

# Social security benefits for mental and behavioral disorders among workers in Piauí, Brazil, in 2014

Benefícios previdenciários por transtornos mentais e comportamentais em trabalhadores do Piauí em 2014

Márcia Astrês Fernandes<sup>1</sup> , João Victor de Sousa Sales<sup>1</sup> , Carla Danielle Araújo Feitosa<sup>1</sup> , Rosana dos Santos Costa<sup>1</sup> , Chrystiany Plácido de Brito Vieira<sup>1</sup> , Joyce Soares e Silva<sup>1</sup> 

**ABSTRACT | Background:** The characteristics of social security benefits changed over time as a function of modifications in the patterns of work organization. This process gave rise to new social vulnerabilities which include aspects visibly related to occupational health, as is the case of mental and behavioral disorders. **Objective:** To describe temporary social security benefits granted by the National Social Security Institute (INSS) to workers with mental and behavioral disorders in Piauí, Brazil, in 2014. **Methods:** Cross-sectional, descriptive and retrospective study based on INSS data collected in November 2015 relative to 2014. **Results:** 1,473 benefits were granted along the analyzed period, 50.4% of which corresponded to male workers. Most beneficiaries resided in the state capital and had urban jobs. Mood disorders accounted for 47.7% of sick leaves. The mean duration of benefits was 112.6 days. There was significant difference in the duration of benefits according to their type ( $p < 0.012$ ), urban versus rural jobs ( $p < 0.015$ ) and sex ( $p = 0.010$ ). **Conclusion:** Mood disorders were the most frequent reason for sick leaves due to mental and behavioral disorders and the affected workers were granted social security benefits. The duration of leaves significantly differed as a function of the type of benefits, urban versus rural jobs and sex.

**Keywords |** social security; occupational health; mental health; insurance benefits; mental disorders.

**RESUMO | Introdução:** Os benefícios previdenciários mudaram de características ao longo dos anos, em decorrência da modificação do padrão de organização do trabalho, que provocou novas vulnerabilidades sociais, nas quais emergiram questões mais evidentes relativas à saúde do trabalhador, como os transtornos mentais e comportamentais. **Objetivo:** Descrever os benefícios previdenciários temporários concedidos pelo Instituto Nacional do Seguro Social (INSS) para trabalhadores com transtornos mentais e comportamentais do estado do Piauí, no ano de 2014. **Métodos:** Trata-se de estudo descritivo, de corte transversal, com coleta retrospectiva, realizado na cidade de Teresina, Piauí, Brasil, a partir de dados do INSS coletados no mês de novembro de 2015, referentes ao ano de 2014. **Resultados:** No período foram concedidos 1.473 benefícios, dos quais 50,4% dos trabalhadores eram homens, a maioria procedente da capital, com atividade urbana. Destes, 47,7% afastaram-se por transtornos do humor. O tempo médio de benefício foi de 112,6 dias. Houve diferença significativa entre o tempo de benefício e o tipo de auxílio ( $p < 0,012$ ), a clientela ( $p < 0,015$ ) e o sexo dos trabalhadores afastados ( $p = 0,010$ ). **Conclusão:** A principal causa de afastamento por transtorno mental e comportamental decorreu dos transtornos do humor, cujo benefício caracterizou-se por ser previdenciário. Observou-se que houve diferença significativa entre o tempo de benefício e o tipo de auxílio, a clientela e o sexo dos trabalhadores afastados.

**Palavras-chave |** previdência social; saúde do trabalhador; saúde mental; benefícios do seguro; transtornos mentais.

<sup>1</sup>Department of Nursing, Universidade Federal do Piauí - Teresina (PI), Brazil.

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## INTRODUCTION

Work is a part of human society since remote times. In the present, it has substantial economic, social and cultural relevance for representing the core component of modern life. New issues related to occupational health emerged together with changes in the patterns of work organization. Within this context, work is one of the elements associated with the development of subjectivities, likely to interfere with or even contribute to the health-mental illness relationship<sup>1-3</sup>.

The physical characteristics of work and the increasingly competitive atmosphere at organizations are factors which promote mental illness, as a function of the increasing dynamism and the physical and mental needs of present-day workers. For this reason, work might exhaust the psychophysiological capacity of workers and eventually cause mental and behavioral disorders. From a perspective favorable to occupational health, the Brazilian social security system grants benefits to enable workers to recover their health without any financial loss within time frames established by physicians<sup>4,5</sup>.

According to the World Health Organization, minor mental disorders affect about 30% of workers and more severe conditions about 5 to 10%<sup>6</sup>. Data provided by the National Social Security Institute (Instituto Nacional do Seguro Social — INSS) indicate that mental disorders are the third main reason for sick pay benefits in Brazil<sup>7</sup>. The Brazilian Ministry of Labor monitors the clinical manifestations of work-related mental and behavioral disorders through annual reports of social security or accident benefits granted by INSS<sup>8</sup>.

A total of 668,927 cases of mental and behavioral disorders were recorded along the period from 2012 to 2016, which accounted for 9% of sick pay and disability retirement benefits. The number of benefits for this type of disorders increased from 140,000 in 2012 to 127,562 in 2016<sup>9</sup>.

Early diagnosis, treatment and rehabilitation of workers with mental disorders in and outside the workplace, availability of adequate rest breaks, measures to promote healthy work environments and organizational justice are relevant for the purpose of developing a healthy and productive workforce and avoid the occurrence of diseases and leaves of absence<sup>10,11</sup>.

While many cases of mental disorders in Brazil have a relationship with work, the available data provide a mere overall view of the situation and do not afford specific information for each individual worker. Focusing on the mental health of workers, the aim of the present study was to describe temporary social security benefits granted by INSS to workers with mental and behavioral disorders in the state of Piauí, Brazil, in 2014.

## METHODS

The present cross-sectional and descriptive study was based on retrospective INSS data for the state of Piauí. Data collection was performed in November 2015 relative to 2014 after having obtained institutional authorization and with full compliance with all ethical and legal requirements.

The population-based sample consisted of 1,473 sick pay benefits for mental and behavioral disorders granted in 2014 as recorded in the INSS information system.

The inclusion criteria were: insured workers granted sick leave for mental or behavioral disorders based on the information provided by INSS. The exclusion criteria were: missing data relative to the variables of interest or data not duly described in the INSS database.

The data available in the institutional database were entered in an ad hoc form. The variables thus considered were: age, sex, municipality of residence, urban or rural job, duration of benefits (days), reason for sick leave according to the International Classification of Diseases (ICD-10) F codes (mental and behavioral disorders) and type of benefit. In regard to the latter, the INSS database distinguishes between social security grants (temporary or permanent disability) or accident-related benefits. The ICD-10 codes considered were: mental and behavioral disorders due to psychoactive substance use (F10–F19), schizophrenia, schizotypal, delusional and other non-mood psychotic disorders (F20–F29), mood disorders (F30–F39) and anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders (F40–F49), in addition to other less frequent conditions which were clustered together into one single category.

The data were entered twice in software Microsoft Excel 2010, validated and exported to software *Statistical Package*

for the Social Science (SPSS) version 19.0 for statistical descriptive and inferential analysis.

Variable benefit duration was analyzed through calculation of simple means — *i.e.*, the sum of the number of sick leave days divided by the total number of beneficiaries, even when more than one benefit was granted to one and the same individual, median, standard deviation and the Student t-test.

Association of categorical variables was analyzed with Pearson's  $\chi^2$  test and variance by means of parametric ANOVA, since variables with more than two categories exhibited normal distribution on the Kolmogorov-Smirnov test. The significance level was set to  $p=0.05$  and the confidence interval to 95% (95%CI). All losses along data collection and processing were due to the fact we did not consider the information on disability retirement — which corresponded to 10% of the benefits — because our focus was on the most significant ones, *i.e.*, sick and accident pay.

Data collection began after the study was approved by the research and ethics committee of Federal University of Piauí, ruling no. 1,144, 306, in compliance with the Brazilian regulations for research involving human beings.

## RESULTS

As can be seen in Table 1, analysis of the 1,473 located benefits showed that 50.4% of the insured were male and 29.9% aged 30 to 39 years old. About 47.7% of the beneficiaries resided in Teresina, the state capital, and 77.5% had urban jobs.

About 47.7% of sick leaves were due to mental and behavioral disorders corresponding to ICD-10 codes F30-F39.

About 84.9% of cases were of social security benefits. The average duration of benefits was 112.6 ( $\pm 63.9$ ) days, ranging from 15 to 381 days.

Disability retirement was not analyzed in the present study, as we only considered temporary benefits.

Analysis of variance between mental disorders and duration of benefits showed (Table 2) that benefits were, on average, longer for category "other" (F0–F9, F50–F59, F60–F69, F70–F79 and F90–F98), 159.9 days ( $\pm 78.5$ ; 95%CI 131.6–188.2) followed by schizophrenia, schizotypal, delusional and other non-mood psychotic disorders (F20–F29),

132.6 days ( $\pm 70.3$ ; 95%CI 124.7–140.5) and mental and behavioral disorders due to psychoactive substance use (F10–F19), 125.4 days ( $\pm 64.9$ ; 95%CI 114.4–136.3).

According to the INSS data, some benefits were longer than one year, nevertheless, they were included for analysis because they were granted during the analyzed year. This is to say, independently from the duration of leaves, we considered all temporary benefits granted in 2014.

As Table 3 shows, there was significant difference in the duration of leaves as a function of the type of benefit ( $p<0.012$ ), rural versus urban job ( $p<0.015$ ) and sex ( $p=0.010$ ).

## DISCUSSION

In the present study, we analyzed characteristics of benefits for mental and behavioral disorders, sociodemographic aspects and social security data which contribute to increase the scientific knowledge on these disorders as reason for sick leaves.

In the United Kingdom, mental and behavioral disorders are the main cause of work-related sickness absence. Analysis of data collected by a health and occupation report scheme showed that this type of disorders grow every year and increased from 18.9% in 2009 to 39% in 2012. In Scotland, registered cases of mental and behavioral disorders increased by 43% in 2012<sup>12-14</sup>.

In the aforementioned studies, 50.4% of beneficiaries with mental and behavioral disorders were male, however, this difference according to sex was not statistically significant. Also in a study conducted in Japan, the largest proportion of workers on leave due to this type of disorders were male<sup>12-15</sup>.

According to nationwide data collected by the Brazilian social security administration, the overall frequency of sick leaves is higher among males. Differently, in regard to mental disorders, *i.e.*, the focus of the present study, the proportion of benefits is about 3% higher for women<sup>16</sup>.

The largest proportion of workers granted benefits fell within age range 30 to 39 years old. This finding agrees with the results of a study conducted with workers with INSS-granted leaves in Sao Paulo, Brazil, 73.3% of whom were under 40 years old<sup>17</sup>.

**Table 1.** Distribution of workers in Piauí granted sick leave for mental and behavioral disorders. Teresina, 2015 (n=1,473).

Variables	n (%)
Sex	
Male	742 (50.4)
Female	731 (49.6)
Age range (years old)	
Up to 19	2 (0.1)
20 to 29	179 (12.2)
30 to 39	441 (29.9)
40 to 49	403 (27.4)
50 to 59	362 (24.6)
60 to 69	79 (5.4)
70 or older	7 (0.5)
Municipalities	
Teresina	702 (47.7)
Other	771 (52.3)
Area of residence	
Urban	1.141 (77.5)
Rural	332 (22.5)
ICD-10	
F10 to F19	142 (9.6)
F20 to F29	372 (25.3)
F30 to F39	702 (47.7)
F40 to F48	212 (14.4)
Other	45 (3.1)
Benefit type	
Social security sick pay	1.250 (84.9)
Accident pay	76 (5.2)
Disability retirement	147 (10.0)

ICD-10: International Classification of diseases; F10-F19: mental and behavioral disorders due to psychoactive substance use; F20-F29: schizophrenia, schizotypal, delusional and other non-mood psychotic disorders; F30-F39: mood disorders; F40-F48: anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders.

The largest proportion of beneficiaries, 47.7%, resided in the capital of Piauí. In a study conducted in Alagoas, Brazil, also the largest proportion of sick leaves for mental and behavioral disorders corresponded to workers residing in the state capital<sup>18</sup>, thus similar to the situation detected in the present study.

Most sick leaves corresponded to workers with urban jobs. The current degree of urbanization in Piauí and the fact its economy is based on the service sector<sup>19</sup> might account

**Table 2.** Analysis of variance of categories of mental and behavioral disorders and benefit duration in Piauí. Teresina, 2015 (n=1,473).

Disorders	Benefit duration (days)			
	n	Mean	Standard deviation	95%CI
F10-F19	138	125.4	64.9	114.4-136.3
F20-F29	308	132.6	70.3	124.7-140.5
F30-F39	641	107.1	58.3	102.6-111.6
F40-F49	207	84.4	51.1	77.4-91.3
Other	32	159.9	78.5	131.6-188.2

95%CI: 95% confidence interval.

**Table 3.** Benefit duration in Piauí according to dichotomous variables. Teresina, 2015 (n=1,473).

Variables	Benefit duration			
	n	Mean	Standard deviation	p*
Benefit type				<0.012
Social security sick pay	1.250	114.6	63.9	
Accident pay	76	81.3	53.9	
Job setting				<0.015
Urban	1.024	107.4	63.2	
Rural	302	130.4	62.9	
Sex				0.010
Male	673	108.4	61.2	
Female	653	117.1	66.2	

\*significance on the independent t-test.

for the fact that most beneficiaries were urban workers. An additional possible reason is that urban workers are more exposed to factors associated with absenteeism, such as competitiveness, labor market demands and poor integration among employees.

The high rate of mental and behavioral disorders among workers found in the present study is due to the recognition of these conditions within the world of work, since mental illnesses increasingly interfere with the dynamics of work leading to sickness absence. According to recent estimates, the cost of these disorders is higher than that of physical health problems<sup>20</sup>.

Mental and behavioral disorders as cause of sick leave are currently discussed in the literature. In the present study, we found that 47.7% of benefits were granted for mood disorders. This finding agrees with the results of a study that analyzed 1,668 cases of work-related mental disorders in the Netherlands, in which mood disorders accounted for 1,105 benefits, *i.e.*, 61%<sup>21</sup>.

About 84.9% of the cases analyzed in the present study corresponded to social security benefits. According to a study based on data collected by the Ministry of Social Security for the period from 2008 to 2011, conditions included in ICD-10 chapter 5, *i.e.*, mental and behavioral disorders, were the third most frequent reason for sick pay, with a mean annual incidence of 9.3%<sup>7</sup>.

In the present study, the mean duration of sick leaves was 112.6 days, varying from 15 to 381 days. We should observe that we included all the benefits granted in 2014 independently from their duration. A similar finding was reported in a study conducted with 982 Dutch workers on sick leave due to mental disorders; 43.2% of the analyzed population remained 14 to 52 weeks away from work, *i.e.*, 98 to 364 days<sup>21</sup>.

Workers with disorders included in ICD-10 codes F20–F29, *i.e.*, schizophrenia, schizotypal, delusional and other non-mood psychotic disorders, were granted the longest benefits, on average. While mood disorders corresponded to the largest number of benefits, their mean duration was next to last, 107.1 days. It is believed that the more serious mental disorders require longer time for treatment and recovery before the affected individuals might return to work, with consequently longer duration of benefits<sup>22</sup>.

A study on sick leaves among workers in South Africa found that the mean duration was longer for mental and behavioral disorders compared to physical health problems. These findings corroborate the results of a study conducted in the Netherlands, in which this type of disorders were associated with the largest number of missed work days. It is worth noticing that mental and behavioral disorders exhibit high rates of relapse, which increase with every additional sick leave period as a function of aspects related to treatment and recovery, since mental disorders are more complex than others physical health problems<sup>23,24</sup>.

Studies on the subject of interest are still too scarce to enable comparisons. Opposite findings were reported in regard to variable sex in studies conducted in Japan and the Netherlands, as in the former sick leaves were more frequent among men and in the latter among women<sup>15,21</sup>.

Sick leaves due to mental and behavioral disorders have increased in visibility within the public health setting, since they affect an ever increasing number of workers. Causal studies put forward some hypotheses which suggest that this type of disorders are a reflection or consequence of high-demand and low-control jobs, with low commitment and social support. Therefore, attention should be paid to the working conditions of each individual worker to formulate the best possible health promotion strategies<sup>22,25</sup>.

Among the limitations of the present study, we emphasize the lack of information on the professional categories most affected by mental and behavioral disorders. This problem is due to the fact that the INSS information system did not adopt the Brazilian Classification of Occupations, but only the diagnosis of the insured workers is provided. Nevertheless, the described data are relevant for the implementation of actions focusing on the mental health of workers, involving strategies to prevent the occurrence of mental and behavioral disorders and promote mental health in the workplace. We also expect that the present study will contribute to awaken the interest in similar research.

## CONCLUSION

Mood disorders accounted for most temporary social security benefits for mental and behavioral disorders granted

by INSS in Piauí in 2014. We also found significant difference in the duration of benefits as a function of their type, urban versus rural jobs and sex.

Although local and with a limited period of just one year, the present study calls the attention to the problem posed by mental illness among workers, since it leads to a large number of and long sick leaves. This situation has been also been reported in other studies conducted in Brazil and abroad.

We believe that as an innovation, the present study contributes to the current state of scientific knowledge, especially as concerns the Brazilian Northeastern region, since studies on the subject of interest are still incipient. We insist once again on the relevance of measures for prevention, health promotion and adequate treatment of mental and behavioral disorders and recommend performing new studies on this public health problem and its social and economic impacts with wider geographical scope and higher methodological robustness.

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Corresponding address: Márcia Astrés Fernandes – Campus Universitário Ministro Petrônio Portela, Bairro Ininga, Bloco 12 – Ininga – CEP: 64049-550 – Teresina (PI), Brazil – E-mail: [m.astres@ufpi.edu.br](mailto:m.astres@ufpi.edu.br)