State of animus among Brazilians: influence of socioeconomic context?

O estado de ânimo do brasileiro: influência do contexto sócio-econômico?

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Abstract

Preliminary results of the World Health Survey, *conducted in Brazil in 2003, indicate a high frequency of self-perceived problems related to state of animus. The main objective of the present study is to investigate the hypothesis that material deprivation and job insecurity are important determinants of self-reported mental problems, such as feelings of depression and anxiety. Analysis of factors associated with self-perceived problems related to state of animus was performed with multivariate logistic regression models. Among females, key factors associated with feelings of depression and anxiety were level of education and unemployment after controlling for age, presence of long duration disease or disability and of body injury limiting everyday activities. Among males, feelings of depression were most strongly associated with unemployment, followed by poverty (as measured by a household asset indicator), with being married (or cohabiting) showed a protector effect. With regard to severe feelings of anxiety, only unemployment contributed significantly. These findings highlight the influence of social and economic contexts, beyond strictly individual characteristics, on the health of Brazilians.*

Health Status; Depression; Anxiety

Introduction

Since the publication of the Black Report [1], a study that documented great social disparities in the health situation of the British population, research on socioeconomic inequality in health has expanded worldwide. Generally speaking, results indicate a strong association between health conditions and socioeconomic level, whether it be measured by indicators of income, education, occupation, or position in the social hierarchy [2,3,4].

In addition, recent studies have demonstrated the importance of including indicators that consider the distribution of wealth as an essential characteristic of socioeconomic context, given the relevance of relative poverty and the manner in which it excludes people, socially and materially, from opportunities afforded by society [5,6,7,8,9].

Among the cited explanations for the observed association between indicators of income inequality and health situations is lack of investment in social policies. Because of issues related to the historical, cultural, and political processes of each society's socioeconomic development, countries with a high degree of income concentration are those that invest less in social programs. These processes influence public policies and mold the nature of social infrastructure, resulting in insufficient public education and medical assistance, inadequate

housing, and deficient professional competence. Health conditions reflect inequalities in access to the collective services necessary for social wellbeing [6,10,11].

A promising complementary explanation recognizes that income inequality has effects on health situations through psychosocial processes. According to this interpretation, the perception of one's place in the social hierarchy and of one's social marginality promotes increased levels of frustration, stress, hopelessness, hostility, shame, and distrust, which can result in unhealthy behaviors [12]. Negative emotions translate into antisocial behavior, provoking social and family ruptures, and unhealthy behaviors, such as smoking and alcohol abuse, which implies further deterioration of health conditions [13]. There exists a complex interrelationship between biological variables, variables at the level of individual psyche, as well as variables pertaining to one's more immediate social circle, such as family, neighbors, and community, and factors involving social, economic, and macrosocial nature [14].

The adverse effects of psychosocial factors provoked by disturbances in the political-social context, such as lack of control over one's own life, work-related insecurity, or unemployment, have been abundantly recognized [5]. For example, the collapse of the former Soviet Union had great implications for the deterioration of mortality patterns, which caused unprecedented reductions in the hope for life in the beginning of the 1990s, in Russia, Ukraine, and other recently independent countries. The results of recent investigations suggest that aside from material hardship, it contributed substantially to the aggravated health situation observed during the transition period [16,17].

The influence of work-related psychosocial characteristics, principally regarding mental health, have been equally well documented in the international literature [18,19]. Loosing one's job is considered among the most stressful experiences of adult life, leading to decreased buying power, to family ruptures, and to low self-esteem [20]. Lack of job stability has been shown to be associated with adverse consequences, contributing to negative perceptions of health, as well as to depression and anxiety [21].

In Brazil, as in other countries, the job market has undergone important changes in recent decades, as a result of globalization and increased competition, requiring new specializations and weakening contractual boundaries that had been effective. This picture of economic, social, and technological transformation accentuates the drama of unemployment and of precarious employment everywhere. Particularly, in our milieu, gaps in education and professional competence, persistence of high unemployment levels, and the ever greater number of informal workers have deepened social exclusion, resulting in an increase in violence and criminality and in a greater prevalence of psychosocial disturbances [22,23].

Motivated by the preliminary results of the *World Health Survey*, a household population study conducted in Brazil that indicated elevated frequency of problems related to state of animus [24], the present study seeks to analyze the influence of socioeconomic context, under the hypothesis that material hardship and job insecurity constitute important determinants of self-perception of psychic ill-being, such as feeling depressed or anxious.

Methods

As part of a project developed by the World Health Organization (WHO) to evaluate the performance of health systems in member countries, the *World Health Survey* – a study involving five thousand individuals, 18 years or more of age – was undertaken in Brazil in 2003. The project was approved by the Research Ethics Committee of the Fundação Oswaldo Cruz in December, 2002.

The sample was taken in two stages. In the first, 250 census sectors were chosen, with probability proportional to size. Situation (urban or rural) and population size (< 50,000; 50,000-399,999; 400,000 + inhabitants) explicitly stratified the primary selection units. Each sector's mean of the head of the household income was used as implicit stratify by socioeconomic level.

In each sector, 20 households were randomly chosen. In each household, one occupant was identified to respond to questions regarding the household characteristics. Just one individual (randomly chosen) responded to the individual questionnaire.

For statistical analysis, data were treated according to the sample design, using the SUDAAN software program.

Analysis of state of animus was based on two questions: (1) "Overall, in the last thirty days, how much did you have with feeling sad, low, or depressed?"; (2) " Overall, in the last thirty days, how much of problem did you have with worry or anxiety?" Responses varied on a scale of 1 to 5 (1 = none; 2 = mild; 3 = moderate; 4 = severe; 5 = extreme). Individuals were considered to have problems related to state of animus (self-perception) if they responded "se-

vere" or "extreme" to at least one of these two questions.

In the analysis, the following socio-demographic factors were used: age groups (18-29; 30-44; 45-59; 60+ years), sex, color, and socioeconomic level. The latter of these considered three variables: degree of education, household assets, and work situation.

The measure of socioeconomic level, according to the presence of household assets, was done using an index, called the household assets indicator (HGI), calculated as:

$$IB = \sum_{i} (1 - f_i) b_i$$

where i varies from 1 to 10 assets; b_i equals 1 or zero, respectively, in the presence or absence of television, refrigerator, stereo, fixed telephone, washing machine, cellular telephone, automobile, microwave oven, computer, and dishwasher. The weight attributed to the presence of each household item was the complement of the relative frequency (f_i) of each item in the total sample. Thus, the rarer the presence of an item, the greater the weight attributed to it.

With respect to work situation, individuals were first categorized as those with or without paid work. In the first group, individuals were classified as manual workers (farmer or fisherman, skilled manual worker, and unskilled laborer) and non-manual workers (high-level professional, high government or business employee, middle-level professional, administrative servant or employee, commercial employee). In the second group, individuals were classified as: housewife; unemployed (looked for, but did not find work); retired or incapacitated; other (student, unpaid worker).

Additionally, the present study addressed the relationship between problems related to state of animus and the presence of long-term disease or disability ("do you have a long-term illness or disability?"), as well as having suffered, in the last 12 months, a bodily injury that limited daily activities and was caused by an accident (traffic, fall, burn, poisoning, or drowning) or by assault involving a firearm, knife, or other violence by a third party.

Analysis of factors associated with state of animus problems (self-perception of severe sadness or depression and/or anxiety or worry, in the last 30 days) was done using multivariate logistic regression, with stepwise selection based on likelihood ratio minimization, separately for each sex. In the first block, age, presence of long-term disease and limiting bodily injury were used as control variables. In the second block, the following variables were tested for inclusion in the model: household assets indicator (as a continuous variable); having incomplete primary education; having completed middle school; being a non-manual paid worker; being unemployed; being a housewife (females only).

The second phase of analysis addressed, for individuals that do not report a long-term illness, disability, or limiting bodily injury, the association between problems related to state of animus and perception of health (self-evaluation of bad health and severe difficulty in accomplishing routine activities) and unhealthy behaviors, such as smoking on a daily basis, habitual drinking (four days or more with five or more standard drinks during the week prior to the interview), and being sedentary (no physical activity).

Finally, investigation was made of the relationships between problems related to state of animus and other health problems, including clinical diagnosis and treatment of depression (measured with the question: "Have you ever received diagnosis of depression?"); loss of interest in leisure activities, social relationships, or work, for a substantial period during the year prior to the study; reporting grave problems related to sleep, such as difficulty sleeping, waking various times per night, and not feeling rested during the day; reporting grave difficulties in relating with other people and in dealing with situations involving conflict, tension, or discussions.

Results

The data presented in Table 1 show that 15.0% of individuals felt sad or depressed during the 30 days before the study, 23.0% felt worried or anxious, and 25.0% reported at least two of these problems.

The proportion of the population that reported problems relative to state of animus varied by sex, being much more frequent among females (31.0%) than among males (18.0%). Differences by age were also encountered, with a smaller proportion of problems among younger people (Table 1), and a stable plateau after 45 years of age.

The results presented in Table 2 show the influence on state of animus by the presence of a long-term disease or disability. Among females, the rate of occurrence of problems related to state of animus varied from 26.0%, in the absence of illness, to 44%, in the presence of illness. Among males, such occurrence varied from 13.0% to 34.0%.

Table 1

Proportion (%) of individuals reporting severe problems related to state of animus during the 30 days prior to the study, by sex and age group. Brazil, 2003.

Age group (years)	Sex	Sadness or depression	Worry or anxiety	State of animus*
18-29	Females	12.7	20.9	23.7
	Males	6.4	11.9	13.7
	Total	9.8	16.6	19.0
30-44	Females	17.8	27.4	30.7
	Males	8.8	18.1	19.4
	Total	13.8	23.3	25.6
45-59	Females	24.6	35.7	38.1
	Males	10.6	18.6	21.0
	Total	18.6	28.3	30.7
60+	Females	28.1	35.0	38.2
	Males	12.1	20.2	22.1
	Total	20.2	27.7	30.2
Total	Females	19.3	28.5	31.4
	Males	9.0	16.6	18.4
	Total	14.6	23.0	25.4

* Any one of the problems.

Table 2

Proportion (%) of individuals reporting severe problems related to state of animus during 30 days prior to the study, by presence of long-term illness or disability and of limiting bodily injury caused by accident or aggression, according to sex. Brazil, 2003.

Sex	Long-term illness	Sadness or depression	Worry or anxiety	State of animus*
Females	Yes	30.5	40.2	44.0
	No	14.0	23.1	25.6
Males	Yes	19.6	30.7	33.6
	No	5.5	11.8	13.3
Total	Yes	26.1	36.4	39.8
	No	9.9	17.7	19.7
Sex	**Limiting bodily injury**	**Sadness or depression**	**Worry or anxiety**	**State of animus***
Females	Yes	31.6	40.5	45.8
	No	18.1	27.3	30.0
Males	Yes	14.0	23.6	27.0
	No	8.2	15.6	17.1
Total	Yes	21.6	30.9	35.2
	No	13.7	22.1	24.3

* Any one of the problems.

Similarly, problems related to state of animus were more prevalent among individuals that suffered limiting bodily injuries, provoked by accidents or violence, during the year prior to the study. Differences in self-perception of psychic ill-being, such as feeling depressed or anxious, were, nevertheless, of smaller magnitude than in the case of long-term illness, among males (Table 2).

Analysis of the results of logistic regression models show the factors associated with the occurrence of problems related to state of animus, after adjusting for the following covariables: age; presence of long-term illness; and suffering a limiting bodily injury (Table 3). As regards self-perception among females, using severe sadness or depression feelings and severe worry or anxiety as dependent variables, the selected factors were, in order of inclusion in the model: primary education incomplete, middle education incomplete, and being unemployed. Among males, using severe degree of sadness or depression feelings as dependent variable, the selected variables were, in order of inclusion, being unemployed, the HGI (as defined above under *Methods*), and living with a female companion, which showed a protector effect. As for self-perception of severe anxiety or worry, only "being unemployed" contributed significantly. The effects of work situations other than unemployment did not prove significant in the different models.

Table 4 presents data regarding the relationship between the occurrence of problems related to state of animus and unhealthy behaviors, among individuals that did not report long-term illness or disability or limiting bodily injury provoked by accident or violence. After adjusting for sex, age, and degree of education, problems related to state of animus contributed significantly to the prevalence of smoking on a daily basis and excessive consumption of alcoholic drinks. With regard to sedentariness (absence of physical activity), no statistical significance was observed.

Table 3

Results of logistic regression models according to self-perceived problem related to state of animus by sex. Brazil, 2003.

Dependent variable	Sex	Variables included in model		Exp (b)*	P-value
Perception of severe sadness or depression during the prior 30 days	Females	Age	18-29	0.663	0.0347
			30-44	0.866	0.4075
			45-59	0.976	0.8864
		Illness	Yes	2.252	0.0000
		Bodily injury	Yes	1.955	0.0005
		Education	Primary incomplete	2.396	0.0000
			Middle incomplete	1.864	0.0026
		Unemployed	Yes	1.527	0.0133
	Males	Age	18-29	0.493	0.0211
			30-44	0.782	0.2861
			45-59	0.979	0.9299
		Illness	Yes	3.997	0.0000
		Bodily injury	Yes	2.038	0.0013
		Unemployed	Yes	2.139	0.0093
		Household goods indicator		0.828	0.0184
		Lives with companion	Yes	0.610	0.0484
Perception of severe anxiety or worry during the prior 30 days	Females	Age	18-29	0.762	0.0994
			30-44	1.010	0.9484
			45-59	1.167	0.2817
		Illness	Yes	1.944	0.0000
		Bodily injury	Yes	1.728	0.0020
		Education	Primary incomplete	1.792	0.0000
			Middle incomplete	1.519	0.0133
		Unemployed	Yes	1.357	0.0460
	Males	Age	18-29	0.567	0.0170
			30-44	0.958	0.8232
			45-59	0.942	0.7678
		Illness	Yes	3.242	0.0000
		Bodily injury	Yes	1.963	0.0007
		Unemployed	Yes	2.763	0.0000

*Exponential of the corresponding coefficient in the regression model.

Table 4

Distribution (%) of individuals by unhealthy behaviors and by self-rated health according to presence or absence of problems related to animus during the 30 days prior to the study among individuals that do not report long-term illness or disability or limiting bodily injury during the year prior to the study. Brazil, 2003.

Behavior	State of animus problems	Proportion (%)	p-value*	Adjusted by age, sex, and level of education	
				OR	P-value
Daily smoking	Yes	21.7	0.0100	1.518	0.0020
	No	16.2		1.000	
Excess alcoholic drinks	Yes	4.5	0.5483	1.664	0.0732
	No	3.8		1.000	
Sedentariness	Yes	8.5	0.4928	1.117	0.5941
	No	7.4		1.000	
Self-rated health	Yes	7.8	0.0005	2.438	0.0001
of bad or very bad	No	2.9		1.000	
Severe degree of difficulties	Yes	12.3	0.0000	4.162	0.0000
accomplishing routine activities	No	2.9		1.000	

* Significant descriptive level of the comparison of proportions test.

As for self-rated health, problems related to state of animus adversely influenced self-rated health, as well as degree of difficulty in accomplishing daily activities (Table 4).

The results of Table 5 show a significant association between problems related to state of animus and all other health complaints considered here. Among those that reported state of animus problems in the 30 days prior to the study, 36.0% had clinical diagnosis of depression, 27.0% had diagnosis of depression and received treatment for it, and 61.0% lost interest in leisure activities, social relationships, or work, for a substantial period of time during the year prior to the study. Among those that did not report state of animus problems, these figures were significantly less, being 13.0%, 10.0%, and 24.0%, respectively. Also encountered were highly significant differences in the relative proportions of severe problems related to sleeping (43.0%:8.0%), to relationships with other people (9.0%:2.0%), and to dealing with conflict situations (20.0%:4.0%), according to the presence or absence of state of animus problems.

Discussion

The high prevalence and relative gravity of problems related to state of animus documented in this study appear to originate from the disturbed socioeconomic picture that currently characterizes Brazil, involving not only structural inequalities, such as gender inequality, but also problems that can be characterized as psychic or biological in nature.

The sometimes synergetic interrelationship between structural factors, such as grave social and gender inequalities, and circumstantial factors, such as elevated levels of unemployment and work instability, fortuitously stimulates psychosocial ill-being, including psychological dysfunctions and psychosomatic afflictions, as well as social exclusion and marginality [25].

The results of statistical analysis confirm the original hypothesis that the interaction of structural inequalities and adverse social circumstances form relevant psychosocial stressors. Not only were elevated rates of self-reported depression and anxiety found, but also unemployment was an important determinant of increased risk of problems related to state of animus, for both sexes.

For females, level of education, together with unemployment, played a more important role than material hardship in the presumed genesis of severe feelings of sadness, as well as of worry or anxiety. For males, only unemployment significantly affected the prevalence of profound sadness and worry. Also among males, increased risk of problems involving sadness or feelings of depression was negatively influ-

Table 5

Distribution (%) of individuals by presence of certain health problems according to the presence or absence of problems related to state of animus during the 30 days prior to the study. Brazil, 2003.

Health problem	Presence of state of animus problems	Proportion (%)	p-value*
Diagnosis of depression**	Yes	36.2	0.0000
	No	13.5	
	Total	19.3	
Diagnosis and treatment of depression**	Yes	27.3	0.0000
	No	9.8	
	Total	14.3	
Lack of interest in pleasure activities, social relations, or work**	Yes	61.1	0.0000
	No	23.7	
	Total	32.2	
Sleep-related problems***	Yes	42.7	0.0000
	No	8.0	
	Total	16.8	
Problems in relating to other people***	Yes	9.2	0.0000
	No	1.8	
	Total	3.7	
Problems in dealing with conflict situations***	Yes	20.3	0.0000
	No	3.7	
	Total	7.9	

* Descriptive level of the comparison of proportions test;
** In the 12 months prior to the study;
*** In the 30 days prior to the study.

enced by a lack of household assets and by unemployment and positively influenced by being married or living with a female companion.

As concerns state of animus, gender disparities constitute a well recognized phenomenon [26,27]. Explanations fall to different experiences during adult life, such as the responsibility of having children, housework, participation in the paid work marketplace, and one's role in society [28,29]. An additional explanation would be gendered modulation in verbalizing suffering, sadness, and anxiety. This phenomenon has been evidenced in the case of cancer patients, whereby males have more difficulties in verbalization than do females in the face of social and cultural constraints [30].

With the exception of the youngest interviewees, who reported problems related to state of animus with significantly lower frequency, these problems appear to be prevalent in different age groups, but especially among young adults and people in middle age, corresponding to the economically active population. Psychosocial factors, such as job insecurity [19,31], provide a basis for explaining the observed elevated frequencies.

The effects of being unemployed are generally traumatic, have profound personal repercussions, and are not restricted to the loss of income and buying power. People who loose their jobs experience social and psychological problems, the degree of severity of which depends on sex, age, social condition, nature of the prior occupation, life history, and family situation. Among the psychological effects are: poor self-esteem, despair, shame, apathy, depression, hopelessness, feelings of futility, loss of objectivity, passivity, lethargy, and indifference. In addition to the loss of economic status, frequently mentioned are fragmentation of a family's day-to-day life, including divorce and other forms of antisocial behavior. In the most encompassing socioeconomic sphere, unemployment leads to social exclusion, which can have destructive consequences, such as en-

gagement in criminality and the use of illicit drug use among young adults [32].

Among males, unemployment combined with material deprivation has effects on state of animus, which reflect hopelessness regarding obtaining a new job and frustration resulting from not being able to provide the necessary sustenance to oneself and one's family. This feeling is stronger for males, due to their historical role as principal household economic providers. One study performed in Great Britain indicated that particularly among men, financial insecurity is the anxiety-causing factor most strongly associated with self-reported morbidity among non-manual workers, surpassing even work insecurity [15].

In Brazil's current socioeconomic setting, maintaining a job usually means that one can survive and can preserve a minimal level of nutrition and other basic necessities. Studies have shown that lack of control over one's own life can come to affect one's health in various ways. Inability to change the course of events can provoke biological reactions, such as increased stress and psychosomatic afflictions, and can generate psychological upset, such as depression, anxiety, and insomnia [13].

The results of the present analysis demonstrate important associations between problems related to state of animus and other health complaints. Among individuals with problems related to state of animus, there was a prevalence of not only diagnosis of depression, but also of difficulty in relating to other people and in dealing with conflict situations, reported sleep disturbances, and lack of desire to participate in leisure and work activities.

In a complementary way, the presence of long-term illness or disability or suffering bodily injury, derived from an accident or act of violence on the part of a third person, appear to substantially affect an individual's state of animus. The importance of this finding resides in the fact that depression (self-perceived and/or diagnosed) can modify the natural trajectory of different diseases, functioning as a catalyst in their evolution [33].

Standing out among the unhealthy behaviors observed in the study are the habit of smoking on a daily basis and the excessive consumption of alcoholic drinks, in an apparently circular causal relationship, corroborating previous studies [13]. In addition to mental problems stemming from negative feelings, risk behaviors do harm because they result in additional deterioration to health conditions.

Problems related to state of animus can also worsen self-rated health, even among those who have no long-term illness or physical disability. Although self-rated health can reflect deterioration in the quality of life or loss of enjoyment of life, it is important to note that there is ample evidence that subjective perception of one's own health has the ability to predict important clinical responses, exceeding the scope of objective indicators [34,35].

In sum, the results of this study show that the health of Brazilians is influenced by social and economic context, besides the individual characteristics associated with the conditions of life. Whereas previous studies have documented the impact of profound inequality in the distribution of income on mortality patterns [36], this study documents the negative effects of unemployment on depression and anxiety, resulting in unhealthy behaviors and deterioration in the quality of life and subjective perception of health, predictors of subsequent morbidity and mortality [37].

Future investigations that evaluate not just individual responses, but also social interaction networks, will be able to offer fundamental benefits for a better understanding of the complex interrelationship between intra- and interpsychic factors, in their interface with culture and society. Also necessary are studies that unite the evaluation of self-perception with the use of valid scales for clinical evaluation of anxiety and depression.

Resumo

Os resultados preliminares da Pesquisa Mundial de Saúde*, inquérito domiciliar realizado no Brasil em 2003, indicaram elevada freqüência de problemas relativos ao estado de ânimo. O presente estudo tem como principal objetivo investigar a hipótese de que a privação material e a insegurança no trabalho constituem determinantes importantes da autopercepção de mal-estar psíquico, como sentir-se deprimido e ansioso. A análise dos fatores associados a problemas relativos ao estado de ânimo foi realizada mediante o uso de procedimentos de regressão logística multivariada. Entre as mulheres, tanto considerando sentimentos de depressão como de ansiedade, após o ajuste por idade, a presença de doença de longa duração e o sofrimento decorrente de lesão corporal limitante, os fatores mais fortemente associados foram o grau de instrução e o desemprego. Entre os homens, considerando a auto-avaliação de depressão em grau grave, estar desempregado foi a primeira variável selecionada, seguida da posse de bens e viver com companheira (efeito protetor). Quanto à sensação de ansiedade, apenas estar desempregado contribuiu significativamente. Os achados evidenciam a influência do contexto social e econômico sobre a saúde do cidadão brasileiro, para além das características estritamente individuais.*

Nível de Saúde; Depressão; Ansiedade

Contributors

C. L. Szwarcwald outlined the content of the article, was responsible for statistical data analysis, participated in composition, and coordinated the study. F. I. Bastos was responsible for elaborating and discussing conceptual questions related to psychosocial disturbances and participated in composition. M. A. P Esteves participated in data analysis, in composing the text, and in elaborating the tables and bibliography.

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