

Stress in Brazil

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ABSTRACT

Stress is on the rise around the world and has been associated with the ontogenesis of several diseases, especially mental health, in both developed and developing countries. Brazil is a fast-developing country where changes in social values and customs are occurring at a very fast pace, together with changes in economic and technological areas. The aim of the present study was to evaluate the prevalence of stress, the symptoms people perceive as indicative of stress and which stressors are more prevalent in the Brazilian adult population. It also sought to examine which illnesses are most prevalent in stressed individuals. We analyzed the answers from 2,592 adults, aged 18 and over, who responded to the 2017 Stress in Brazil online Survey. We found that 52% of them stated that they were very stressed out, scoring between 8 and 10 on a scale from 1 (not at all stressed out) to 10 (extremely stressed out). Depression and anxiety were reported by 29% and 21% of the sample, respectively. The high rates are discussed in terms of economics and family relationship issues. Building on these findings, we concluded that stress is a serious health-related problem in Brazil and, given its high prevalence rate, preventive measures should be the responsibility not only of the individuals, but it also requires that work organizations and government take measures to alleviate the heavy toll that life in Brazil is imposing on its adult population.

Keywords

Stress, Societal changes, Depression, Anxiety.

Introduction

Stress is an adaptive reaction to organic or environmental change, and psycho-physiological imbalance may be a severe consequence if the individual is unable to use effective coping strategies [1]. These alterations involve the central nervous system, including the neuroendocrine, autonomic and immune systems [2].

Intense and/or frequent episodes of stress can lead to deep and severe effects in the function and structure of the brain, especially the limbic brain system that coordinates the stress response [3]. Stress can also be associated with neurological diseases, such as epilepsy, since the more severe the stress, the more frequent the epileptic seizures can become [4]. Nonetheless, an adequate intervention based on cognitive behavior therapy (CBT) may produce volumetric changes in regions of the brain, such as the pre-frontal cortex and amygdala [5].

According to Lipp and Malagris [1], psychotherapists should emphasize the use of four pillars to combat stress, namely, physical exercise, anti-stress nutrition, relaxation and deep breathing techniques and, lastly, the most important pillar, cognitive restructuring. Indeed, the first step is to recognize the onset of the stress process and the reasons that contribute to its emergence.

Brazil is a fast-developing country where many rapid, intense changes take place in many fields, from technical innovations to social and economic values. As has been known for some time, any kind of change has the capacity to generate stress and a need to adapt [6]. Furthermore, as Lederbogen (2011) pointed out, stress is present in modern life, demanding fast, high-performance from everyone. Consequently, people are more susceptible to developing mental disorders, with severe repercussions for the economy in respect of occupational welfare. As an example, Lipp [7] reported that the rate of absenteeism in Brazil was about 28% higher in 2011 than in 2010, which means that about 100 thousand workers were off work because of stress-related diseases. More

recently, it was found that the prevalence of stress in Brazil stands at around 35% [7].

The World Health Organization [8] reported that mental diseases, including disorders associated with stress, will be the second highest cause of disability by 2020. Moreover, it was found that Brazil is in first place in the index of anxiety (9.3%) which is similar to populations in countries at war and, also, Brazil occupies fifth position in terms of the prevalence of depression (5.8%) [9].

Studies that address stress in the Brazilian population are important, since they will allow us to examine the state of the physical and mental health of the Brazilian people and to understand the impact of stress in their lives.

The present study aimed to assess self-perception of stress, identify the main stressors, the measures most frequently employed to manage stress and identify the most common stress-related diseases in the sample, as representative of Brazilians in general.

Method

The answers regarding stress were analyzed from 2,592 adults aged 18 and over (M=38, SD=12 years) who completed the 2017 *Stress in Brazil* survey conducted online by the *Instituto de Psicologia e Controle do Stress* (IPCS) between August 2017 and December 2018. Participation was totally voluntary and all participants agreed to the procedures and checked the box on the informed consent form. This research was approved by the ethical committee of the Faculty of São Leopoldo Mandic (#2.402.053). After identifying themselves with regard to gender (male or female), marital status (single, married, stable union/cohabiting, stable union/not cohabiting, divorced or separated), city/state, educational level (elementary school, high school, technician,

graduation, specialization, master's degree, doctorate or postdoctoral degree) and current professional occupation (a list comprising 36 options), participants received a brief explanation about the concept of stress and its main signs. Subsequently, they were asked to answer the questions specifically associated with stress. The online survey took approximately 7 minutes to complete. Table 1 shows the questions comprising the data collection instrument.

Data Analysis

In order to describe the profile of the sample according to the variables in the study, a descriptive analysis of categorical variables was performed (gender, age, professional occupation, marital status, stress, sources of stress, including absolute and partial frequency). Descriptive statistics of the continuous variables were formulated to obtain mean values, standard deviations.

Firstly, for the purposes of inference analysis, homogeneity testing was performed to control the distribution of our sample. Mann-Whitney or Kruskal-Wallis tests were then used to compare the level of stress between genders, sources of stress and stress-related diseases and age groups. The level of statistical significance used was $p < 0.05$.

Results and Discussion

Eighty percent of respondents were female compared to 20% males, with an average age of 38.81 (SD=12.84). As shown in Table 2, the majority of individuals who answered the survey were graduates, but there were also respondents from elementary school level as well as postdoctoral professionals. Thirty-nine percent were married and educational levels varied widely. Table 3 shows the distribution of participants in terms of their education. It can be seen that the majority of respondents had at least college

Example Questions
1st- On a scale of 1 to 10, with 1 being the minimum level of stress and 10 being the extreme, score how much stress you felt last month;
2nd- Considering the level of stress you have experienced before; your current stress level is: Response options: lower/ the same greater or far greater;
3rd- On a scale of 1 to 10, with 1 being the minimum level of stress and 10 being the extreme, indicate how much you consider is a normal level of stress for an adult;
4th- How do you deal with stress? Response options: I cannot deal with it at all/ I can partially deal with it/ I can deal with it fairly well/ I can deal very well with stress.
5th- Choose one or more of the measures listed below that you use to deal with stress. Response options: visit a doctor/ go shopping/ smoke cigars/ visit a psychologist/ analyze the origin or reason for the stress and try to eliminate it/ smoke marijuana/ visit an acupuncturist/ try to find different ways to deal with the problem/ talk with friends or parents/ pray or perform mental irradiation/ consume alcoholic beverages/ eat food/ take physical exercise/ take medicine, such as tranquilizers/ go to the cinema or watch TV/ have a massage session/ take cocaine or other drugs/ play videogames/ visit beauty salons/ read a magazine or book.
6th- Choose ONLY the three biggest sources of stress in your life at the moment. Ranking number 1 as the most stressful of all. Response options: finances/ family relationship/ son/ loving relationship/ relationship with co-workers/ relationship with the boss/ your own way of thinking/ being in a hurry/ overwhelmed at work/ staying continuously informed/ responding to emails/ keeping abreast of events on social networks on the internet/ death of a loved one/ separation or divorce/ illness in the family/ being fired/ being a victim of domestic violence/ lack of security in the neighborhood of your home/ work/ traffic/ Others. Indicate which.
7th- How do you notice you are stressed? Response options: being angry/ forgetting appointments or where objects were kept (memory)/ difficult to concentrate/ crying easily/ difficult to find words/ difficulty in sleeping/ excessive worrying.
8th-Has a health professional told you at any time that you have any of the diseases listed below? Response options: high blood pressure/ asthma or other respiratory disease/ stroke/ anxiety/ diabetes/ cancer/ gastritis or ulcer/ panic disorder/ obesity/ heart disease/ depression/ stress/ Others. Indicate which.

Table 1: Data Collection Questionnaire (Full questionnaire is available upon request).

education, which was to be expected considering that the survey was conducted online, being more accessible to people of higher educational levels.

Educational Level	Percentages
Elementary	1,0
Middle school	14
Technical education	5
College education	37
Graduate school	43
Total	100%

Table 2: Educational level of the respondents.

Fifty-two percent of respondents reported a self-perceived high level of stress. When asked to rate, on a scale of 1 to 10, with 1 being the minimum level and 10 being the extreme, how much stress they felt the month before, 44% of the subjects gave a rating between 8 and 10; 38% from 5 to 7 and 18% from 1 to 4. Among those who rated the stress level in the 8-10 range, it was found that 7% stated that they were experiencing stress at level 10, which is the highest a person can withstand.

Additionally, 45% of them stated that this stress level was more, or much more, intense than they had ever felt before. The female reported stress level was significantly higher than for the male counterparts ($p < 0.001$). The difference between perceived level of stress at the present time ($M = 7.1$; $SD = 2.24$) as compared to previous phases ($M = 4.44$; $SD = 1.6$) was significant (Mann-Whitney test, $p < 0.001$).

In order to check what the participants felt would be an acceptable level of tension, they were asked to indicate this value on the same scale as before; 78% of them stated that it would be from 3 to 6, at most. This suggests that respondents were aware that their stress level was not within an acceptable range at that moment. Analysis of results by geographical region and by occupation revealed no significant difference ($p > 0.582$ and $p = 0.369$, respectively).

As can be seen in Table 3, a very small percentage of participants (3%) rate themselves as being very well prepared to deal with the stressors of life, while the same percentage of them feel powerless. If these data are representative of adult Brazilians, it is possible to infer that a large number of them are vulnerable to the consequences of stress.

Able/unable	%
Unable to deal with it	3%
Deal with it partially well	61%
Deal fairly well with it	33%
Deal with it very well	3%
Total	100%

Table 3: How Participants deal with stress.

Looking at the results, one can see that respondents recognized that their level of stress was higher than it should be, and recognized that they could only partially handle it. These findings demonstrate the need for educational measures to be made available for the

population who are suffering a high degree of stress and do not know how to handle it. Considering the high educational level of the spontaneous sample, one may conclude that the average citizen in Brazil might be equipped with fewer strategies to deal with the struggles of daily life and experiences even higher levels of stress.

When respondents were asked how they dealt with their stress, they gave a variety of answers. Fifty-eight percent indicated that they deal with it alone and try to eliminate the stressors, 52% talk to friends or relatives, 51% pray, 40% engage in physical exercise and 32% turn to psychological help. Taking sedatives and drinking alcohol was indicated by 16% and 12% of the respondents respectively, as can be seen in Table 4.

Strategies	% *
Talk to friends or family members	52%
Pray	51%
Try to deal with it alone	41%
Take physical exercise	40%
Overeat	36%
Look for psychological help	32%
Take sedatives	16%
Drink alcohol	14%

Table 4: Strategies used by respondents to deal with stress

*Participants were allowed to indicate more than one way of dealing with stress

One of the objectives of this study was to identify the most common stressors in the Brazilian population. Table 5 shows the most commonly cited sources of stress according to the sample. The economy has become a significant stressor for more Brazilians in that 66% of participants reported it as a major stressor in their lives. Brazil is experiencing a serious economic crisis, in which unemployment has impacted 12% of the working population. In this context, the results obtained reflect this reality.

An intriguing result was the high percentage of people (38%) who claimed that family relations were one of the most powerful stressors in their lives.

The expected result, based on the fact that respondents claimed they talked to friends or relatives whenever they felt stressed out, was that family would be seen as an important source of support during stressful times and not as a source of tension. One possible explanation for such a situation could be related to the fact that Brazil, as a developing country, is going through an extremely fast change in values and family customs which might be bringing about conflict in families and, therefore, creating stress between generations.

Also somewhat unexpected was the finding of the lower percentage of people (20%) who indicated work as a stressor. Considering the high rate of unemployment at this time in the country, it could be that individuals who have a regular job have come to perceive it in a more positive way.

Stressors*	%*
Economy	66%
Family relations	38%
Work overload	28%
Romantic relationships	27%
Work itself	20%

Table 5: Most frequently mentioned stressors in Brazil.

*Participants were allowed to indicate more than one stressor.

Table 6 shows the most common diseases that the sample stated they had been diagnosed with lately. It can be seen that anxiety is the most prevalent complaint with 29% of the adult population who participated in this survey claiming to suffer from it. This finding confirms data from the WHO [9] showing that the incidence of anxiety in Brazil is very high. In fact, the prevalence of anxiety in our survey was much higher than the 9.3% rate published by the WHO. In the physical area, gastritis was the most commonly mentioned discomfort. Analysis of the difference in stress levels of individuals, with and without the diagnoses listed in Table 6, revealed that, in some cases, there was a significant difference ($p > 0.05$), indicating an important association between being stressed and suffering from depression/anxiety and panic attacks in the psychological sphere and stress and gastritis, hypertension and obesity, as physical illnesses.

Physical	%	Psychological	%
Gastritis	23%	Anxiety	29%
Hypertension	17%	Depression	21%
Obesity	16%	Stress	20%

Table 6: Illnesses that have been diagnosed in the group.

When asked how they perceived when they were stressed out, 40% of them stated that irritation was the first sign, 20% mentioned excessive worrying and 18% mentioned that difficulty in sleeping was the warning sign. As can be seen, most of the signals participants used to perceive the presence of stress were psychological in nature.

Symptoms	%*
Irritation	40%
Muscle tension	38%
Difficulty in concentrating	25%
Excessive worrying	19%
Insomnia	18%

Table 7: Symptoms participants used to identify they were stressed out.

*Participants were allowed to indicate more than one stressor.

Overall analysis of the responses indicates that Brazilians are living in a high state of stress, with anxiety and depression as common symptoms brought about by several different stressors, ranging from the economic situation and unemployment to family relations that are, at the same time, one of the positive resources they use

and yet the second most powerful source of stress. A hypothesis to be tested is that this dual condition of family relations might be due to the rapidly changing values that Brazilian society is subject to at the present time.

Conclusion

Results from the 2017 *Stress in Brazil* survey indicate that Brazilians are suffering markedly from problems that could be related to excessive stress, such as anxiety and depression in the mental area, in addition to physical illnesses such as gastritis, hypertension and being overweight. It is clear that major action must be taken to lift the burden from so many citizens that feel overwhelmed in the face of unemployment and the financial problems arising therefrom. Stress affects not only the human being on a personal level (health, relationships, quality of life), but also the productivity of work organizations (demotivation, absenteeism, sick leave). Additionally, high levels of stress make it difficult to behave like a full citizen and be interested in community affairs, in the country and in the world. Thus, considering that stress affects the individual, business and society as a whole, an important element of achieving a healthy society is the development of government legislation and strategies for promoting and protecting the health and well-being of all citizens. Therefore, it is clear that preventive actions should not be purely an individual's responsibility. Higher-level measures are needed from work institutions and the Government itself to ensure that Brazilians can enjoy a healthier and better life.

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