

# Sickness absence due to mental disorders and psychosocial stressors at work

## *Afastamento do trabalho por transtornos mentais e estressores psicossociais ocupacionais*

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**ABSTRACT:** *Introduction:* Mental disorders are the third leading cause of social security benefit due to sickness in Brazil. Occupational exposure to psychosocial stressors can affect the workers' mental health. The social security medical experts are responsible for characterizing if those sicknesses are work-related. *Objective:* To evaluate the factors associated with sick leave due to mental disorders, in particular, the perception of workers on psychosocial factors at work. *Methods:* This is an analytical study carried out in São Paulo, Brazil, with 131 applicants for sickness benefit due to mental disorders. Questionnaires were applied to assess the sociodemographic data, habits/lifestyle information, and perceived psychosocial factors at work. *Results:* The most common diagnosis was depressive disorders (40.4%). The medical experts considered 23.7% of all applications as work-related. Most of the participants were female (68.7%), up to 40 years of age (73.3%), married/common-law marriage (51.1%), with educational level greater than or equal to 11 years (80.2%), nonsmokers (80.9%), not alcohol consumers (84%), and practice of physical activities (77.9%). Regarding psychosocial factors, most of the participants informed a high job strain (56.5%), low social support (52.7%), effort-reward imbalance (55.7%), and high overcommitment (87.0%). There was no statistical association between the work-related mental disorders sickness benefits and independent variables. *Conclusion:* The concession of social security sickness benefits is not associated with sociodemographic data, habits/lifestyle, or psychosocial factors at work. Occupational exposure to unfavorable psychosocial factors was reported by most workers on sick leave due to mental disorders. However, several cases were not recognized by the social security medical experts as work-related, which may have influenced the results of the associations.

**Keywords:** Mental disorders. Absenteeism. Social security. Stress, psychological. Occupational health. Mental health.

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**Conflict of interests:** nothing to declare – **Financial support:** none.

**RESUMO: Introdução:** Os transtornos mentais são a terceira principal causa de concessão de benefício previdenciário por incapacidade no Brasil. A exposição ocupacional a estressores psicossociais pode comprometer a saúde mental dos trabalhadores. Cabe ao perito médico previdenciário caracterizar se o adocimento incapacitante está relacionado com as condições de trabalho. **Objetivo:** Avaliar os fatores associados ao afastamento do trabalho por transtornos mentais relacionados ao trabalho, em especial a percepção dos trabalhadores sobre fatores psicossociais no trabalho. **Métodos:** Estudo analítico realizado em São Paulo com 131 requerentes de auxílio-doença por transtornos mentais. Foram preenchidos questionários sociodemográfico, de hábitos/estilo de vida e fatores psicossociais no trabalho. **Resultados:** Os quadros mais frequentes foram transtornos depressivos (40,4%). Entre todos os requerimentos, 23,7% foram considerados relacionados ao trabalho. O perfil da maioria dos participantes era: sexo feminino (68,7%), até 40 anos de idade (73,3%), casado/união estável (51,1%), escolaridade igual ou superior a 11 anos (80,2%), não tabagista (80,9%), não ingeria bebida alcoólica (84%), fazia atividade física (77,9%). Sobre os fatores psicossociais, prevaleceu trabalho de alta exigência (56,5%), baixo apoio social (52,7%), desequilíbrio esforço-recompensa (55,7%) e comprometimento excessivo (87,0%). Não houve associação estatística entre casos de transtornos mentais relacionados ao trabalho e as variáveis independentes. **Conclusão:** A concessão do benefício auxílio-doença acidentário não foi associada a variáveis sócio-demográficas, hábitos/estilo de vida ou fatores psicossociais no trabalho. A exposição ocupacional a estressores psicossociais esteve presente no relato da maioria dos trabalhadores afastados do trabalho por transtornos mentais. Entretanto, diversos casos não foram reconhecidos pela perícia médica previdenciária como relacionados ao trabalho, o que pode ter influenciado nos resultados das associações.

**Palavras-chave:** Transtornos mentais. Absenteísmo. Previdência social. Estresse psicológico. Saúde do trabalhador. Saúde mental.

## INTRODUCTION

Mental and behavioral disorders are important causes of work absences. Those conditions are frequent and commonly disabling, evolving to sickness absenteeism and reduction of work productivity<sup>1</sup>. In Brazil, mental disorders are the third main cause of granting social security sickness benefits due to work disability. Over 203,000 new benefits were granted in each year between 2008 and 2011, and 6.25% of them was considered by the social experts as work-related<sup>2</sup>.

A joint publication of the International Labor Organization (ILO) and the World Health Organization (WHO) drew the attention to the relevance of the relation between psychosocial factors at work and the consequences on workers' health. Chronic exposure conditions and adverse psychosocial stressors at work are associated with psychosomatic complaints, psychiatric symptoms, and changes in the well-being of individuals<sup>3</sup>.

Theoretical models were developed in order to define and explain the effects of occupational stress on the workers' health. The demand-control-social support (DCS) model<sup>4,5</sup> studies the relation between the psychological demands at work and the decision latitude of workers, mediated by the social support from colleagues and supervisors. Another model is

the effort–reward imbalance (ERI)<sup>6</sup>, which evaluates the perception of the worker regarding the efforts at work and the rewards resulting from these efforts, mediated by an excessive personal commitment to work. Recent studies about workers sick leave have used both models as methods to investigate the association with psychosocial factors at work<sup>7-12</sup>.

Difficulties to identify the causal relationship between mental illness and occupational stressors occur due to the lack of standardization of a protocol approaching several risk factors<sup>13</sup>. In Brazilian social security system, the legal criteria for characterizing the benefit as work-related — when there is a relation between the disabling illness and work conditions — are determined by the use of the social security technical nexus. The medical experts of the National Social Security Institute (*Instituto Nacional do Seguro Social* – INSS) have the competence to analyze the plausibility of the relation between environment/work conditions as the cause or the associate cause of a disabling sickness. The characterization of the sickness benefit as work-related (known as B91) is a result of three possibilities<sup>14</sup>:

1. Professional technical nexus: on the basis of the association between pathologies and occupational exposure, according to the professional scope of the insured worker, described in the lists A and B of Annex II, Decree No. 3.048/99<sup>14</sup>;
2. Individual technical nexus: due to injuries at work or during commuting time, occupational accidents and special conditions in which the work is carried out and directly related to these conditions, in the terms of the § 2nd art. 20 of Law No. 8.213/91<sup>15</sup>;
3. Epidemiological technical nexus (*Nexo Técnico Epidemiológico Previdenciário* - NTEP): applicable when there is a statistical significance in the association between disabling sickness (according to the International Statistical Classification of Diseases and Health Related Problems, 10th version – ICD-10) and the economic activity of the company (according to the National Classification of Economic Activities – CNAE) to which the insured is bound to. These relations are set out at the List C of Annex II, Decree No. 3.048/99<sup>14</sup>, modified by the Decree No. 6.042/2007<sup>16</sup>.

This study aims to evaluate the factors associated with sickness absence due to mental disorders which the medical experts considered work-related. As a second aim, to evaluate the perception of workers about the exposure to psychosocial factors at work described in DCS and ERI models.

## METHODS

This cross-sectional analytical study was carried out in a Social Security Agency (*Agência da Previdência Social* – APS) of the Brazilian National Social Security Institute (INSS) located in the central region of the city of São Paulo. The participants of the study were workers who requested sickness benefit and were selected randomly. The group of patients scheduled for each medical expert to proceed the evaluation was considered as a cluster. Between June and

August 2011, the clusters were selected daily and randomly with the objective of composing the group to be studied. After the conclusion of the benefit evaluation, the participants who met the inclusion criteria were referred for an interview with one of the researchers. The participants should have a formal employment and should be claiming the sickness benefit due to sick leave for more than 15 days. The participants who had more than one job or those who were in sick leave for more than 12 months were excluded from this study.

In order to calculate the size of the sample for a reliable estimate on the proportion in an unlimited population, it was considered a confidence level of 95% ( $\alpha < 0.05$ ), maximum estimation error of 5%, and outcome proportion in the population of 6.25%<sup>2</sup>. The minimum sample would be 90 participants, but 131 workers agreed to take part in this study.

Interviews were conducted in order to fill out the questionnaire with information about gender (male; female), age range (less than 40 years of age; equal or more than 40 years of age), marital status (married/stable union; others), education (less than 11 years of study; equal or more than 11 years of study), smoking habits (yes; no), regular alcohol consumption (yes; no), and practice of physical activity within the last month (yes; no).

The psychosocial factors at work described in DCS model were analyzed using the validation for Brazilian Portuguese of the Swedish Demand–Control–Support Questionnaire (DCSQ), previously known as the Job Stress Scale<sup>17</sup>. Its analysis allows the work conditions to be classified according to the quarters built from the relation between demand and control: active work, passive work, low strain, and high strain (“job strain”). The questionnaire is also used in order to categorize social support into high or low.

The psychosocial factors at work described in ERI model were evaluated from the validation into Brazilian Portuguese of the Effort–Reward Imbalance Questionnaire (ERI-Q)<sup>18</sup>. When the resulted index between effort and reward was higher than 1.0 (one), it characterized imbalance. The questions on work overcommitment allowed categorizing this condition into high or low.

Data from the medical expert reports issued by the INSS on the same day of data collection were analyzed in order to verify the diagnosis indicated by the physician the cause of work disability. The code for this disabling illness should be part of Chapter V of the ICD-10 and compatible with “mental or behavioral disorder”. Moreover, information on the possibility of characterization of the technical nexus of the social security between disabling illness and work conditions was collected, in order to determine the work-related sickness benefit (B91).

Statistical analysis between the kind of social benefit — work-related or non-work-related — and the independent variables was performed using the  $\chi^2$  and Fisher’s exact tests. The statistical significance was considered when the p-value was lower than 0.05. EpiData software, version 3.1, was used for the database organization; data were analyzed using the Epi Info™ software, version 7.1.1.14.

All the participants signed the informed consent according to the Declaration of Helsinki. The research was authorized by the INSS for data collection and allowed access to the medical experts' reports. The study was approved by the Research Ethics Committee of the School of Public Health of the University of São Paulo (Endorsement No. 027/2011).

## RESULTS

The most common mental conditions were depressive episodes (ICD-10 F32), representing 40.4%, followed by other anxiety disorders (ICD-10 F41), with 19.8% (Table 1).

Most participants were females (68.7%), less than 40 years of age (73.3%), married or in a stable relationship (51.1%), and with school education equal or higher than 11 years of study (80.2%). Regarding the habits and lifestyle, most of them were nonsmokers (80.9%), did not drink alcohol regularly (84.0%), and practiced physical activities (77.9%) (Table 2).

Table 1. Distribution of the participants according to the ICD-10\* and description of the diagnosis established in the social security medical report, São Paulo, Brazil, 2011 (n = 131).

Code	Description of the condition	n	%
F32	Depressive episode	53	40.4
F41	Other anxiety disorders	26	19.8
F43	Reaction to severe stress, and adjustment disorders	14	10.7
F31	Bipolar affective disorder	6	4.6
F33	Recurrent depressive disorder	8	6.1
F23	Acute and transient psychotic disorders	4	3.0
F19	Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances	4	3.0
F06	Other mental disorders due to brain damage and dysfunction and to physical disease	3	2.3
F10	Mental and behavioural disorders due to use of alcohol	3	2.3
F34	Persistent mood (affective) disorders	3	2.3
F60	Specific personality disorders	2	1.5
F44	Dissociative (conversion) disorders	1	0.8
F40	Phobic anxiety disorders	1	0.8
F14	Mental and behavioral disorders due to use of cocaine	1	0.8
F20	Schizophrenia	1	0.8
F29	Unspecified nonorganic psychosis	1	0.8

\*ICD-10: International Classification of Diseases Statistical and problems related to health, 10th review.

Table 2. Distribution of the participants according to the sociodemographic data, habits and lifestyle, and perception of exposure to psychosocial factors at work, São Paulo, Brazil, 2011 (n = 131).

	WR MBD		%	p-value
	Yes (n = 31)	No (n = 100)		
Gender				
Male	10	31	31.3	0.90
Female	21	69	68.7	
Age range (years)				
Under 40	21	75	73.3	0.42
40 or more	10	25	26.7	
Marital status				
Married/stable union	18	49	51.1	0.38
Others	13	51	48.9	
Education (in years)				
Less than 11	10	16	19.8	0.05
11 or more	21	84	80.2	
Smoking				
No	27	79	80.9	0.23
Yes	4	21	19.1	
Alcohol intake				
No	25	85	84.0	0.56
Yes	6	15	16.0	
Physical activity in the last month				
No	5	24	22.1	0.36
Yes	26	76	77.9	
Demand-control (quarter)				
High job strain	18	56	56.5	0.84
Others	13	44	44.5	
Social support				
Low	17	52	52.7	0.78
High	14	48	47.3	
ERI index				
Up to 1.00	13	45	44.3	0.76
Higher than 1.00	18	55	55.7	
Overcommitment				
Low	2	15	13.0	0.22
High	29	85	87.0	

WR MBD: Work-related mental and behavioral disorders; ERI: effort-reward imbalance.

In relation to the occupational stress models, the most often listed psychosocial factors were: the perception of being in a high strain job i.e., with high demands and low control (56.5%); experiencing low social support (52.7%); the ERI condition i.e., having to exert high efforts but with low rewards (55.7%) and high overcommitment (87.0%) (Table 2).

The mental disorders were considered as work-related in 23.7% of the cases following the analyses performed by the social security medical experts. There was not a significant association between granting sickness benefits due to mental and behavioral disorders related to work and the sociodemographic, habits/lifestyle or psychosocial factors at work variables, including those which represent risky conditions for the workers health (Table 2).

## DISCUSSION

The similar distribution of unfavorable psychosocial factors at work among the groups suggests that the social security tools do not take into consideration the presence of those negative work conditions to evaluate the technical nexus between disabling sickness and work. Probably, workers who suffered from occupational exposure to such stressors did not have their benefit characterized as work-related due to difficulties of the medical experts into recognizing that unfavorable psychosocial aspects of work may contribute to disabling illness.

On completion of receiving the work-related sickness benefit payment, all workers employed in formal jobs have the right to remain at their jobs being their employment secured for a minimum period of time of 12 months<sup>15</sup>. In addition to that, during the sick leave, the contribution for the unemployment fund program (*Fundo de Garantia do Tempo de Serviço* – FGTS) should be kept<sup>19</sup>. Therefore, it is crucial that medical experts characterize the association of the so-called “technical nexus with work” when granting the benefit due to work disability in order to ensure the worker such labor rights.

The participants of this study reported a perception of frequent high strain jobs, according to the DCS model. Such high-demand and low-control situations are described as risk factors for sickness absence, in general<sup>8</sup>, and for long-term sick leave due to mental disorders<sup>20</sup>. Besides, when there are work conditions with high demands and low social support, known as “isostrain”, there is an increased probability of long absenteeism due to mental illness when compared with other conditions<sup>12</sup>.

The ERI is associate with long-term absenteeism<sup>7</sup>, and the high overcommitment is a risk factor for depression<sup>21</sup> and for sickness absence<sup>8</sup>. The interaction between the three dimensions of the ERI model increases the chance of long-term sick leaves from work due to mental disorders<sup>12</sup>. However, despite the great majority of participants of the present study reported imbalance between efforts and rewards at work

the psychosocial factors did not show a significant association with the work-related social security benefit.

Assessment protocols for psychosocial risks may contribute to the improvement of evaluations during social security medical expert routine. For example, it can be mentioned the NTEP, which established relations between mental disorders and various economic branches<sup>14</sup>. By considering that several situations of technical nexus observed by the experts were not supported by the scientific literature regarding the occupational health literature<sup>22</sup>, the use of DCS/ERI questionnaires could help those professionals to perform a more accurate evaluation of the cases.

Routinely, the requests for sickness benefit in which the social security system indicated NTEP are not characterized by the experts<sup>23</sup>. The lack of objective criteria to deny the relation between illness and work conditions may harm workers who are entitled to a work-related benefit. Underreporting the diseases associated with work also limits the knowledge of the real extent of the problem and may impair the development of policies to promote and to protect workers' health. Therefore, it is important that the medical experts conduct inspections at workplace before deny or confirm the technical nexus between disabling illness and occupational aspects<sup>22</sup>.

- The limitations and novelties presented by this study are:
- the findings are restricted to a group of urban workers evaluated in the southeastern region of Brazil;
- the process of random sampling tried to avoid the possible biases in the selection;
- the diagnosis and definition of outcomes were characterized by social security medical experts, minimizing measurement biases; and
- recalls biases were probably reduced when establishing the maximum period of absence from work. However, interviewing individuals in poor mental health conditions may interfere in their perception of exposure factors<sup>20</sup>.

## CONCLUSIONS

In this study, we concluded that the occupational exposure to adverse psychosocial factors at work has been present in most reports from workers in long-term sickness absence due to mental disorders. However, there was not a significant association between the granting of work-related sickness benefits and the perception of exposure to psychosocial occupational stressors or other independent variables studied. Maybe the tools used by the social security system are not suitable to evaluate the impacts of negative psychosocial factors at work in mental health of the studied sample population.

The correct evaluation of psychosocial stressors at work presents conceptual and methodological difficulties. It is not simple to recognize them, or there might be an undervaluation of such risk factors. The use of validated methods and tools are strategies, which may assist the medical experts in defining the social security technical nexus. One of their



advantages is to indicate organizational weaknesses that require coping with overload by the people exposed to it and, therefore, the work conditions that can cause negative effects on workers' health.

## ACKNOWLEDGEMENTS

To the Institute of National Social Security (*Instituto Nacional do Seguro Social – INSS*) of the Brazilian Ministry of Social Security, for the authorization to collect data; and to the Laboratory of Populational Studies (*Laboratório de Estudos Populacionais – LEP*) of the School of Public Health of the University of São Paulo, Brazil, for the technical support.

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Received on: 12/10/2014

Accepted on: 07/10/2015