

Triggering factors of psychological stress in non-medical residents: an integrative review**Fatores desencadeantes do estresse psicológico em residentes não médicos: revisão integrativa****Factores que desencadenan el estrés psicológico en residentes no médicos: revisión integradora****Received: 30/08/2020****Approved: 05/03/2021****Published: 14/10/2021****Gabriela França Rosinha¹**
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This is an integrative review carried out in 2020, considering the period from 2005 to 2019. It aimed to identify evidence that describes triggering factors of psychological stress in non-medical residents in health services. The guiding question was: *What is the scientific evidence that describes psychological stress in non-medical residents in health services?* The databases LILACS, CINAHL, PubMed/Medline, Scopus and Web of Science, productions in Portuguese, English and Spanish were considered, with the main descriptors: *estresse psicológico* (psychological stress), *internato não médico* (non-medical internship) and combinations. Initially, 2540 articles were identified, but of these only five were included, three from Brazil and two from other countries. Among the most mentioned factors that trigger stress were: work overload, care for critically ill patients, emotional exhaustion and sleep deprivation. Thus, there is little scientific evidence on the triggering factors of psychological stress in non-medical residents, therefore, further well-designed scientific studies, with a good level of evidence, that explore the subject in greater depth, are essential.

Descriptors: Stress, Psychological; Internship, Nonmedical; Health personnel; Health services.

Esta é uma revisão integrativa realizada em 2020, considerando o período de 2005 a 2019, com o objetivo de identificar evidências que descrevam os fatores desencadeantes do estresse psicológico em residentes não médicos nos serviços de saúde. A questão norteadora foi: *Quais as evidências científicas que descrevem o estresse psicológico em residentes não médicos nos serviços de saúde?* Considerou-se as bases LILACS, CINAHL, PubMed/Medline, Scopus e Web of Science, produções em português, inglês e espanhol, com os principais descritores: *estresse psicológico*, *internato não médico* e combinações. Inicialmente se identificou-se 2540 artigos, mas desses apenas cinco foram incluídos, três nacionais e dois internacionais. Dentre os fatores que desencadeiam o estresse mais citados destacaram-se: a sobrecarga de trabalho, o atendimento a pacientes graves, exaustão emocional e privação de sono. Assim, poucas são as evidências científicas sobre os fatores desencadeantes do estresse psicológico nos residentes não médicos, portanto, é indispensável novos estudos científicos bem delineados, com bom nível de evidência, que explorem a temática com mais profundidade.

Descritores: Estresse psicológico; Internato não médico; Pessoal de saúde; Serviços de saúde.

Esta es una revisión integradora realizada en 2020, considerando el periodo comprendido entre 2005 y 2019, con el objetivo de identificar las evidencias que describen los factores desencadenantes del estrés psicológico en los residentes no médicos de los servicios de salud. La pregunta guía fue: *¿Cuáles son las evidencias científicas que describen el estrés psicológico en los residentes no médicos de los servicios de salud?* Se consideraron las bases LILACS, CINAHL, PubMed/Medline, Scopus y Web of Science, trabajos en portugués, inglés y español, con los principales descriptores: *estrés psicológico*, *pasantías no médicas* y combinaciones. Inicialmente se identificaron 2.540 artículos, pero de ellos sólo se incluyeron cinco, tres nacionales y dos internacionales. Entre los factores más mencionados que desencadenan el estrés destacan: la sobrecarga de trabajo, el cuidado de pacientes en estado crítico, el agotamiento emocional y la falta de sueño. Por lo tanto, hay poca evidencia científica sobre los factores desencadenantes del estrés psicológico en los residentes no médicos, entonces, son esenciales nuevos estudios científicos bien diseñados y con un buen nivel de evidencia que exploren el tema en mayor profundidad.

Descriptor: Estrés psicológico; Internado no médico; Personal de salud; Servicios de salud.

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INTRODUCTION

The Multiprofessional Residency in Health (MRH) is established by Law No. 11.129/2005 as a training at the *lato sensu* Postgraduate level with an established duration of two years and a weekly workload of 60 hours, which has as main characteristic the work in field, standing out as a modality of professional training for the Unified Health System (SUS)¹⁻⁴.

Medical residency programs, as well as multidisciplinary residencies, are characterized by a process of intensive training and care at progressive levels, which results in aspects that can act as stressors, including interpersonal relationships, exhaustive workload, responsibility for comprehensive patient care and establishing the limits of their personal and professional identity, teaching/learning and the professional environment⁵⁻⁸.

Health professionals, throughout their careers and especially during their residency period, also face situations such as: sleep deprivation, work overload, problems related to the teaching and learning process and the professional environment, being subject to the emergence of physical and psychological stress^{8,9}.

Stress is defined as a set of body reactions and stimuli with physical, psychological and hormonal components that lead to imbalance disorders in a challenging situation¹⁰. In the work environment, stress can occur due to excessive demand and scarcity of coping resources, representing a risk to the physical and mental health of these professionals, as well as to the patients they care for^{8,11}.

Physical signs of stress are described as increased sweating, muscle tension, tachycardia, hypertension, jaw clenching, teeth grinding, hyperactivity, nausea, cold hands and feet, and, in psychological terms, anxiety, tension, anguish, insomnia, alienation, interpersonal difficulties, self-doubts, excessive concern, inability to concentrate on issues other than those related to suffering, difficulty in relaxing, anger and emotional hypersensitivity¹².

Such physical and psychological signs of psychological stress interfere in the process of human living and falling ill, generating exhaustion, dissatisfaction and psychological suffering that in turn affect individual and collective health behaviors, quality of life, sense of well-being and productivity, changing the relations of the individual in the family area, studies, work and social interactions^{13,14}.

Residents from different professional areas of health simultaneously occupy the position of students and professionals, facing characteristics of this scenario, such as curricular and work overload, lack of time for academic and personal life, and uncertainties regarding future professional insertion, lack of recognition as members of the health team and the relationship difficulties between the members of the group, constituting factors capable of affecting their psychosocial adjustment^{4,15}.

In this context of study and work related to MRH programs, stress and anxiety are associated with negative indicators of health behaviors such as behavioral changes, lack of attention and performance, increased use of drugs and alcohol, weight changes, non-development physical activity, inadequate dietary habits and unhealthy lifestyles in general, indicating social escape valves^{13,16,17}.

It is essential to investigate the triggering factors of psychological stress in order to implement strategies to prevent and minimize psychological stress in the MRH environment, benefiting the physical and mental health of non-medical residents and improving the quality of life at work^{14,18,19}.

Given the need to recognize the triggering factors of psychological stress and the implementation of prevention strategies, health residency programs are expected to include actions to prevent and minimize stress and develop a less stressful work environment, with an impact on productivity and quality of work^{14,18,19}.

Thus, this study aimed to identify evidence that describes triggering factors of psychological stress in non-medical residents in health services.

METHODS

This is an integrative review²⁰ that enables the synthesis and analysis of scientific knowledge already produced on a given topic, in this case, about psychological stress in non-medical residents.

We used the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) tool²¹. Therefore, six steps were performed, namely: a) definition of the research question; b) establishment of inclusion and exclusion criteria; c) definition of information will be extracted from the studies; d) evaluation of included studies; e) interpretation of results and f) synthesis of data²⁰.

The first stage consisted of identifying the topic of psychological stress in non-medical residents, and selecting the research question using the Populacion - Interest Phenomenon - Context (PICo) strategy, where P = population, I = interest phenomenon and Co = study context²².

Using the "PICo" strategy as a reference, in this study the acronym "P" was represented by non-medical residents; the "I" was represented by the identification of studies on psychological stress; and "Co" was represented by the health services, constructing the following guiding question: *What is the scientific evidence that describes psychological stress in non-medical residents in health services?*

In the second stage, the inclusion and exclusion criteria were defined. Primary studies that answered the research question, available in full, published in Portuguese, English or Spanish, in the period from 2005 to 2020, were included, since the Multiprofessional Non-medical Residency Program was started in 2005.

Review studies, theses, dissertations, opinion articles, comments, essays, previous notes, manuals, books, book chapters, obituaries and articles that addressed the topic of stress in medical residents in an isolated way or in another public that was not enrolled in a residency program in the health area.

The following databases were used: *Literatura Latino Americana e do Caribe em Ciências da Saúde* (LILACS), Cumulative Index to Nursing and Allied Health Literature (CINAHL), US National Library of Medicine National Institutes Database Search of Health (PubMed), Medical Literature Analysis and Retrieval System Online (Medline), Scopus and Web of Science (WOS).

The collection took place in February 2020, using health descriptors available on the Regional Portal of the *Virtual da Saúde* (BVS) - *Descritores em Ciências da Saúde* (DeCS) and Medical Subject Headings (MeSH). Through specific search strategies, validated by a librarian, for each database, the descriptors were combined with Boolean operators "AND" and "OR" as shown in Table 1.

Also in this second stage, titles and abstracts were first read, made possible by the free virtual Rayyan review application, which speeds up the initial process of article selection, safely and reliably²³, by two reviewers separately, with 23 divergences. Disagreements were forwarded to a third reviewer, responsible for deciding on inclusion or exclusion, based on previously defined criteria.

Chart 1: Search strategy for each database and descriptors used. Uberaba, MG, 2020.

| DATABASE | DESCRIPTORS | SEARCH STRATEGY |
|------------------|---|---|
| LILACS | "Internato não Médico"; "Internship, Nonmedical"; "Internado no Médico"; "Estresse Psicológico"; "Stress, Psychological"; "Estrés Psicológico". | ("Estresse Psicológico" OR "Stress, Psychological" OR "Estrés Psicológico" AND "Internato não Médico" OR "Internship, Nonmedical" OR "Internado no Médico") |
| CINAHL | "Internship, Nonmedical"; "Health Personnel"; "Stress, Psychological". | ("Stress, Psychological" AND "Internship, Nonmedical" OR "Health Personnel") |
| PubMed®/ Medline | "Internship, Nonmedical"; "Health Personnel"; "Stress, Psychological". | ("Stress, Psychological" AND "Internship, Nonmedical" OR Health Personnel") |
| Web Of Science | "Internship, Nonmedical"; "Health Personnel"; "Stress, Psychological". | ("Stress, Psychological" AND "Internship, Nonmedical" OR "Health Personnel") |
| Scopus | "Internship, Nonmedical"; "Health Personnel"; "Stress, Psychological". | ("Stress, Psychological" AND "Internship, Nonmedical" AND "Health Personnel") |

The third stage defined the information to be extracted from each study, and for that, some of the criteria of the instrument by Ursi and Galvão²⁴ were used with the purpose of extracting, organizing and summarizing the information and facilitating the formation of the database. They are: authors, year of publication, research title, journal, objective, method, results/conclusions and level of evidence.

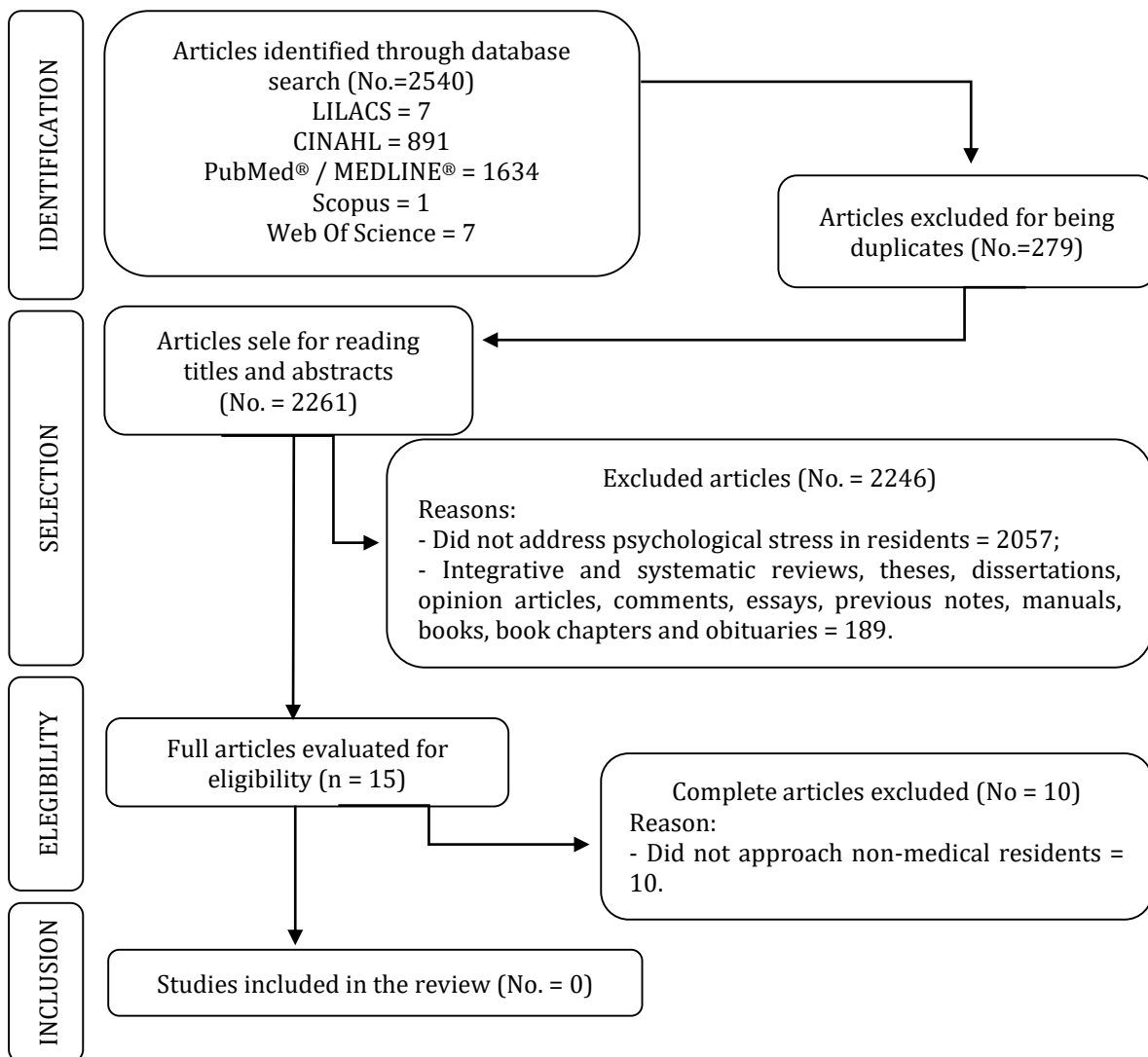
To classify the level of evidence of the selected studies, the Agency for Healthcare Research and Quality (AHRQ) categories were used, covering six levels: level 1: meta-analysis of multiple randomized controlled clinical trials; level 2: individual studies with experimental design; level 3: quasi-experimental studies; level 4: descriptive studies (non-experimental) or qualitative approach; level 5: case or experience reports; level 6: expert opinions²⁵.

In the fourth stage, the individual reading of the included studies was carried out in full, the critical evaluation of the articles in relation to the object of study of this research, for later interpretation of the results by the reviewers and synthesis of knowledge.

RESULTS

Figure 1 shows the production selection sequence. Five (5) studies were selected, published in the period between 2005 and 2020, detailed in Table 2.

From the reading and synthesis of the selected studies, it was possible to evidence the triggering factors of psychological stress in non-medical residents.

Figure 1: Selection of studies according to PRISMA²¹, Uberaba, Brazil, 2020.

*CINAHL: Cumulative Index to Nursing and Allied Health Literature; LILACS: *Literatura Latino-Americana e do Caribe em Ciências da Saúde*.

Chart 2: Characterization of studies included in the integrative review. Uberaba, MG, 2020.

| AUTHORS JOURNAL (YEAR) TITLE | OBJETIVE | METHODS | RESULTS/ CONCLUSIONS | LEVEL OF EVIDENCE |
|--|---|---|--|----------------------|
| Ratnakaran, Prabhakaran & Karunakaran ²⁶ Journal of Postgraduate Medicine (2016) Prevalence of Burnout and its correlates among residents in a tertiary medical center in Kerala, India: A cross-sectional study. | Studying the prevalence of Burnout and its correlations between interns and residents at the Government Medical School in Thiruvananthapuram, Kerala, India | This is a cross-sectional study of 558 interns and residents at the Government Medical College, Thiruvananthapuram, Kerala, India. Data were collected that included the Copenhagen Burnout Inventory [CBI] which assesses burnout in the dimensions of Personal Burnout, Work Burnout and Patient-Related Burnout, with a cutoff score of 50 for each dimension. | Burnout was considered the highest among interns in the dimensions Personal Burnout (64.05%) and Patient-related Burnout (68.62%) and among junior residents for Work-related Burnout (40%). Super-specialized senior residents had the lowest prevalence of Burnout in the three dimensions. Among residents, non-medical/non-surgical residents had the lowest prevalence of Burnout in the three dimensions, while residents with surgical specialty had the highest personal Burnout (57.92%) and residents with medical specialty had the highest patient-related Burnout (27.13%). It is concluded that the presence of Burnout was observed in many residents in our study. | 4 |
| Fernandes, Beck, Weiller, Viero, Freitas & Prestes ⁴ Revista Gaúcha de Enfermagem (2015) <i>Sofrimento e prazer no processo de formação de residentes multiprofissionais em saúde</i> (Suffering and pleasure in the training process of multidisciplinary health care residents). | Identify situations of pleasure and suffering in the process of training multidisciplinary health care residents. | Qualitative research, carried out in a Multiprofessional Residency Program in Health at a university in Southern Brazil. Data were collected in 2013, through focus groups with nine residents, and analyzed according to thematic analysis. | The situations of suffering were negative stimuli from health workers, difficulties in participating in other professional training activities, excessive activities that residents take on as health service workers, lack of recognition and difficulties in integrating the areas of the Residence. The situations of pleasure were the development of multidisciplinary activities and the possibility of learning for residents. It is concluded that the situations of pleasure and suffering identified can help plan institutional actions that contribute to a professional training process that favors the learning and well-being of residents. | 4 |
| Silva, Goulart, Lopes, Serrano & Guido ⁸ Revista de Enfermagem da UFSM (2014) Stress and hardiness among public university multiprofessional residents. | To verify the association between stress and Hardiness in Multiprofessional Residents of a public university in the state of Rio Grande do Sul, Brazil. | This is an analytical, cross-sectional, quantitative study. A form of sociodemographic data, the Work Stress Scale and the Hardiness Scale were applied to 37 residents between April and June 2011. Values of $p < 0.05$ were considered significant. | It was observed that 51.35% of residents have low stress and 48.65% high stress. Hardiness Personality was verified in 24.32% of the professionals, and of these, 21.62% had low stress intensity. There was a significant and negative correlation ($p = 0.001$, $r = -0.5105$) between Hardiness and stress intensity. The hypothesis that Hardy individuals have less stress intensity was confirmed. The elaboration of strategies to promote Hardiness is suggested, considering its benefits to the resident's health. | 4 |
| Guido, Goulart, Silva, Lopes & Ferreira ²⁷ | Identify associations between high stress syndrome and Burnout in multidisciplinary residents | This is an analytical, cross-sectional and quantitative study. Sociodemographic questionnaires and the Maslach Burnout Inventory | It was found that 48.65% of residents suffered high stress. By associating the MBI-HSS subscales, it was found that 27% of residents had some indication of Burnout syndrome. There was a statistically significant correlation ($p = 0.00$, $r = 0.68$) between high | 4 |

| | | | | |
|--|--|---|--|---|
| <p>Revista Latino Americana de Enfermagem (2012)</p> <p>Estresse e Burnout entre residentes multidisciplinares (Stress and Burnout among multidisciplinary residents).</p> | <p>of a federal university in the state of Rio Grande do Sul, Brazil.</p> | <p>- Health Services (MBI-HSS) work stress scale and survey were applied to 37 residents between April and June 2011. P - values <0.05 were considered statistically significant.</p> | <p>stress and Burnout. It is concluded that high stress has been confirmed as a predictor of Burnout syndrome among multidisciplinary residents. Therefore, we propose that intervention studies be carried out to change such contexts.</p> | |
| <p>Fink, Krugman, Casey & Goode²⁸</p> <p>Journal of Nursing Administration - JONA (2008)</p> <p>The Graduate Nurse Experience Qualitative Residency Program Outcomes.</p> | <p>Analyze respondents' speeches to determine whether their comments would further enrich the quantitative data. Determine whether analysis of themes extracted from qualitative data could be used to convert the instrument's open-ended questions into quantitative questions facilitating test administration and analytical procedures.</p> | <p>This is a qualitative study carried out with nurses residing in 12 academic hospital sites in the post-baccalaureate residency program of the University Health System Consortium (UHC)/American Association of Colleges of Nursing (AACN). Participants completed The Casey-Fink Graduate Nurse Experience Survey instrument in three periods during the first year of residency: at the beginning, 6 months and 12 months at the conclusion of the 1-year program.</p> | <p>Qualitative analyzes reflected the challenges that nursing residents experienced during the transition to practice, such as: fear, lack of confidence and concerns about harming patients during the 1st year of practice. Visibility, support from the nursing manager, educators or resident facilitators to consistently train skill mastery during the second 6 months of practice, support for integration into the unit and team culture are the main findings of this qualitative research. It is concluded that the qualitative analysis provided sufficient evidence to convert specific open-ended questions in the Casey-Fink Graduate Nurse Experience Survey instrument into a quantitative format for ease of administration and analysis.</p> | 4 |

In Chart 3, the data referring to the triggering factors of psychological stress in non-medical residents are highlighted, according to the respective studies.

Chart 3: Triggering factors of psychological stress in non-medical residents. Uberaba, MG, 2020.

| TRIGGERING FACTORS | STUDIES |
|--|--|
| Work overload | Fernandes, Beck, Weiller, Viero, Freitas & Prestes ⁴ ; Silva, Goulart, Lopes, Serrano & Guido ⁸ ; Ratnakaran, Prabhakaran & Karunakaran ²⁶ ; Guido, Goulart, Silva, Lopes & Ferreira ²⁷ ; Fink, Krugman, Casey & Goode ²⁸ (5) |
| Care for critically ill patients | Silva, Goulart, Lopes, Serrano & Guido ⁸ ; Ratnakaran, Prabhakaran & Karunakaran ²⁶ ; Guido, Goulart, Silva, Lopes & Ferreira ²⁷ ; Fink, Krugman, Casey & Goode ²⁸ (4) |
| Emotional exhaustion | Silva, Goulart, Lopes, Serrano & Guido ⁸ ; Guido, Goulart, Silva, Lopes & Ferreira ²⁷ ; Fink, Krugman, Casey & Goode ²⁸ (3) |
| Sleep deprivation | Fernandes, Beck, Weiller, Viero, Freitas & Prestes ⁴ ; Silva, Goulart, Lopes, Serrano & Guido ⁸ ; Guido, Goulart, Silva, Lopes & Ferreira ²⁷ ; (3) |
| Lack of recognition | Fernandes, Beck, Weiller, Viero, Freitas & Prestes ⁴ ; Fink, Krugman, Casey & Goode ²⁸ (2) |
| Lack of guidance or career uncertainty | Ratnakaran, Prabhakaran & Karunakaran ²⁶ ; Fink, Krugman, Casey & Goode ²⁸ (2) |
| Type of work | Ratnakaran, Prabhakaran & Karunakaran ²⁶ ; Fink, Krugman, Casey & Goode ²⁸ (2) |
| High Turnover between Sectors | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Emergencies at work | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Engagement at work | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Lack of participation in decision making | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Career level | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Working time | Ratnakaran, Prabhakaran & Karunakaran ²⁶ (1) |
| Lack of experience and skills | Fink, Krugman, Casey & Goode ²⁸ (1) |

DISCUSSION

The studies considered were published between 2008 and 2016, in Portuguese and English, in five different journals and presented evidence level 4. These data should imply an incentive to develop studies with better methodological design, mainly experimental, in order to explore stress in non-medical residents, enabling a clinical decision based on more reliable evidence²⁹.

In this perspective, the factors that trigger the development of psychological stress in non-medical residents were identified. Among the most mentioned factors that trigger stress were: work overload, care for critically ill patients, emotional exhaustion and sleep deprivation^{4,8,26-28}.

Research carried out in universities in Southern Brazil with multiprofessional residents pointed out the overload related to the excessive workload as a cause of stress, this relationship is due to the transition of responsibilities and professional pressures that the resident assumes^{8,27}.

Another study identified with residents linked to a Multiprofessional Residency Program in Southern Brazil, addresses the accumulation of care functions as a trigger for the Burnout Syndrome, justified by the fact that work is extrapolated to fulfill all the activities assigned to them and despite to increase their efforts, they often end up frustrated for not being able to⁴.

Another survey carried out at a university in the state of Paraná, Brazil with residents reinforces the high demand for activities that negatively interfere in their lives, causing them stress⁷. The accumulation of functions will often occur due to lack of time to plan activities, inexperience in work routines, as well as lack of clarity in the attributions of residents⁷.

A study carried out with inmates and residents of the Government Medical College in Southern India, points out the care of critically ill patients as a triggering factor for stress, justified by the need to provide intensive care, due to the constant instability of critically ill patients and even by the fact that residents can often feel unprepared for the care provided to these patients²⁶.

Another investigation carried out in a university hospital in Paraná, Brazil, with multidisciplinary residents, highlighted that residents live under stress in units with extremely critical patients, as well as in those sectors where patients are admitted between life and death³⁰.

Research carried out with professionals in Intensive Care Units (ICU) in a multispecialty hospital in Southern India, highlights the severity of the patient's condition as a factor of psychological stress for health professionals, as the care provided in ICUs requires greater attention from professionals and in case of clinical worsening of the patient, there is an immediate action that triggers stress, in addition to the professionals being constantly in contact with suffering and death³¹.

In the findings of this review, sleep deprivation was another factor that triggers stress^{4,8,27} that corroborates a work in Singapore, which brings the extensive workload dedicated to work and studies, which in turn end up restricting the leisure time of the residents³².

A study carried out in a teaching hospital in the city of Belo Horizonte, Brazil, with vascular surgery residents, evidenced the psychological stress reported by residents who expose sleepless nights or few hours of sleep, as well as fear of retaliation and bullying suffered during the period of residence³³.

In Brazil, other studies carried out with medical and non-medical residents and a narrative review on the conceptual evolution of stress showed that sleep deprivation and poor quality of sleep are factors that interfere in people's psychological health, causing stress, depression, anxiety and signs and symptoms of Burnout Syndrome^{9,34,35}.

Research carried out with residents in a maternity hospital in the state of Rio Grande do Norte shows that they have psychological symptoms, such as excessive tiredness, desire to get away from everything, anguish, daily anxiety and self-doubt, which signals psychological distress and health problems resulting from work overload, care for critically ill patients and sleep deprivation¹⁴.

Psychological stress in non-medical residents has numerous triggering factors that range from caring for critically ill patients, the accumulation of functions and activities to work overload, which can be translated by excessive workload, work complexity and pressure, lack of human resources, non-collaboration from colleagues, inadequate distribution of tasks, emotional exhaustion even sleep deprivation³⁶.

Studies that identify the stressors that affect non-medical residents are important, so that, based on these causes, the Residency programs, along with the Universities propose strategies and actions that aim at reducing stress in this population, improving the quality of life of these health professionals¹⁴.

CONCLUSION

From the selected researches, the triggering factors of psychological stress emerged, such as: work overload, caring for critically ill patients, emotional exhaustion and sleep deprivation.

The initial number of articles was large, however, most focused on medical residents and medical students, both in Brazilian and international productions, showing little scientific evidence on the triggering factors of psychological stress in non-medical residents, this being a important limitation of the research. Therefore, it is essential to carry out well-designed scientific studies, with a good level of evidence, which explore the topic in greater depth and verify the triggering factors of psychological stress.

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CONTRIBUTIONS

Gabriela França Rosinha and **Fabiana Cristina Pires** worked in the conception of the study and its project, data collection and analysis, writing. **Suzel Regina Ribeiro Chavaglia** contributed to the design, writing and reviewing. **Rosali Isabel Barduchi Ohl**, **Lúcia Aparecida Ferreira** and **Álvaro da Silva Santos** participated in the reviewing.

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