ABSTRACT

Objective: to carry out a critical analysis on the different formations of concepts of stress in health care used in scientific publications. Method: this is a qualitative and descriptive integrative review study which follows a strategy of five methodological steps. As it is a critical analysis on the selected studies, we opted for the confidentiality of their authors in the references of this study. Papers in English, Spanish, and Portuguese were included and those which did not focus the concept of stress in their abstracts, the repeated ones indexed in many databases, and those which are not free were excluded. Different search strategies were used, as well as descriptors in health sciences/MeSH Terms and Boolean operators in the selected databases: MedLine, SciELO, and LilACS. The strategies aimed to answer the focal question of this research: “What are the different concepts of stress in health care used in scientific publications?” Results: we found 71 papers and 15 of them were selected. The selected papers were tabulated according to the categories scored: the paper’s and journal’s title, type of study, formation of the concept of stress, and year of publication. Conclusion: the different designations of stress confirm the discussion of different formations of concepts and interpretations of stress, and, maybe, different intervention actions, deviating the therapeutic management and intervention pattern of their typical features currently pointed out by the literature. Descriptors: physiological stress; psychological stress; health; concept formation.

RESUMEN

Objetivo: realizar análisis crítica de las diferentes formaciones de conceptos de estrés en salud utilizadas en publicaciones científicas. Método: estudio cualitativo y descritivo de revisión integrativa que sigue a estrategia de cinco etapas metodológicas. Por ser tratamiento de una análisis crítica de los estudios seleccionados, optó se por sigilo de sus autores en las referencias este estudio. Artículos en inglés, español y portugués fueron incluidos y aquellos que no focu un concepto de estrés en sus resúmenes, los repetidos indexados en varias bases de datos y es que no eran gratuitos fueron excluidos. Foran utilizadas estrategias de búsqueda distintas, descritores en salud/MeSH Terms y operadores booleanos bases de datos seleccionadas: MedLine, SciELO y LilACS. Las estrategias visan a responder a cuestión norteadora de esta pesquisa: “¿Cuáles son los diferentes conceptos de estrés en salud utilizados en publicaciones científicas?” Resultados: fueron encontrados 71 artículos y seleccionados 15 de ellos. Los artículos seleccionados fueron tabulados conforme las categorías puntuadas: título del artículo y del periódico, tipología de estudio, formación de concepto de estrés de y año de profección. Conclusión: las diferentes denominaciones de estrés corroborar una discusión de diferentes formaciones de conceptos y interpretaciones de estrés y, posiblemente, distintas acciones intervencionistas, descaracterizando el padrão de manejo terapéutico e intervención ora apontado pela literatura. Descriptores: estrés fisiológico; estrés psicológico; salud; formación de concepto.

RESUMEN

Objetivo: realizar análisis crítico de las diferentes formaciones de conceptos de estrés en salud utilizadas en publicaciones científicas. Método: esto es un estudio cualitativo y descriptivo de revisión integradora que sigue una estrategia de cinco etapas metodológicas. Se trata de un análisis crítico de los estudios seleccionados, se optó por la confidencialidad de sus autores en las referencias de este estudio. Artículos en inglés, español y portugués fueron incluidos y aquellos que no enfocaba el concepto de estrés en sus resúmenes, los repetidos indexados en varias bases de datos y los que no eran gratuitos fueron excluidos. Foran utilizadas estrategias de búsqueda distintas, descritores en ciencias de la salud/MeSH Terms y operadores booleanos bases de datos seleccionadas: MedLine, SciELO y LilACS. Las estrategias pretenden responder a la cuestión orientadora de esta investigación: “¿Cuáles son los diferentes conceptos de estrés en salud utilizados en publicaciones científicas?” Resultados: fueron encontrados 71 artículos, siendo seleccionados 15 de ellos. Los artículos seleccionados fueron tabulados de acuerdo con las categorías puntuadas: título del artículo y del periódico, tipología de estudio, formación de concepto de estrés y año de publicación. Conclusión: las diferentes denominaciones de estrés corroboran la discusión de diferentes formaciones de conceptos e interpretaciones de estrés y, posiblemente, distintas acciones intervencionistas, quitando el carácter de patrón de manejo terapéutico e intervención ahora apuntada por la literatura. Descriptores: estrés fisiológico; estrés psicológico; salud; formación de concepto.
INTRODUCTION

The search for a deeper knowledge on the theme stress and its interfaces has become more and more intense in the techniquescientific environment and in the media, due to the negative effects caused to the human organism and its implications in the individuals’ quality of life. With such popularity, the term “stress” became vulgarized, many times it is used in an inappropriate manner and/or formulated according to (dis)aggregating concepts, something which can lead to inadequate understandings and its irregular use in the public health care domain.

Studies\(^1\)\(^2\) point out that the stress factors change the normality levels of the people lives, regardless of age, sex, social level, or professional activity, affecting everyone in different ways and degrees, be it at work or in her/his private life.

The prolonged state of concern, alertness, and anxiety which characterizes a high stress level has become a big enemy of people. Stress affects both the individual’s personal life and her/his professional performance, and each person reacts in a different way to the different stimuli to which she/he is exposed.

Having in mind that the manifestation of stress is a response from the interaction between the individual and her/his environment\(^3\), the stress assessment shall consider its social, economic, and cultural characteristics in a wide range, as it is present in all situations and activities developed by the human being.

The way how the individual reacts to the stressing stimuli will determine the level of stress to which she/he is exposed and which changes will be provoked by it. There is a consensus in the literature in the sense that the intense or prolonged stress can be a negative impact on a person’s physical and mental health\(^4\), with the possibility, in extreme situations, of causing cardiac dysfunctions, generalized pains, gastrointestinal disorders, anxiety, and depression.\(^5\)

In 1936, the Austrian physiologist Hans Selye started to document the disease, and in his survey there were comparisons among the non-chemical symptoms, which provoke the same reactions that the toxic chemical substances. In 1956, he conceptualized this disease process as General Adaptation Syndrome, which comprises the phases of response to stress, alertness, resistance, and exhaustion.\(^6\)

In the phase of alertness, considered the positive phase of stress, the human being is mobilized through the production of adrenalin. Survival is preserved and a fullness sensation is frequently achieved. In the second phase, that of resistance, the person automatically tries to cope with her/his stressing stimuli, so that she/he maintain internal homeostasis. If the stressing factors persist with regard to frequency or intensity, there is a break of the individual’s resistance and she/he enters into the phase of quasi-exhaustion. In this phase, the sickening process begins and the organs which have a greater genetic or acquired vulnerability start to show debilitating signs. If there is no relieve of the stress through the removal of the stressing stimuli or through the use of coping strategies, it reaches the final phase, that of exhaustion.\(^6\)

Stress has been one of the more constant causes of problems among workers. The nursing professionals, for instance, show, through their occupational characteristics, that there exist many factors contributing to the development of the process health-disease at work.\(^7\) Nowadays this “syndrome” is observed with another look. Not a madness-related one, but an organism’s reaction in a danger situation.

Often mistook for stress and used in an inadequate manner as a synonym of occupational stress and occupational distress, the Burnout Syndrome is a classic example of the inadequate use of the term stress, leading to false understandings on Burnout and stress, incorrect diagnoses, and unnecessary and nonspecific interventionist approaches.

From this understanding grounded by Selye and the increased number of areas for professional development, many concepts were constructed in order to be applied to some fortuitous health care area: stress, global stress, individual stress, stress level, psychosocial stress, occupational stress, chronic and acute stress, burnout, and many others described in works indicated in this study. These different concepts not only increase the diversity to approach the different types of stress, but they can bring up inadequate conclusions on the term and mistaken therapeutic approaches, leading the diagnosed users to vulnerability.

The physiopathological understanding of stress, its forms of behavioral and physical manifestation, besides the correct use of the work, has a crucial importance in order to
avoid and/or minimize false interpretations and inadequate use in health care interventions, be it psychological or interdisciplinary. It is relevant to understand and discuss the different concepts of stress and how to apply them in a specialized manner, in order to avoid the creation of Public Policies which are non-resolute.

Thus, there’s a need for studies which corroborate the clarification of key points of stress, in order to minimize harms and answer the guiding question of this research: “What are the different concepts of stress in health care used in scientific publications?” From the methodological path of an integrative literature review, the aim of this study is to carry out a critical analysis on the different formations of concepts of stress in health care used in scientific publications.

**METHOD**

This is a qualitative and descriptive integrative review study with a strategy of five steps. As it is a critical analysis on the selected studies, we opted for the confidentiality of their authors in the references of this study.

- **Step 1. Theme identification and selection of the research’s hypothesis or guiding question**

  Indicated in the introduction to this study.

- **Step 2. Establishment of the studies inclusion and exclusion criteria**

  The establishment of the inclusion and exclusion criteria for the studies. In this step, we follow this path:

  - Choose reliable databases: Medical Literature Analysis and Retrieval System Online (MedLine), Scientific Electronic Library OnLine (SciELO), and Latin American and Caribbean Health Sciences Literature (LILACS);

  - For each database chosen, we used different search strategies, always through descriptors in health sciences/MeSH Terms, using the Boolean operators (OR, AND, NOT) to refine the search (Figure 1).

  - Papers in English, Spanish, and Portuguese were included and papers which did not focus the concept of stress in their abstracts, the repeated ones indexed in many databases, and those which are not free were excluded.

  We opted for the analysis of papers published within the last five years, aiming to provide updated data.

<table>
<thead>
<tr>
<th>Base</th>
<th>Search strategy</th>
<th>Papers found</th>
<th>Selected papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>SciELO</td>
<td>1. psychological stress AND physiological stress AND health AND concept formation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2. psychological stress OR physiological stress AND health AND concept formation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3. psychological stress AND physiological stress AND health AND health</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4. psychological stress OR physiological stress AND health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LILACS</td>
<td>1. psychological stress OR physiological stress AND health AND concept formation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2. psychological stress OR physiological stress AND health</td>
<td>31</td>
<td>7</td>
</tr>
</tbody>
</table>

**RESULTS**

- **Step 3. Definition of the information to be excluded from the selected studies**

  After the critical reading of papers, we performed a sampling according to the inclusion and exclusion criteria. The selected papers were tabulated according to the categories scored: paper’s title and journal/author, type of study, concept formation and applicability of the term “stress”, and year of publication.

- **Step 4. Evaluation of the studies included in the integrative review**

  The selected papers were evaluated by the authors with regard to the information quality and, at last, included for evaluation and discussion, according to Figure 2.
<table>
<thead>
<tr>
<th>Title</th>
<th>Journal</th>
<th>Type of study</th>
<th>Concept formation/applicability</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stress in pregnancy and puerperium: a correlation with postpartum depression</td>
<td>Revista Brasileira de Ginecologia e Obstetricia</td>
<td>Longitudinal</td>
<td>Stress is a set of answers that the organism sends to react to something that awoke it. It can be understood as a physiological, psychological, and behavioral answer from an individual who tries to adapt and adjust her/himself to requirements internal and/or external to the organism / OBSTETRICS.</td>
<td>2011</td>
</tr>
<tr>
<td>2. Health risk behaviors and psychosocial distress indicators in high school students</td>
<td>Cadernos de Saúde Pública</td>
<td>Cross-sectional</td>
<td>Refers to psychosocial stress, but does not define it / PUBLIC HEALTH.</td>
<td>2011</td>
</tr>
<tr>
<td>3. Workplace stress in nursing workers from an emergency hospital: Job Stress Scale analysis</td>
<td>Revista Latino-Americana de Enfermagem</td>
<td>Cross-sectional</td>
<td>It assumes that occupational stress is a result of an unbalance between the psychological demands, something which can harm the health of workers / WORKERS' HEALTH.</td>
<td>2011</td>
</tr>
<tr>
<td>4. Depression, anxiety and stress in primary health care users</td>
<td>Revista Latino-Americana de Enfermagem</td>
<td>Correlational descriptive study</td>
<td>The study refers to stress without conceptualizing it / MENTAL HEALTH.</td>
<td>2011</td>
</tr>
<tr>
<td>5. Estresse laboral e capacidade para o trabalho de enfermeiros de um grupo hospitalar</td>
<td>Revista Latino-Americana de Enfermagem</td>
<td>Quantitative descriptive</td>
<td>An individual is exposed to stress when she/he needs to face requirements she/he considers to be higher than her/his resources, so that she/he is not able to produce an effective response. In such a situation, the body sends a response, with a significant increase in the physiological and cognitive, functions, and motor activation. Occupational stress, in its turn, is related to the stimulus from the work environment and aversive responses dealing with these stimuli / NURSING.</td>
<td>2011</td>
</tr>
<tr>
<td>6. Impact of stress on cancer metastasis</td>
<td>Future Oncology</td>
<td>Not indicated</td>
<td>Stress is a complex process, including environmental and psychosocial factors which trigger a cascade of information processing both in the peripheral nervous system and the central nervous system. Stress can be acute (with a short duration) or chronic (recurrent crises or those occurring for a prolonged period). Under chronic stress conditions, the body remains in a constant state of &quot;overtaking&quot;, with harmful effects of regulation of the stress response systems / ONCOLOGY.</td>
<td>2010</td>
</tr>
<tr>
<td>8. Frontiers in the use of biomarkers in health in research on stress and aging</td>
<td>Journal of Gerontology: Psychological Sciences</td>
<td>Not indicated</td>
<td>Stress is the sum of all weakening caused by any kind of vital reaction at any time. That’s why it can act as a common denominator of all biological changes occurring in the body, it’s a kind of “life’s speedometer”. The study refers to but does not conceptualize psychosocial stress; it describes but does not conceptualize physiological stress / GERONTOLOGY.</td>
<td>2010</td>
</tr>
<tr>
<td>9. Experimental stress in inflammatory rheumatic diseases: a review of psychophysiological stress responses</td>
<td>Arthritis Research &amp; Therapy</td>
<td>Review study</td>
<td>Psychophysiological stress is the perception of an external stressing stimulus and the activation of many physiological systems which, combined, define the body’s response to stress, which aims to reestablish homeostasis. Physiological stress is the response mainly coordinated by hypothalamus, with the activation of hypophysis and adrenal glands, resulting in the release of catecholamines and cortisol / RHEUMATOLOGY.</td>
<td>2010</td>
</tr>
<tr>
<td>10. Stress effects on food handler attention in a public hospital in Recife-PE, Brazil</td>
<td>Dement Neuropsycology</td>
<td>Case-control</td>
<td>Emotional stress is a complex and global reaction of the organism involving physical, psychological, and mental, as well as hormonal components, and that develops itself in steps or phases: alarm, resistance, quasi-exhaustion, and exhaustion / NUTRITION.</td>
<td>2010</td>
</tr>
</tbody>
</table>
in many ways, it is admitted that three issues are involved in the term stress: the stimulation; the response; and the interaction between the person and the environment.12

In the evolution of the study on stress, some terms have been included and among them we find stressor. A stressor can be described as any situation which triggers a strong emotion, good or bad, and demands a change. It can cause physical and/or mental disorders, resulting in stress. The change which provokes a state of unbalance is called stressor or stressing agent.13

The contemporary vision on stress highlights that its existence is not automatically bad and that it should not be necessarily avoided regardless of what it takes, there is a consensus with regard to the existence of two general types of stress, “eustress” and “distress”. “Eustress” is defined as the strain with equilibrium among effort, time, achievement, and outcomes, that is, a strong force that adds excitement and challenge to our lives, providing happiness, health, and longevity, as “distress” is related to the strain due to the break of the biopsychosocial equilibrium because of excess or lack of effort, incompatible to time, results, and achievement, that is, “distress” occurs when there is a non-relieved strain, leading to destruction, disease, and early death.6

The remaining concepts of stress pointed out in this study (1, 4, 5, 6, 8, 13, and 15) emerged in many ways, highlighting the environmental and psychosocial factors. To be responsible for people, as in the case of nurses, obliges to a greater time of work...
dedicated to interaction, increasing the probability of stress due to interpersonal conflicts, where some stimuli cause a psychological unbalance which affects its occupational environment.14

Regarding the etiophysiopathologic issues of stress, it is observed that its genesis within the physiological, psychical, and behavioral domains (study 1), with physiological and cognitive responses and motor activation (study 5), contradicting the study 15, which supports the idea that all changes are non-specific ones and produced in a biological system of the individual. Khazan15 claims in his study that the individuals present cognitive, physical, and emotional responses, with a variety of stressors, in order to determine a person-stimulus-response specificity, or differences in the reaction from each person to the stimuli which are qualitatively different.

For the World Health Organization (WHO), stress has been considered a global epidemic, because of the constant updating of information, something which can interfere in the quality of life of the subjects, resulting in damages to the family and social orders, lack of motivation for performing general activities, physical and psychological disorders, besides occupational problems.16

The external environment where the individual is a very relevant factor for the onset of the physiological changes, which lead to the development of stress, pointed out by the papers 9 and 13.

There are “physiological responses to different types of stressors”15, stress is a normal part of the body functioning, being a consequence of the act of living. The sources which generate stress are felt and interpreted by people in different ways, one should consider the characteristics of any individual and her/his ability to interact with the stressors from the environment to which she/he is exposed, with a variation in the levels of stress.16

Studies (10 and 14) relate the development of stress to the release of hormone produced by the organism, where the contact with stressing factors results in the release of substances that change the body’s homeostasis. The reactions to stress can be manifested through signs and symptoms, presenting some physical and/or psychological level of weakening, leading to some future disorders. Studies11,17 corroborate this, claiming that “the organism has the tendency of fighting for its own self-preservation (homeostasis): the harder the aggression coming from the stressor, the harder shall be the alarm response from the body”. Stimulation from hypothalamus leads, in its turn, to the secretion of hormones.15

The applicability of the term “stress” is very broad, including general fields, such as public health (study 2), and more specific fields, such as rheumatology (study 9), endocrinology (study 7), and workers’ health (studies 3, 12, 13, and 15). Stress has been a largely researched area in the different professional categories, such as health care technicians, nurses, teachers, judges etc. 17 This increased applicability of the term points out its diversity and stress the need for particularities for its application, however, it does not dichotomize the importance of the formation of concepts in these many areas.

In the field of workers’ health, “occupational stress” is defined as a reaction to stimuli from the occupational environment (studies 3, 5, and 12). The studies 5 and 12 also highlight that this type of stress is due not only to the occupational environment and the overload of responsibilities, but as a result of a set of events that, combined, generate an unbalance in the organism. The study 15 refers to “stress at work” in its title, but does not present any conceptualization.

When the occupational environment is perceived as a menace by the individual, the stress at work emerges, with implications to her/his personal and professional life. The occupational stress is determined by the perception that the worker has with regard to the needs from her/his occupational environment and her/his ability to face them.16

Through the conceptualization of occupational stress highlighted in the organizational stressors, it is possible to distinguish two types of studies related to stress: those on occupational stress and those on general stress, where the first ones focus on the stressors related to the occupational environment and the second ones concern the general stressors in the life of the individual.17

This problem should be considered as a collective and institutional one, and not only as an individual problem of the professional affected by it, having in mind and highlighting specific occupational characteristics of the nurse in the discussion and creation of actions that redirect the nursing work process.18

Studies19–20 point out the complementarity among the demand-control (DC) models and the effort-reward imbalance (ERI) model in
the association to health care outcomes, in the sense that the models focus different aspects of the work environment related to stress and sickening. These models might have a greater explanatory power and they are widely used in the international literature as measures of psychosocial conditions of the work environment.19

The many designations of stress and its different types are useful for the improvement and diversification of the theme, through the specialties of professional areas, however, these designations should be used with caution and scientific rigor, always defining and explaining the etymological character of the term. This will provide the new terms coming from researches of many areas with a greater scientific credibility, besides the theoretical grounding which will lead to an increased use of the term stress.

Issues with a methodological character also deserve a special attention in the discussions. Some points are remarkable and they should be taken into consideration for reflection and analysis by researches concerned with the area:

- The lack of an obligation with regard to the use of descriptors in health sciences turns it more difficult to implement more complete search strategies. One may consider it a limitation of this study, as presented in Figure 1.
- Most of the types of study are related to literature review/analysis (7, 9, 13, and 14) and present a cross-sectional design (2, 3, and 11). Experimental or randomized studies are less frequent and barely contribute to characterize a higher scientific status to the theme, especially the studies discussing organic material which are being handled. Some studies do not even refer to this typology (6 e 8), something which corroborates the development of materials and methods in these studies with a lower level of scientific rigor.
- One identifies that the vast majority of the studies are published in international journals with excellent indexations, impact factor, and strata assessment. Few of the selected and analyzed studies were published in journals with a stratum lower than B3, according to the assessment criteria from the Brazilian Coordination for Improvement of Higher Education Personnel (Capes).

It is worth stressing the limitations of this study: the authors’ interpretations, the trilingual approach, the small number of bibliographical bases, and the period, i.e., papers published within the last five years.

The distinction between “eustress” and “distress” is an important point for the understanding of stress as a trigger of certain improvements and promoter of benefits to human health.

Stress, due to its multifactor/cause features, spreads itself into all branches of human life, be them at work, in the family relationships, in the physiological changes, or in the pregnancy, for instance, and it can emerge from occupational and/or psychosocial situations. Each individual reacts in a different manner to stress and to the different stimuli to which she/he is exposed, changing the normality levels of people regardless of age, gender, social level, or professional activity.

Having in mind the many designations and different conceptual forms of stress, besides its applicabilities to the health care field, one may infer that the environmental changes are stressors affecting both the individual’s psychosocial aspects and the physical and behavioral factors. These stressors are associated, often, to anxiety and depression.

The different designations of stress corroborate the discussion on the different concept formations and the different interpretations of stress, and, maybe, the different intervention actions, devaluing the therapeutic management and intervention pattern of their typical features currently pointed out by the literature.

The multiple characteristics of stress have influenced the use and creation of neologisms trying to explain these multiple variations. The lack of a pattern with regard to the formation of the concept of stress corroborates, most of the times, inadequate anthologies on the theme.

One of the variations of stress is known as occupational stress, which has increased in an alarming manner, something which is proved through researches, which indicate a predisposition for getting sick and a consequent removal of workers from their labor activities.

Unbalances in the individual’s life and dissatisfaction with the achievements in the personal and professional activities trigger stress, then, there’s a need for early diagnosis and therapeutic follow-up by qualified professionals, in order to promote public health and life protection.

Therefore, there’s a need for a reflection...
on what actually defines the term stress, its applicability to public health and the academic-scientific environment, as well as the feasible interventions in the health of the individuals and collectivities.

RECOMMENDATIONS

- Researches should be carried out in order to determine the prevalence of absenteeism due to occupational stress.
- Experimental and randomized studies should deepen the knowledge on the physiopathological issues of stress, in order to corroborate the formation of coherent and more definable concepts.
- Studies should work out in a consensual manner with regard to the concept of stress, avoiding divergences in the formation of the concept and minimizing the risks to the individual and collective health without mistaking stress for other health problems, such as anxiety depression, and burnout.
- The definitions of eustress and distress should be divulged in the academic and professional domains of those who deal with the actions related to stress, so that effective actions can be provided.

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