity/anger, jealousy, fault, and frustrations⁽¹²⁾.

With remote classes (online classes, videoconferences, among others), professors from the University of Fortaleza (*Universidade de Fortaleza - UNIFOR*) joined the working from home scheme within their workload (class schedules) using applications and the university website for the development of their activities, with prior scheduling with students. Given the current situation experienced in all sectors and by all individuals, as well as in academia, UNIFOR's Academic Tutorial Program (*Programa Tutorial Acadêmico - PTA/CCS*) sought to promote strategies of health promotion with the aim of taking care of the health of students in the physical, psychological and social domains as it is understood that health goes beyond the absence of disease, but encompasses the most complete physical, mental and social well-being. To that end, the sector has adapted its projects to the virtual environment in an attempt to promote the complete physical, mental and social well-being of students as it is known that the demands and requirements of university life show that the university student must have complex cognitive and emotional resources to manage the demands of this new environment since admission⁽¹³⁾. For such adaptation, it was necessary to understand how students were experiencing this current reality, developing their academic activities, updating themselves in relation to the current situation and taking care of their physical and mental health.

This study aimed to identify the prevalence of the self-reported anguish and related factors, as well as adherence to social isolation among undergraduate healthcare students during the COVID-19 pandemic.

METHODS

This cross-sectional study was conducted at a private and philanthropic university located in the city of Fortaleza, Ceará, Brazil, in June 2020.

Participants were 541 university students (age ≥ 18 years) enrolled in one of the healthcare programs of the institution and with internet access during the period of data collection. The number of participants was estimated using a sample calculation considering the population of university students in the health field ($n=3,500$), a prevalence of 50% (adopted when prevalence is unknown), a 95% confidence interval and a sampling error of 5%.

Participants were recruited via invitation sent by the institution's messaging application and via WhatsApp groups of university students using the snowball method, which consists of a non-probability sampling method in which selected individuals invite new participants from their friendship network to respond to questions. The process starts with a small number of selected individuals and grows as new participants are invited^(14,15). The invitation included an explanation of the study and a link to access the Informed Consent Form and the electronic research form on Google Forms®.

The form was developed using closed-ended questions addressing demographic variables (age and place of residence); the undergraduate program; aspects related to the COVID-19 pandemic (knowledge of the disease, involvement with the news, social isolation, routine, impacts and strategies to face social isolation); feeling of anguish and concern for the world and the state of Ceará.

The relationship between the dependent variable "feeling of anguish" and the independent variables was assessed using Pearson's chi-squared test, with calculations of crude odds ratio (OR) and their respective 95% confidence intervals (95%CI) followed by multiple logistic regression using the stepwise backward method on SPSS Statistics IBM® (version 23.0). The model was built with the variables with a significance of 20% ($p < 0.20$), thus increasing the possibilities of inserted variables. Adjusted OR and respective 95%CI were calculated in the final model with the significance threshold set at 5%.

This study was approved by the Ethics Committee of UNIFOR (Approval No. 4.047.430) and is in compliance with Resolution No. 466/12 and Resolution 510/16 of the National Health Council⁽¹⁶⁾. All the participants consented to their participation by ticking the acceptance box as a criterion for continuing the research.

RESULTS

Of the total of 541 university students, there was a greater proportion of people in the age range 19-29 years (66.9%; $n=362$) and people living in Fortaleza (85.4%; $n=462$). With regard to the undergraduate program, 170 (31.4%) participants were students enrolled in the Physical Education program, followed by 87 (16.1%) students in the Psychology program and 60 (11.1%) in the Aesthetics and Cosmetics program (Table I).

Table I - Distribution of demographic variables, undergraduate program and aspects related to the COVID-19 pandemic among undergraduate health students. Fortaleza, Ceará, 2020.

Variables	Frequency	Percentage (%)
Demographics		
Age range (years)		
Up to 18	84	15.5
19-29	362	66.9
Over 29	95	17.6
Residence		
Fortaleza	462	85.4
Metropolitan region and countryside	79	14.6
Undergraduate program		
Physical Education	170	31.4
Nursing	28	5.2
Aesthetics and cosmetics	60	11.1
Pharmacy	17	3.1
Physiotherapy	22	4.1
Speech Therapy	11	2.0
Medicine	32	5.9
Veterinary Medicine	20	3.7
Dentistry	54	10.0
Psychology	38	7.0
Not informed	89	16.5
Aspects related to the COVID-19 pandemic		
Knowledge of the disease		
Sufficient	320	59.1
Insufficient	220	40.7
Involvement with News		
Yes	508	93.9
No	33	6.1
In favor of social isolation		
Yes	489	90.4
No	52	9.6
Adherence to social isolation		
Yes	503	93.5
No	35	6.5
Impacts on life[#]		
Emotional	369	68.3
Financial	374	69.1
Health	206	38.0
Educational Training	410	75.7
Interpersonal Relations	153	28.2
Impacts on other people's lives[#]		
Emotional	479	88.5
Financial	527	97.4
Health	431	79.6
Educational Training	362	66.9
Interpersonal Relations	263	48.6
Strategies adopted[#]		
Routine of virtual studies	387	71.5
Physical activity at home	286	52.8
Housework	177	32.7
Extra relaxation activities	177	32.7
Caring for children/family	66	12.1
Other*	29	5.3
None	5	0.9
Feeling of anguish		
Yes	484	89.5
No	57	10.5
Concern with the world		
Yes	496	91.7
No	45	8.3
Concern with Ceará		
Yes	494	91.3
No	47	8.7

[#] categorical variable not excluded

As for aspects related to the COVID-19 pandemic, 320 (59.3%) participants said they had sufficient knowledge about the disease, 508 (93.9%) were involved with the news, 489 (90.4%) were in favor of isolation and 503 (93.5%) adhered to social isolation to combat COVID-19. Impacts on educational training (75.7%; n=410) and finances (69.1%; n=374) were the most reported by university students. Regarding the impacts on other people's lives, financial (97.4%; n=527) and emotional (88.5%; n=479) impacts were the most cited. A routine of virtual studies (71.5%; n=387) and physical activities at home (52.8%; n=286) were the most adopted strategies to face social isolation.

As for feelings, 489 (89.5%) reported feeling anguish, 496 (91.7%) were concerned about the pandemic in the world, and 494 (91.3%) were concerned about the pandemic in Ceará (Table II).

The bivariate analysis showed that the feeling of anguish was associated with involvement with the news (OR=2.466; p=0.039), concern with the world (OR=4.173; p=0.000) and concern with Ceará (OR=3.910; p=0.000) (Table II). However, in the multivariate analysis, the feeling of anguish reported by university students was only associated with concern with the world (OR= 4.099; p=0.000), with the feeling of anguish being four times greater in those concerned with the world (Table III).

Table II - Bivariate analysis of feeling of anguish among university students during the COVID-19 pandemic. Fortaleza, Ceará, 2020.

Variable	Feeling of Anguish		Crude OR (95%CI)	p-value
	No n (%)	Yes n (%)		
Age range (years)				0.748
Up to 18	9 (15.8)	75 (15.5)	1	
19-29	36 (63.2)	326 (67.4)	1.087 (0.502-2.352)	
Over 29	12 (21.1)	83 (17.1)	0.830 (0.331-2.081)	
Residence				0.086 ^a
Metropolitan region and countryside	4 (7.0)	75 (15.5)	1	
Fortaleza	53 (93.0)	409 (84.5)	0.412 (0.145-1.171)	
Knowledge of the disease				0.825
Sufficient	33 (57.9)	287 (59.4)	1	
Insufficient	24 (42.1)	196 (40.6)	0.939 (0.538-1.638)	
Involvement with the news				0.039 ^a
No	7 (12.3)	26 (5.4)	1	
Yes	50 (87.7)	458 (94.6)	2.466 (1.019-5.970)	
In favor of social isolation			0.497	0.470
No	7 (12.3)	45 (9.3)		
Yes	50 (87.7)	439 (90.7)	1.366 (0.585-3.190)	
Adherence to social isolation				0.337
No	2 (3.5)	33 (6.8)	1	
Yes	55 (96.5)	451 (93.2)	0.497 (0.116-2.128)	
Concern with the world				0.000*
No	13 (22.8)	32 (6.6)	1	
Yes	44 (77.2)	452 (93.2)	4.173 (2.041-8.532)	
Concern with Ceará				0.000*
No	13 (22.8)	34 (7.0)	1	
Yes	44 (77.2)	450 (93.0)	3.910 (3.910-7.955)	

OR: odds ratio; 95%CI: 95% confidence intervals. *p<0.05; ^a variable selected for the logistic regression model

Table III - Multivariate analysis of the feeling of anguish among university students during the COVID-19 pandemic. Fortaleza, Ceará, 2020.

Variable	Feeling of Anguish		p-value
	Adjusted OR (95%CI)		
Residence	0.422 (0.145-1.225)		0.113
Involvement with the news	1.625 (0.610-4.329)		0.332
Concern with the world	4.099 (1.998-8.408)		0.000*
Concern with Ceará	1.806 (0.673-5.281)		0.227

OR=odds ratio; Logistic Regression Model: X²=16,167; Cox&Snell=0.029; Nagelkerke: 0.060; *p<0.05

DISCUSSION

The present study showed that university students enrolled in health-related programs of an HEI were anguished and concerned with the state, and especially the world in relation to the impacts of COVID-19 on financial, emotional and educational aspects.

To meet these demands, the National Health Promotion Policy (*Política Nacional de Promoção à Saúde - PNPS*) was developed based on the expanded concept of health and defines its promotion as a set of strategies and ways of producing health at the individual and collective levels, with responsibilities shared among the three federated entities⁽¹⁷⁾.

During the pandemic, the PNPS reinforces the importance of a comprehensive cross-cutting and intersectoral policy to promote quality of life and reduce vulnerability and health risks related to determining and conditioning factors. National Curriculum Parameters provide guidance on the need for conceptions about health, the valuation of life habits and lifestyles, and attitudes towards different health-related issues to permeate all areas of study so that they can be processed regularly and contextualized in the daily experience of school and/or in university life, as in the present study⁽¹⁸⁾.

In September 2017, more than 600 people died from the new coronavirus in Saudi Arabia. Because of that, a study was carried out to investigate whether the Saudi Arabian Ministry of Health had implemented the best public relations practices during a major health crisis or not. To obtain these data, a study was conducted in universities with 875 students aged 18-45 years, with 30% of the participants graduating in a health-related sector⁽¹⁹⁾.

It is known that during the pandemic the information received and, in particular, the quarantine experienced, tend to increase mental suffering in the general population due to social isolation and limited interpersonal communication, with the impossibility of living with relatives and loved ones⁽²⁰⁾. These data are reinforced in the present study when the participants report being distressed with the situation during the pandemic in Ceará and worldwide.

During the current crisis, mental distress resulted in several behavioral consequences, such as stress, anxiety, fear, anger and depression, which can lead to extreme situations and suicidal behaviors⁽²¹⁻²⁴⁾.

A study carried out in China reinforces the situation presented herein. In the last national sample analyzed in that study the prevalence of any disorder (excluding dementia) resulted in anxiety disorders and depressive disorders⁽²⁵⁾. In Wuhan, there was a much higher prevalence of depression, anxiety, and a combination of both⁽²⁶⁾.

With the end of a pandemic, the impact emerges during and after the end of it, with economic, social and cultural consequences generated or worsened. A study that assessed the psychological consequences of quarantine in recent epidemics identified the presence of negative effects, such as irritability, depressed mood, confusion, anger, insomnia, emotional exhaustion, and symptoms of post-traumatic stress⁽²⁷⁾. This concern was presented locally and nationally by the participants.

Following the emotional issues reported by the vast majority of students, a 2009 study on the H1N1 pandemic compared undergraduate students who were quarantined with those who were not quarantined immediately after the quarantine period and found no significant differences between groups in terms of post-traumatic stress symptoms or general mental health problems⁽²⁸⁾.

It should be noted that the study mentioned above⁽²⁸⁾ was carried out in a period of a pandemic that was milder than the current pandemic, which possibly did not result in major impacts on mental health. Longer quarantine is associated with worse outcomes, considering that the participants will be more exposed to stressors⁽²⁹⁾.

In addition to emotional aspects, China, the first country to face the pandemic, recorded the biggest decline in its industrial production since the 1990s, reflecting on the financial aspects, resulting in a drastic decrease in exports, reaching the industrial production chain of many countries^(30,31). These data corroborate the findings of a study that pointed out the impact on the personal financial situation (69.1%) and the population in general (97.4%).

Given the results presented, the University of Fortaleza developed strategies through virtualized projects in an attempt to alleviate the suffering presented by the participants during the period of social isolation, such as: "CCS Connection", with monthly lectures, "Conversation Circle: How to cope with anxiety in difficult times" (held every two weeks) and "Conversation Wheel: Talking about prejudice at the University" (held every two weeks), lectures on academic leadership, the #slowdown project, with meditation videos, postural and dietary guidance and virtual consultations, among others.

The "CCS Connection" was held through lives on Instagram and Google Meet and included themes addressing time management in pandemic times, strategies for learning in virtual environments, among other subjects. The conversation circle about anxiety was mediated by a psychologist, and students were sensitized with music and

images. After that, they were given space to speak. The same was done in the circle “Talking about prejudice at the university”. The #slowdown project, as previously presented, published videos on Instagram.

The present study contributes to the population and the scientific community, showing that the pandemic caused by the new coronavirus affected students with a feeling of uncertainty and anguish due to the concern with the disease at the local and national level. It is recommended that, when feelings of this magnitude are detected, individuals can have a professional follow-up in order to help them go through this phase in a more peaceful way, which is why the institution was close to the students and developing projects that would help them in this difficult phase.

The current study has some limitations, particularly in relation to the representative participation of students from all CCS programs. As recruitment was carried out through institutional text messages and WhatsApp, it resulted in a random sample without representation according to the number of students/program.

CONCLUSION

The university students analyzed presented a feeling of anguish related to the feeling of concern with the world and to being predominantly favorable to social isolation. Therefore, they adhered to this measure to combat the new coronavirus.

CONTRIBUTIONS

Aline Barbosa Teixeira Martins, Cristina de Santiago Viana Falcão and Ana Paula Vasconcellos Abdon contributed to the study conception and design; acquisition, analysis, and interpretation of data; writing and/or revision of the manuscript. **Álvaro Magalhães Cavalcante Pereira** contributed to the writing and/or revision of the manuscript. **Jannayna Queiroz Carvalho, Jihane de Lima Diogo and Ygor Raphael Gomes Eloy** contributed to the study conception and design.

CONFLICTS OF INTEREST

The authors state that there were no conflicts of interest in the development of this study.

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