







ORIGINAL ARTICLE

CARTOGRAPHY OF THE WELCOMING SERVICES FOR STUDENTS WITH PSYCHOLOGICAL DISTRESS IN BRAZILIAN PUBLIC UNIVERSITIES

Lisandra Rodrigues de Medeiros¹ 
Kevin Christian do Carmo Rodrigues¹ 
Aline Macêdo de Queiroz² 
Raíssa Millena Silva Florencio³ 
Andrey Ferreira da Silva⁴ 
Alvaro Macedo Borges⁵ 

ABSTRACT

Objective: to map the welcoming services in Mental Health offered to students by Brazilian public universities. **Method:** a documentary research study presented as a cartography of the Brazilian public universities that offer in-person courses. The data were collected from August to October 2019 on the Ministry of Education website, according to the following variables: information about the welcoming service, access modality, activities offered; and geographic distribution of the universities offering the service in Brazil. **Results:** of the 107 universities, 73 report having a welcoming service in Mental Health and, of these, 43 indicate the access modality, mostly through appointment scheduling, and the types of activities developed with respect to Psychological Emergency Care. **Final Considerations:** with the increase in psychological distress among students, it is the university's duty to be an interlocutor and welcome this demand. The study contributes by warning about the need to expand these services.

DESCRIPTORS: Mental Health; Health Services for Students; Universities; Psychological Stress; Welcoming.

HOW TO REFERENCE THIS ARTICLE:

Rodrigues KC do C, Medeiros LR de, Queiroz AM de, Florencio RMS, Silva AF da, Borges AM. Cartography of the welcoming services for students with psychological distress in Brazilian public universities. *Cogitare Enferm.* [Internet]. 2022 [accessed "insert day, month and year"]; 27. Available from: <http://dx.doi.org/10.5380/ce.v27i0.75756>.

¹Universidade do Estado do Pará. Belém, PA, Brasil.

²Universidade Federal do Pará. Belém, PA, Brasil

³Faculdade Estácio. Alagoinhas, BA, Brasil.

⁴Universidade Federal do Alagoas. Arapiraca, AL, Brasil.

⁵Universidade Federal de Juiz de Fora. Juiz de Fora, MG, Brasil.

INTRODUCTION

University life comprises a vital cycle in many Brazilians, generally in the adolescence and/or youth phase. This period, which, depending on undergraduation, can last a minimum of four to six years, is marked by individual and collective experiences that demand scientific knowledge, development of technical skills and relational competence, stressful conditions that can have repercussions in emotional imbalance⁽¹⁾.

This context reveals that the students' life requires discipline, critical stance and scientific rigor with the development of activities, mostly in a solitary way, for intellectual improvement, especially through the systematic reading, analysis and production of texts within methodological and technical norms⁽²⁾. Leaving the family environment to enter the university space with diverse social interactions requires social and academic skills that can exert negative influences on the students' achievement and generate psychological distress⁽³⁾.

This reality brings with it responsibilities that can contribute to the existence of distress, such as: taking care of oneself and of one's belongings; income management, working to support oneself; establishing friendship relationships; living with unknown people; learning to negotiate division of tasks in republican ways; modifying the way of studying in order to seek more knowledge to meet the academic requirements, activities in different groups, and learning for the world of work; as well as the development of oratory and communication in public presentations (seminars, conversation circles, health education in communities) and various forms of evaluation⁽⁴⁾.

Academic and career-related factors emerge as possible stressors and risks for mental health and partially explain the high prevalence of mental disorders among students⁽⁵⁾. In Brazil, the prevalence of Common Mental Disorders among students is higher than in the general population, and the characteristics associated with psychological distress among them are related to training process (course series and negative perception of the environment) and health-related (habits harmful to health and health problems) aspects; those with social support, on the other hand, present less psychological distress⁽⁶⁾.

Among university students, psychological distress is most frequently related to anxiety disorders. By analyzing the medical records of 1,237 students treated the Mental Health services of their college, a research study⁽⁷⁾ identified that 33.2% were diagnosed with phobia-anxiety disorders, only below the frequency of depression diagnoses (39.1%). Such fact evidences the need to conduct studies that allow understanding the phenomenon and intervening in it.

Interventions that favor overcoming or lessening of psychoemotional distress among students in the universities is favorable to the students' development. The universities must analyze this issue based on the profile of their students, paying attention to the moments considered crucial throughout the course, and articulate strategies to advise students on how to face the adversities of the academic life routine.

In Article 3, Decree No. 7,234, of July 19th, 2010, which provides for the Students' Assistance National Program (*Programa Nacional de Assistência Estudantil*, PNAES), indicates the need to implement the Program in conjunction with teaching, research and extension activities, aimed at serving students regularly enrolled in face-to-face undergraduate courses at federal higher education institutions⁽⁸⁾. The foreseen actions regarding students' assistance include health care, which encompasses mental health.

Considering the data, it is relevant that universities invest in projects that enable welcoming of students with psychological distress. Therefore, it is necessary to publicize existence of the services, their access modality and actions developed by various communication means (online, in-person via information provided by the faculty and/or

Board of Directors/Academic Center), so that the students feel at ease and safe to access the service.

In view of these concerns, the study aims at mapping the welcoming services in Mental Health offered to students by Brazilian public universities; and, as specific objectives, to identify ways to access the services and learn about the actions developed.

METHOD

This is a documentary research study presented as a cartography. A document is considered to be any information in the form of texts, images, sounds, signs on paper/wood/stone, engravings, paintings and inlays, among others. Despite documentary research, the main challenge is the researcher's ability to select, treat and interpret the information, aiming to understand the interaction of the research object with its source⁽⁹⁾.

Cartography is the knowledge area that aims at understanding the diversity of factors that comprise the real dimension, seeking to translate it in an intelligible way⁽¹⁰⁾ through a graphic representation whose final product is the map. To prepare the cartographical design, public universities from the five Brazilian regions were sought. The data were collected from August to October 2019, in the official site of the Ministry of Education: e-MEC – Anísio Teixeira National Research Institute⁽¹¹⁾.

Public universities, in a regular situation in the National Register of Legal Entities and with Mental Health care services, were included to comprise the study scope. The universities were included for corresponding to the administrative category with the highest requirements of the Ministry of Education (MEC), such as existence of the teaching-research-extension tripod. Universities that acted in the Education at a Distance (EaD) modality were excluded, as in-person teaching favors greater contact with the students.

After the survey, it was found that Brazil has 108 public universities, including five municipal, 40 state and 63 federal institutions. Among these, one belonging to the state administrative category was excluded, because its teaching modality is configured as EaD, totaling 107 that worked in the face-to-face modality, submitted to research through their websites to verify the offer of welcoming services in Mental Health. From this starting point, it was identified that 73 (68%) reported providing welcoming services in Mental Health and that 34 (32%) did not have information about offering such service.

Data collection continued with the first 73 universities, using a form created by the researchers and filled out during access to the university's website and searching for specific documents on students' assistance. It was sought to characterize the universities (name of the institution, administrative modality, regional location) and to answer the following questions about the welcoming service in Mental Health: Which are the modalities to access the service? Which actions are developed in the service? Is the information about the service clear and complete?

The data were stored in a Microsoft Excel® database, systematized through statistics based on simple and relative distribution and frequency calculations, and presented in graphs and figures according to the following variables: information about the welcoming service, access modality, activities offered, and geographic distribution of the universities that offer the service in Brazil, for better visualization and analysis of the phenomenon investigated.

Considering that the data were obtained from public domain documents, there was no need for the research to be approved by any Research Ethics Committee.

RESULTS

Figure 1 presents the graphic element that indicates the path for data collection and elaboration of a cartographic design of the Welcoming Services in Mental Health (WSMH) for students, characterizing the access modalities and the activities offered by the WSMH. The data evidenced that, of the 73 universities (three municipal, 19 state and 51 federal) that report having the service, 43 (59%) disclose this information clearly and completely in their websites, as well as how the students can access the services and which activities are made available. In addition to indication the service being offered, no other data was available in the website of the other 30 (41%) universities.

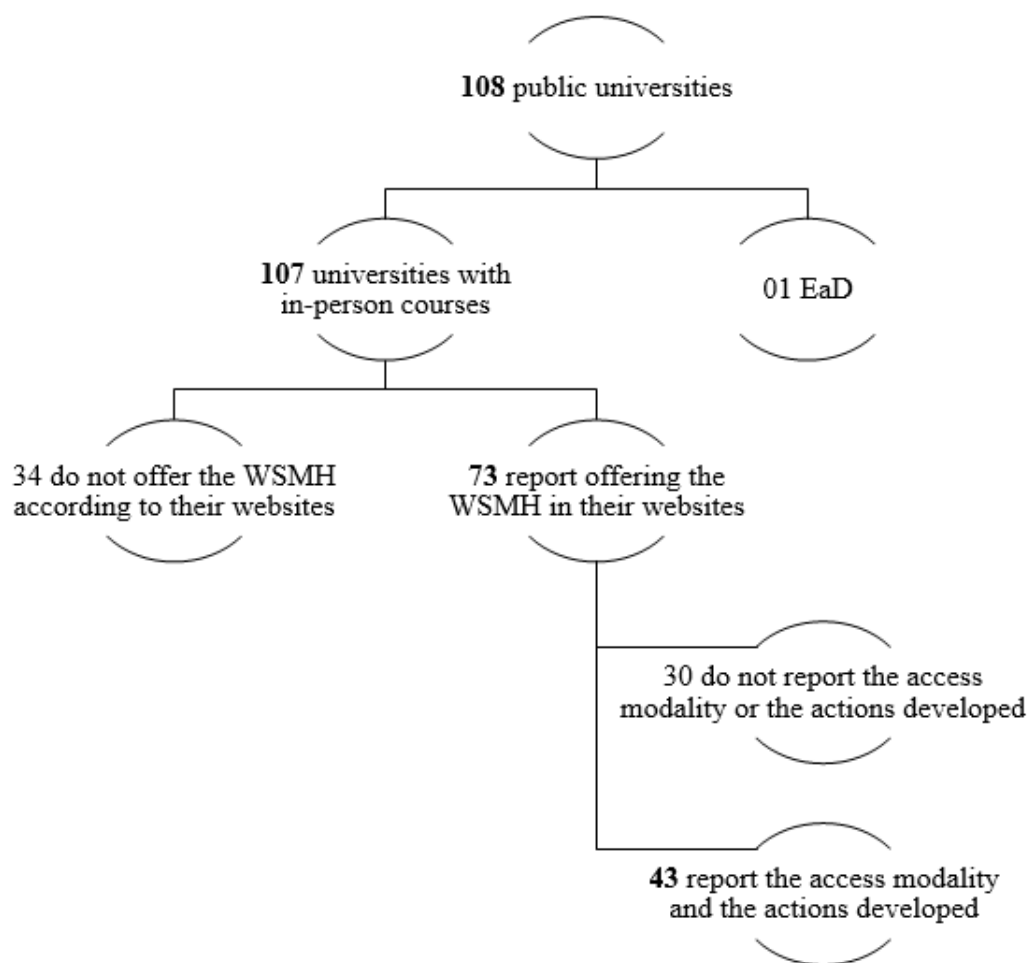


Figure 1 – Hierarchical Graphic Element of the visit to the Brazilian public universities' websites searching the offer of a Welcoming Service in Mental Health (WSMH) for students, the access modalities and the activities developed. Maceió, Alagoas, Brazil, 2019. Source: The authors (2019).

With regard to the access modality (Figure 2), of the 43 universities that publicize it in their websites, in 28 (65%) it is by appointment scheduling, 14 (32.5%) have a spontaneous demand service and one (2.5%) offers both modalities.

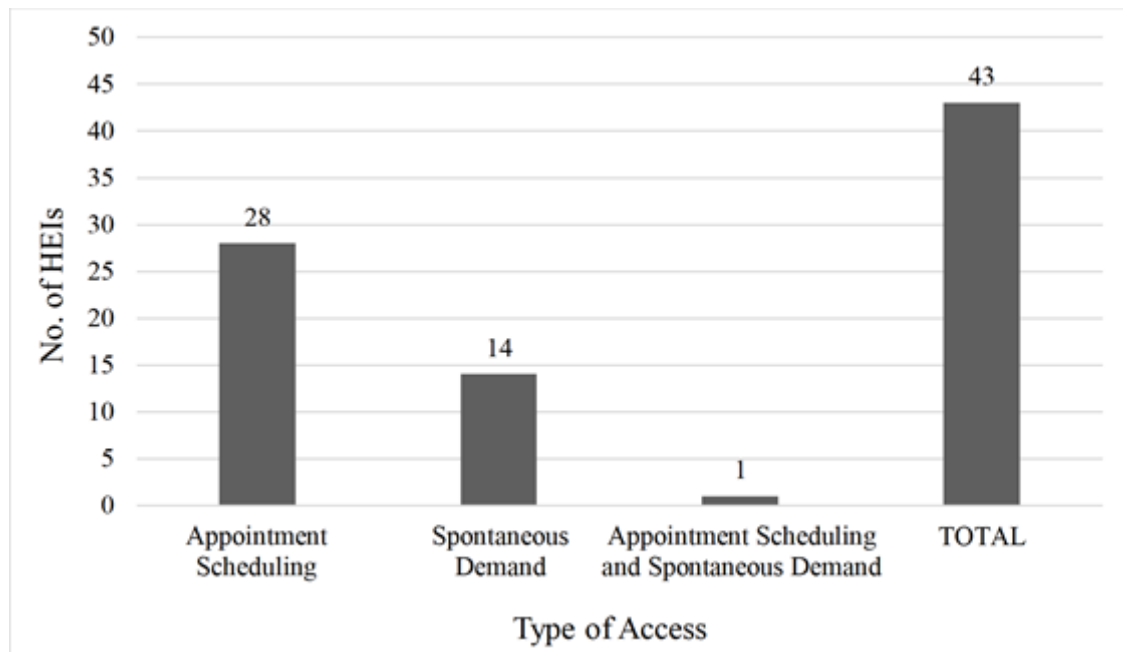


Figure 2 – Number of Brazilian public universities that report the access modality to the Welcoming Service in Mental Health for students in their websites. Maceió, Alagoas, Brazil, 2019
Source: The authors (2019).

Due to the large number of activities and nomenclatures of each institution, the activities offered by the services in the universities (Figure 3) were grouped into four types according to the specificities of the activities: Psychological Emergency Care (it included consultations, psychological listening, emergency welcoming, psychological emergency care, prompt psychological assistance and immediate support, psychological support, psychological assistance, welcoming and psychological and social assistance); Integrative and Complementary Practices (ICPs) and group activities (ICPs, thematic workshops, sports, cultural and artistic activities); Brief Psychotherapy (clinical intervention, individual or group psychopedagogical intervention, psychoanalysis and therapeutic support groups); and Prevention Activities (workshops and mini-courses, lectures, conversation circles, mobilizations, campaigns, operative groups, scientific and professional discussion events, socio-educational groups, academic support workshops, and mental health promotion actions).

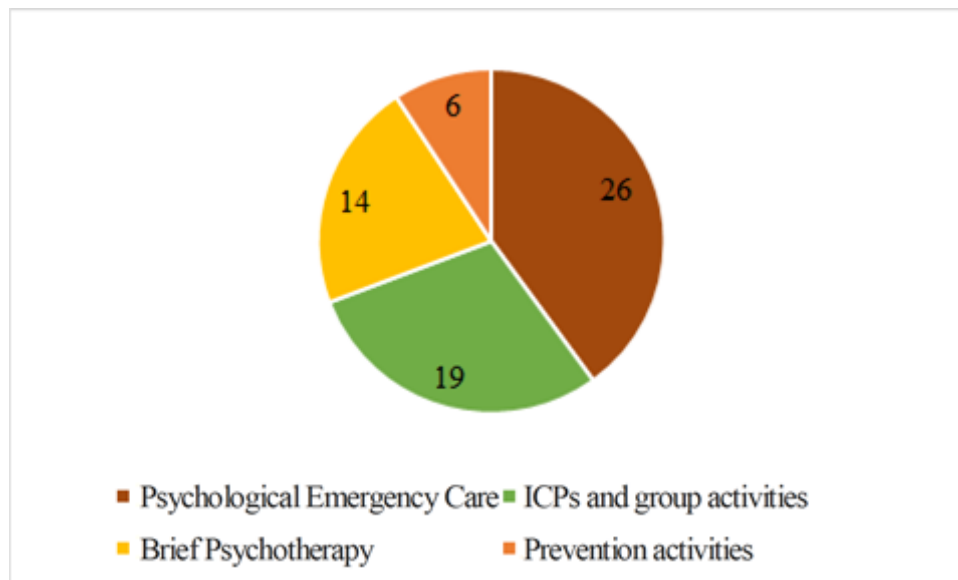


Figure 3 – Types of activities offered by the Welcoming Service in Mental Health for students. Maceió, Alagoas, Brazil, 2019
Source: The authors (2019).

The activity offered most frequently was Psychological Emergency Care, which takes place in 26 universities, followed by ICPs and group activities, which are present in 19, Psychotherapy in 14 and six universities with prevention activities. The sum of the activities offered is higher than the number of universities because some institutions offer more than one type of activity.

The distribution of the WSMH in the country's universities is represented in Figure 4. Each region includes a presentation of the universities by administrative category (municipal, state and federal). Each category has three numbers separated by a bar, which correspond, respectively, to the number of existing universities, number of universities offering the service and number of universities that report the access modality and type of activity. The columns in the gray scale represent the access modality and the colored ones, the activities offered.

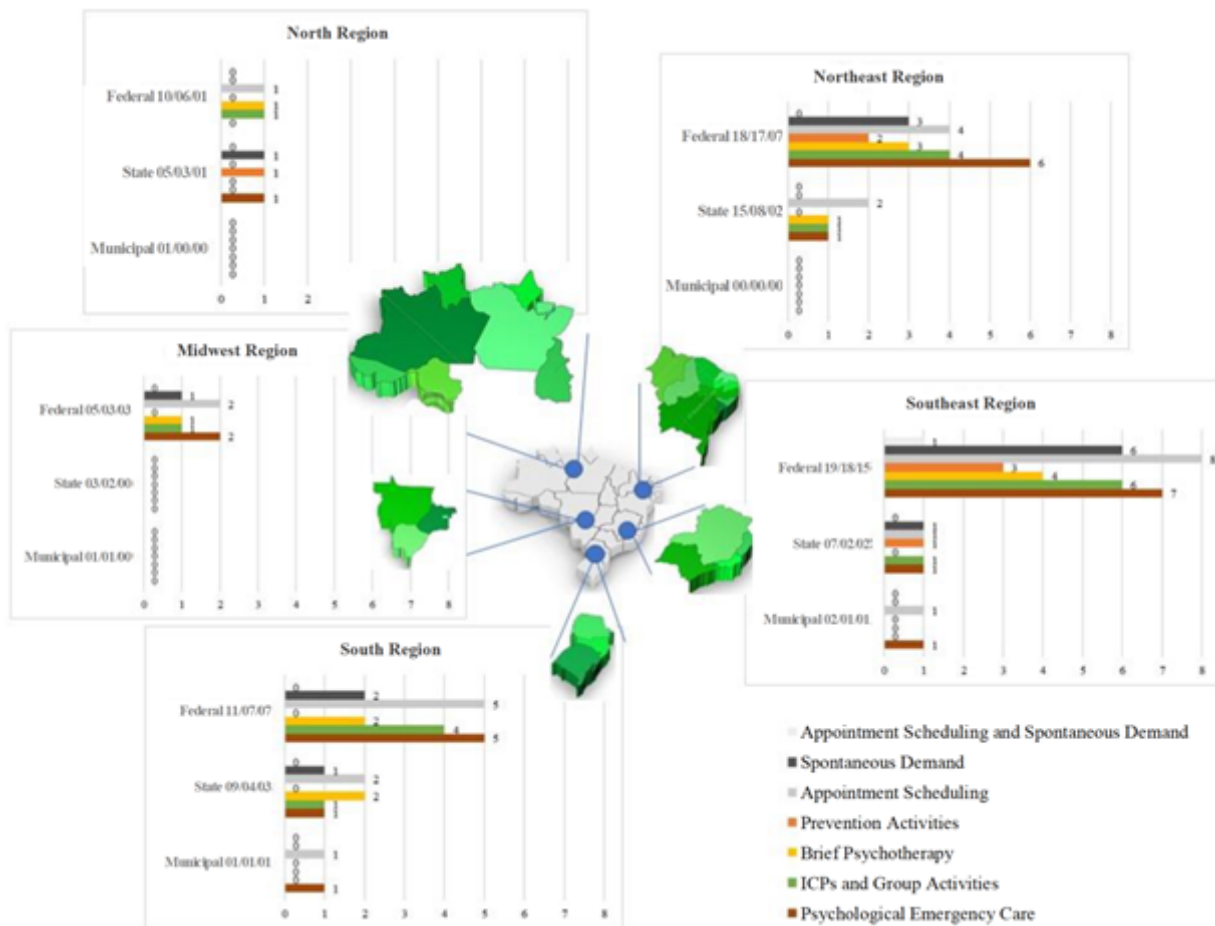


Figure 4 – Cartography of the Welcoming Service for students with psychological distress in the Brazilian public universities. Maceió, Alagoas, Brazil, 2019
Source: The authors (2019).

The cartography shows that there are 16 public universities in the North region of the country, of which nine (56.25%) report offering the WSMH in their websites. The Northeast region has 33 public universities; of these, 25 (75.75%) report offering the service. In the Midwest region, six (66.67%) of the nine public universities report having the service. In the Southeast region, with 28 public universities, 21 (75%) report offering the service. In the South region, 12 (57.14%) of the 21 public universities report offering the service.

However, if we consider the number of universities that report the access modality and the type of activity offered in their websites, the total number is reduced from 73 to 43: two in the North region, three in the Midwest, 18 in the Southeast, nine in the Northeast and 11 in the South. Of the 107 public universities with in-person courses, 34 do not have the WSMH and 30 do not report the modality and type of activity, that is, there no WSMH or incomplete information in 64 institutions, which represents 68.48% of the public universities with in-person courses.

DISCUSSION

The study reveals that 73 of the 107 universities report offering the WSMH in their websites. This fact can be linked to compliance with Decree No. 7,234, of July 19th, 2010, which provides for the Students' Assistance National Program (PNAES) and includes

students' health care⁽⁸⁾. In its Article 3, the aforementioned decree states that the PNAES must be implemented in conjunction with teaching, research and extension activities, aiming to serve students regularly enrolled in face-to-face undergraduate courses at federal higher education institutions.

When observing how communication about the WSMH in the universities' websites is conveyed, difficulties were found locating these contents. In some websites, there were specific links to access the service; however, on others, it was necessary to use the search tool within the website with keywords (welcoming, mental health, psychological distress, psychotherapy) to find information about the service. Of the 73 universities that have the service, 43 report the access modality and the types of activities offered.

A university's website helps managers increase availability of access to information to the users efficiently and adequately, avoiding any obstacles when using the service. To be effective, communication contents need transparency – easy to understand; conciseness: brief and concise content, offering quality information; interest: be relevant, capable of drawing attention as soon as viewed; proximity: knowing the target audience and communicating at the same level as the people who comprise; and persuasion: convincing the reader that the service offered is good⁽¹²⁾. Difficulties accessing maintenance information of the institutional websites suggest lack of communication targeting and planning among the public universities, reflecting a greater problem: the need to formulate policies that change the action level of the universities' communication departments⁽¹³⁾.

Also in this direction, communication services need to internalize the concept that the basis of citizenship is also grounded on the right to information⁽¹⁴⁾. In this sense, most of the Brazilian public universities do not guarantee their students the right to access information in relation to the services in their websites. Information, education and communication are fundamental instruments to democratize knowledge and develop practices in health⁽¹⁵⁾. In this way, they contribute to raising health awareness, as the information can be useful to prevent risks and promote health in the academic community.

The modality to access the services is mostly through scheduling, followed by spontaneous demand, with one university offering both. It is understood that it is necessary to organize the service capacity and the therapeutic function of scheduling to allow for significance in the monitoring and cure process. However, these services should offer the possibility of spontaneous demand in welcoming and/or in cases of crisis, as some psychological distress situations are unpredictable and require immediate care, continuity of care or even referral to other services⁽¹⁶⁾. This moment of distress in which students feel helpless, unprotected, threatened and weakened, is fundamental for the creation and strengthening of bonds and for adherence to the treatment., reason why access to the service according to spontaneous demand is important.

For the health area, appreciation of the Information and Communication Technologies (ICTs) strengthens the development of creative, innovating and bold health initiatives. Various digital platforms are part (and not means) of communication between people; they are actors in the social networks⁽¹⁷⁾. The use of ICTs aims at facilitating access to the services, making scheduling and welcoming of health demands agile and humanized, which can be resorted to by users who are suffering in a discreet and confidential manner.

In a context of conflicts, the experience of mental distress among students is solitary. Its negative effect is basically attributed to the weight of the social circumstance in the students' life⁽¹⁸⁾. For these authors, when performing their academic activities, the malaise experienced by the students throughout the training experience surprisingly configures itself as a situation of intense loneliness. It can be inferred that, when the information is incomplete or the service, available in electronic media, does not exist, universities become co-responsible for the maintenance and deterioration of the suffering experienced by the students in their training and hinder/prevent mental health care.

There are individual and group activities in the universities. The individual ones

are more frequent, as a reflection of the individual character of psychological distress proclaimed by the biomedical model and by the asylum paradigm. There is a change in the mental health care paradigm and certain evolution in care in favor of the psychosocial care model, such as the inclusion of ICPs, although prevention activities were the ones least offered. Encouraged by the National Policy on Integrative and Complementary Practices (*Política Nacional de Práticas Integrativas e Complementares*, PNPIC), and in explaining their disease and health processes, ICPs consider individuals in their global dimension and, at the same time, do not lose sight of their uniqueness⁽¹⁹⁾, collaborate in the view of health care integrality and show that some universities follow the changes in mental health care.

Through the Instrument for the Assessment of in-person and remote Undergraduate Courses, the Ministry of Education/INEP⁽²⁰⁾ has been demanding that Higher Education Institutions (HEIs) implement psycho-pedagogical assistance devices for students. Mandatory attendance in the evaluation process of the institutions encourages inclusion of the service in the HEIs and consequently expands the students' access and attention to the issue that interferes with their continuity in the course and, subsequently, in the country's development and in the Economically Active Population index.

Although the distribution of the number of universities in the Brazilian regions is uneven, the cartography of the WSMH offer evidenced that the service exists in more than half of the universities. As expected, the two regions with the highest numbers of public universities (Northeast and Southeast) are the ones that provide the greatest offer of Welcoming Services in Mental Health. The Midwest region is the only one not following this logic, as it is the region with the fewest number of public universities although, proportionally, it is the third that offers more mental health services to the students.

The regions most impacted by the difference between the number of universities and those that provide information on the access modality and the type of activity were the Northeast, North and Midwest regions. These regions concentrate the newest public universities in the country, as a result of the process of expansion and restructuring of the federal institutions, with the objective of expanding access to the public network and contributing to the reduction of regional asymmetries⁽²¹⁾. It is believed that these HEIs require a period of time to implement teaching/research/extension and organization of their framework of services and actions, in order to comprehensively meet the students' needs and educational quality.

As a limitation, this study only dealt with data associated with the public universities, with the consequent need to conduct new studies that include private institutions.

FINAL CONSIDERATIONS

The cartography of the Welcoming Services in Mental Health offered to students by public universities in Brazil evidenced existence of the service in 73 HEIs, of which 43 reported the access modality and the type of activity in their websites.

In addition to being mandatory, the exclusive services for students offered by the universities are indispensable for maintaining mental health and curing the psychological distress they experience throughout their academic life. Likewise, the lack of information about the access modalities and the types of activities developed does not direct the students to the service, being an aggravating factor for the search for care and for effective welcoming, which can exert an impact the training process of students in distress.

With the increase in psychological distress among students and the need to meet this demand, it is up to the University to discuss this topic and promote care services for distress, as a potential resource for the prevention of health problems. Unveiling subjects

who are in pain is to promote their leading role and strengthen their institutional, normative and care-related base, through the reciprocity principle.

This study contributes by indicating the universities that do not offer the service and the need to think about its construction and implementation, meeting the students' health demands, as directed by Decree No. 7,234. In addition to that, it warns the universities that have the service but do not clearly present the access modality and the actions taken regarding the need to reassess communication and dissemination of information to the university community.

REFERENCES

1. Ali MR, Ashraf BN, Shuai C. Teachers' conflict-inducing attitudes and their repercussions on students' psychological health and learning outcomes. *Int. J. Environ. Res. Public Health* [Internet] 2019 [accessed 07 ago 2020]; 16 (14). Available from: <https://doi.org/10.3390/ijerph16142534>.
2. Severino AJ. *Metodologia do trabalho científico*. 24. ed. São Paulo: Cortez; 2017.
3. Borro NPV. *Habilidades sociais e saúde mental: caracterização de universitários da FOB-USP [dissertação]*. Bauru (SP): Faculdade de Odontologia de Bauru; 2016 [accessed 07 ago 2020]. Available from: https://teses.usp.br/teses/disponiveis/25/25143/tde-05092016-150334/publico/NuriaPriscilaValentiniBorro_Rev.pdf.
4. Cacialli DO. The unique role and special considerations of mental health professionals on threat assessment teams at institutions of higher education. *Int J Law Psychiatry* [Internet]. 2019 [accessed 07 ago 2020]; 62. Available from: <https://dx.doi.org/10.1016/j.ijlp.2018.10.005>.
5. Arino DO, Bardagi MP. Relação entre fatores acadêmicos e a saúde mental de estudantes universitários. *Rev Psicol em Pesqui* [Internet] 2018 [accessed 07 ago 2020]; 12(3). Available from: <https://periodicos.ufjf.br/index.php/psicologiaempesquisa/article/view/23791#:~:text=Um%20total%20de%20640%20estudantes,experi%C3%Aancia%20acad%C3%AAmica%20e%20a%20autoefic%C3%A1cia>.
6. Graner KM, Cerqueira AT de AR. Revisão integrativa: sofrimento psíquico em estudantes universitários e fatores associados. *Cien Saude Coletiva* [Internet]. 2019 [accessed 07 ago 2020]; 24(4):1327–46. Available from: <https://dx.doi.org/10.1590/1413-81232018244.09692017>.
7. Campos CRF, Oliveira MLC, Mello TMVF de, Dantas C de R. Academic performance of students who underwent psychiatric treatment at the students' mental health service of a Brazilian university. *Sao Paulo Med J* [Internet]. 2017 [accessed 07 ago 2020]; 135(1):23–8. Available from: <https://dx.doi.org/10.1590/1516-3180.2016.017210092016>.
8. Brasil. Decreto n. 7.234, de 19 de julho de 2010. Dispõe sobre o Programa Nacional de Assistência Estudantil - PNAES. *Diário Oficial da República Federativa do Brasil*, [Internet]. 20 jul. 2010 [accessed 30 mar 2020]. Available from: http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/decreto/d7234.htm.
9. Fachin O. *Fundamentos de metodologia*. 5. ed. São Paulo: Saraiva; 2017.
10. Menezes PML de, Fernandes M do C. *Roteiro de Cartografia*. São Paulo: Oficina de Textos; 2013.
11. Ministério da Educação INEP (BR). *Cadastro Nacional de Cursos e Instituições de Educação Superior Cadastro e-MEC*. [Internet] 2019 [accessed 22 ago 2019]. Available from: <http://emec.mec.gov.br>.
12. Patel N. *Redação publicitária: o que é e 12 dicas para criar textos melhores* [Internet]. 2019 [accessed 20 nov 2019]. Available from: <https://neilpatel.com/br/blog/redacao-publicitaria/>.
13. Alves CA. *Mapeamento das políticas de comunicação nas universidades federais: análise de contexto e relação com as estratégias de ação institucional* [Internet]. 2013 [accessed 03 ago 2020]. Available

from: <http://www.compolitica.org/home/wp-content/uploads/2013/05/GT-07-Poli%CC%81ticas-de-Comunicac%CC%A7a%CC%83o-Cristiano-Alvarenga-Alves.pdf>.

14. Torquato G. Tratado de comunicação organizacional e política. 2. ed. São Paulo: Cengage Learning; 2010.
15. Agência Nacional de Vigilância Sanitária. Curso básico de vigilância sanitária: unidade 7 - Informação, Educação e Comunicação em Saúde.[Internet] Fortaleza: NUTEDS/UFC, 2015 [accessed 30 mar 2020]. Available from: https://ares.unasus.gov.br/acervo/html/ARES/3179/1/Texto_de_Impressao_Anvisa_Unidade_07.pdf.
16. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Cadernos de Atenção Básica. Acolhimento à demanda espontânea. [Internet] Brasília: Ministério da Saúde; 2013[accessed 09 out 2020]. Available from: http://bvsmms.saude.gov.br/bvs/publicacoes/acolhimento_demanda_espontanea_cab28v1.pdf.
17. França T, Rabello ET, Magnago C. Digital media and platforms in the permanent health education field: debates and proposals. Saúde debate [Internet]. 2019 [accessed 07 ago2020];43. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-11042019000500106&lng=pt.
18. Venturini E, Goulart MSB. Universidade, solidão e saúde mental. Rev Interfaces [Internet]. 2016 [accessed 11 nov 2019]; 4(2): 94-115. Available from: <https://periodicos.ufmg.br/index.php/revistainterfaces/article/view/18985>.
19. Belasco IC, Passinho RS, Vieira VA. Práticas integrativas e complementares na saúde mental do estudante universitário. Arq. bras. psicol. [Internet]. 2019 [accessed 24 jul 2020]; 71(1): 103-11. Available from: http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1809-52672019000100008&lng=pt&nrm=iso.
20. Ministério da Educação (BR). Sistema Nacional de Avaliação da Educação Superior – SINAES. Instrumento de Avaliação de Cursos de Graduação Presencial e à Distância. [Internet] Brasília: Ministério da Educação; 2017 [accessed 09 out 2020]. Available from: http://download.inep.gov.br/educacao_superior/avaliacao_cursos_graduacao/instrumentos/2017/curso_autorizacao.pdf.
21. Ministério da Educação (BR). A democratização e expansão da educação superior no país 2003 –2014 [Internet]. Brasília: Ministério da Educação; 2014 [accessed 27 mar 2020]. Available from: http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=16762-balanco-social-sesu-2003-2014&Itemid=30192.

Received: 08/08/2020

Approved: 15/07/2021

Associate editor: Susanne Elero Betioli

Corresponding author:

Andrey Ferreira da Silva

Universidade Federal de Alagoas – Arapiraca, AL, Brasil

E-mail: silva.andrey1991@hotmail.com

Role of Authors:

Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - Rodrigues KC do C, Medeiros LR de, Queiroz AM de, Florencio RMS, Silva AF da, Borges AM; Drafting the work or revising it critically for important intellectual content - Rodrigues KC do C, Medeiros LR de, Queiroz AM de, Florencio RMS, Silva AF da, Borges AM; Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - Rodrigues KC do C, Medeiros LR de, Queiroz AM de, Florencio RMS, Silva AF da, Borges AM. All authors approved the final version of the text.

ISSN 2176-9133



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).