Mental and behavioral disorders in workers: a study on work leave

Transtornos mentais e comportamentais em trabalhadores: estudo sobre os afastamentos laborais

Trastornos mentales y comportamentales en trabajadores: estudio sobre las bajas laborales

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ABSTRACT

Objective: To analyze workers' cases of work leave caused by mental and behavioral disorders. **Method:** A cross-sectional census study conducted between June and July 2017 in which data were used from the National Social Security Institute database, with all workers' records. Data were analyzed by using descriptive statistics and inferential tests. **Results:** The sample included 2,449 workers. Workers who were on leave because of mental and behavioral disorders were mostly women, aged between 31 and 40 years and with an income of less than or equal to one or two minimum wages. The first and second reasons for work leave were mood disorders. Working in an urban setting was considered a risk factor for more than one work leave (p<0.05). The following disorders were strongly associated with more than one work leave (p<0.001): mood disorder; schizophrenia; schizotypal and delusional disorders; disorders related to the use of psychoactive substances; stress-related disorders; and somatoform disorders. **Conclusion:** Employers are encouraged to invest in the mental health of their workers with a view to promoting health and avoiding work leave.

DESCRIPTORS

Mental Disorders; Absenteeism; Occupational Health.

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INTRODUCTION

The word 'work' comes from the Latin *tripalium*, a name given to a common instrument of torture in remote times in the European region. In this sense, 'working' meant 'being tortured'[1]. Subsequently, work began to incorporate different values, was associated with necessary activities, and became understood as a way to dignify the soul, survive, support the family, occupy time and feel useful[2].

Just as the meaning of work been changed, so has the role of workers. In recent decades, the labor market has undergone continuous change imposed by rivalries in the global economy. Nowadays, working conditions can be considered precarious as a result of new production systems, the reduction of job vacancies, outsourcing, privatization of public services and new job opportunities due to technological innovation[3].

The change in working conditions resulting from globalization affects workers' lives. There is an increase in chronic diseases and other consequences for work-related health. It is known, for example, that the lower the worker's socioeconomic condition, the greater the risk of morbidity and health impairment. However, causality in the employment-disease binomial still lacks a broader explanation[4].

Mental and behavioral disorders (MBD) are important because they involve clinical changes that compromise thinking, mood and behavior, and are commonly related to anxiety and behavioral deterioration. Studies have shown that, to some extent, work-related MBDs may be associated with work-related suicide. They have also shown that detrimental effects on workers' health do not result from isolated factors but rather from a multifaceted work context related to the body and psychic apparatus of the economically active population[5].

In recent years, individuals with chronic health problems in the workforce are increasingly participating in the workforce because manpower is declining as populations age. However, these workers' mental or behavioral health problems may cause them to take work leave. In fact, many workers with health problems leave the labor market temporarily or permanently, and few people with reduced working capacity are able to continue working. The incapacity for work generates a considerable economic burden for society and becomes a relevant topic of study[6].

To find solutions to solve this problem, it is critical to understand, first, the socioeconomic and occupational characteristics of workers on sick leave because of MBD and, second, the profile of absences. Thus, the objective of this study was to analyze workers' cases of work leave due to mental and behavioral disorders.

METHOD

This is a cross-sectional census study developed at the headquarters of the National Institute of Social Security (Portuguese acronym: INSS – *Instituto Nacional do Seguro Social*) in the city of Teresina (state of Piauí), Brazil. Data were collected in June and July 2017. All records were collected of workers in the Social Security System (Portuguese acronym: SUB – *Sistema Único de Benefícios*) of the INSS for sickness benefits and disability retirement due to mental and behavioral disorders from 2015 to 2016. In 2015, there were 1,165 cases of work leave, and in 2016, 1,612 cases. After applying exclusion criteria, the final sample comprised 2,449 workers.

The inclusion criteria were as follows: work leave according to the legal regime of the Consolidation of Labor Laws (Portuguese acronym: CLT – *Consolidação das Leis do Trabalho*), worker's age over 18 years and a diagnosis of Mental and Behavioral Disorders for the work leave. Those who had been on leave more than once or only once but whose time of work absence equaled zero days, as well as those with incomplete data regarding their work leave, were excluded.

Data were collected through an instrument prepared by the researchers and included variables found only in the Social Security System only. Thus, the following workers' variables were available in the database: sex (male, female), date of birth, municipality of origin, salary range measured in minimum wages (MW) (≤1-2; 3-4; 5- 6; >6), area of activity, type of benefit granted (pension sickness benefit; accident sickness benefit; disability retirement pension; accident disability retirement), duration of the benefit, and the reason for the work leave according to the International Classification of Diseases (ICD-10).

Data was typed and stored in a spreadsheet (Excel-Microsoft Office 2003) and analyzed with Stata software, version 12.0. Absolute frequencies, percentages, means, standard deviation and maximum and minimum values of numerical variables were calculated in order to describe the collected data. The chi-square test was used. When assumptions were violated (cell with a value less than five), Fisher's exact test was used to check the association between sociodemographic and social security variables, to verify the variable 'more than one work leave' for mental and behavioral disorders among workers (dichotomous: yes/no), and to consider a significant value of $p<0.05$.

The normality test of the numerical variables 'age' and 'total time on leave' was performed by means of the Shapiro-Wilk. Since these variables did not have a normal distribution, the Spearman's correlation test was used by adopting a significance level of 5% ($p <0.05$) to check the hypothesis that the greater the worker's age, the greater the number of days on leave because of the disorder. We sought to identify the relationship and intensity of association between 'age' and 'total days on leave'. For the interpretation of magnitude, a strong positive correlation was considered for values between 0.7 and 1, moderate between 0.3 and 0.7, and weak between 0 and 0.3. A strong negative correlation was considered for values between -0.7 and -1, moderate between -0.3 and -0.7, and weak between 0 and -0.3[7]. Finally, a dispersion diagram was built showing a correlation among the studied variables.

The study was approved by the Research Ethics Committee of the Universidade Federal do Piauí under number 1.835.240 on 11/25/2016. All ethical principles were respected.

RESULTS

From the 2,449 records analyzed, a predominance of females (51.3%) was identified, 32.6% of whom were aged between 31 and 40 years (mean=41.9; standard deviation=10.9; minimum age=19; maximum age=73); 83.6% of workers had an income of less than or equal to one or two minimum wages, and 47.6% of workers were from other municipalities in the state (Table 1).

Table 1 – Sociodemographic variables of workers in the state of Piauí who were on work leave for health treatment due to mental and behavioral disorders in 2015 and 2016 – Teresina, PI, Brazil, 2017.

Variables	n				%
Sex					
Male	1,192				48.7
Female	1,257				51.3
Age	Mean=41.9	SD=10.9	Min.=19		Max.=73
20 to 30	388				15.8
31 to 40	799				32.6
41 to 50	632				25.8
51 to 60	511				20.8
60 or older	119				4.7
Income					
≤1 to 2 MW	2,047				83.6
3 to 4 MW	298				12.2
4 to 6 MW	79				3.2
More than 6 MW	25				1.0
Municipality of origin					
Teresina	1,134				46.3
Other municipalities in the state of PI	1,164				47.6
Other states	151				6.1
Total	**2,449**				**100.0**

*DP= standard deviation

Regarding the social security variables related to the work leave of workers for treatment of mental and behavioral disorders, Table 2 shows that most workers performed their activities in an urban environment (80.6%) and had only one case of work leave (91.7%). A total of 92.5% of workers had a work leave of more than 365 days (mean=205.2; standard deviation=104.7; minimum duration=22; maximum duration=613).

For those with a single case of work leave (Table 2), pension sickness benefit was the most commonly granted benefit (76.8%), and mood disorder was the most frequent cause of work leave (43.5%). The year 2016 had the highest percentage of cases of work leave (53.7%).

Table 2 – Social security variables related to workers' cases of work leave for health treatment of mental and behavioral disorders in the state of Piauí in 2015 and 2016 – Teresina, PI, Brazil, 2017.

Variables	N				%
Area of activity					
Urban	1,975				80.6
Rural	474				19.4
Number of cases of work leave					
One	2,248				91.7
Two	190				7.8
Three or more	11				0.5
Total time on work leave (days)	Mean=205.2	Min.=22	Max.=613		SD=104.7
Up to 30 days	2				0.1
31 to 60 days	4				0.2
61 to 90 days	11				0.4
91 to 120 days	24				1.0
121 to 180 days	50				2.0
181 to 365 days	93				3.8
More than 365 days	2,265				92.5
Single work leave					
Benefit					
Pension sickness benefit	1,881				76.8
Accident sickness benefit	124				5.1
Disability retirement pension	12				0.5
Accident disability retirement	231				9.4
Not applicable*	201				8.2

Continue

Table 2 – Social security variables related to workers' cases of work leave for health treatment of mental and behavioral disorders in the state of Piauí in 2015 and 2016 – Teresina, PI, Brazil, 2017. Continuation

Cause of work leave		
Organic mental disorders (F00 to F09)	53	2.2
MBD Use of psychoactive substances (F10 to F19)	251	10.2
Schizophrenia, schizotypal and delusional disorders (F20 to F29)	522	21.3
Mood disorders (F30 a F39)	1,065	43.5
Neurotic disorders, stress or somatoform disorders (F40 to F48)	337	13.8
Behavioral syndromes (F50 to F59)	3	0.1
Personality disorder (F60 to F69)	3	0.1
Mental retardation (F70 to F79)	10	0.4
Others	3	0.1
Not applicable*	201	8.2
Year of work leave		
2015	933	38.1
2016	1,315	53.7
Not applicable*	201	8.2
Total	**2,449**	**100.0**

*Workers who had more than one case of work leave

When considering social security variables related to workers who took more than one work leave, Table 3 demonstrates that 24.7% of these workers took 121 to 180 days on their first work leave, and this percentage also prevailed over the other (20.4%). The pension sickness benefit was the most prevalent benefit in the first work leave (93.6%), whereas accident disability retirement was the most prevalent in the second (23.9%). Mood disorders were the main cause of the first (48.5%) and the second (19.9%) leaves. The most frequent year for the first work leave was 2015 (73.6%); for the second, it was 2016 (57.2%).

In the comparison between sociodemographic and social security variables and the number of cases of work leave (Table 3), there is a statistically significant difference in the variable of more than one work leave among workers in urban settings (9.1%) compared to those in the rural area (4.8%). Therefore, working in an urban setting is a risk factor for more than one case of work leave (p<0.05).

Table 3 – Comparison between sociodemographic and social security variables and the number of cases of work leave for treatment of mental and behavioral disorders among workers from the state of Piauí, Brazil, 2015-2016 – Teresina, PI, Brazil, 2017.

Sociodemographic variables	More than one work leave		P value
	Yes	**No**	
	n (%)	**n (%)**	
Sex			0,748*
Male	102 (8,1)	1.155 (91,9)	
Female	101 (8,5)	1.091 (91,5)	
Age			0,411*
Up to 40 years	104 (8,8)	1.083 (91,2)	
41 years or older	99 (7,8)	1.163 (92,2)	
Income			0,556*
Up to 4 MW	196 (8,4)	2.149 (91,6)	
Above 4 MW	7 (6,7)	97 (93,3)	
Municipality of origin			0,093*
Municipalities of Piauí	196 (8,5)	2.102 (91,5)	
Other municipalities	7 (4,6)	144 (95,4)	
Social security			
Area of activity			0,003*
Urban	180 (9,1)	1.795 (90,9)	
Rural	23 (4,8)	451 (95,2)	
Chapter V – ICD 10*			
Mood disorder (F30 to F39) (n =2,365)			<0,001**
Yes	117 (4,9)	1.066 (45,1)	
No	3 (0,1)	1.119 (47,3)	
Schizophrenia, Schizotypal and delusional disorders (F20 to F29) (n = 2,306)			<0,001**
Yes	59 (2,5)	522 (22,6)	
No	3 (0,1)	1.722 (74,7)	
Psychoactive subst. (F10 to F19) (n= 2,268)			<0,001**
Yes	22 (1,0)	250 (11,0)	
No	2 (0,1)	1.994 (87,9)	

Table 3 – Comparison between sociodemographic and social security variables and the number of cases of work leave for treatment of mental and behavioral disorders among workers from the state of Piauí, Brazil, 2015-2016 – Teresina, PI, Brazil, 2017. Continuation

Stress-related disorders/somatoform disorders (F40 to F48) (n= 2,269)			<0,001**
Yes	22 (1,0)	337 (14,8)	
No	2 (0,1)	1.908 (84,1)	
Benefits***			
Accident sickness benefit (n=2,269)			<0,001**
Yes	22 (1,0)	124 (5,5)	
No	3 (0,1)	2.120 (93,4)	
Social security sickness benefit (n=2,442)			<0,001**
Yes	196 (8,0)	1.879 (76,9)	
No	0 (0,0)	367 (15,0)	

*Chi-square; ** Fisher's exact; *** For each type of disorder, the presence of the disorder was considered in single cases of work leave and in the first or second cases of work leave. The number for each disorder differs from the total (n) (2,449).

According to Table 3, the following disorders were strongly associated with more than one case of work leave (p <0.001): mood disorder, schizophrenia, schizotypal and delusional disorders, disorders related to the use of psychoactive substances, stress-related disorders and somatoform disorders.

There was also a strong association between receiving a sickness benefit (pension or accident) by workers and the variable of 'more than one case of work leave' (p<0.001) (Table 3).

Figure 1 shows there is no correlation between the worker's age and the total time on work leave, since the points are scattered on the graph, not indicative of a straight line; hence these two variables are independent. This result is confirmed by the Spearman test, in which the rho value was equal to zero, suggesting a weak negative correlation and p value = 0.25, which is not significant. Thus, it is not possible to affirm that as age increased, the number of days on work leave were greater.
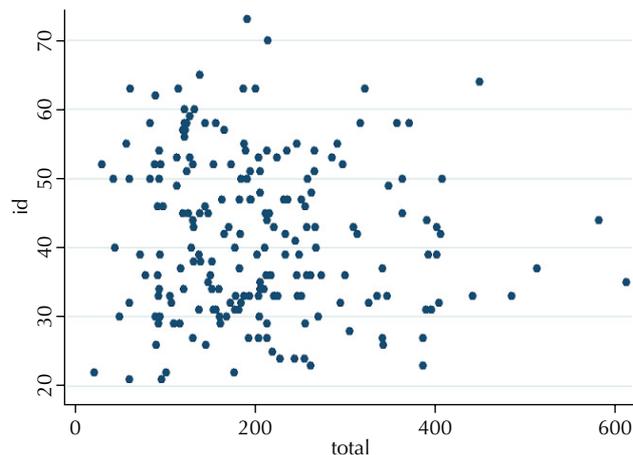

Figure 1 – Correlation between variables of age (in years) and the total time on work leave (in days) of workers in the state of Piauí with a record of work leave due to mental disorders in 2015 and 2016 – Teresina, PI, Brazil, 2017.

DISCUSSION

Mental disorders usually manifest their signs and symptoms at an early age and tend to establish themselves in adulthood. In 75% of the population, anxiety disorders appear at age 21, mood disorders at age 43, psychoactive substance use disorders at age 27, and mental disorders at age 24[8]. In the present study, workers were on leave at between 31 and 40 years of age, suggesting that they developed their disorder under the age of 30 and that it affected their ability to work as they aged.

It is noteworthy that economically disadvantaged workers become more vulnerable to the onset of mental disorders. In a study conducted in the interior of São Paulo with primary care patients, a prevalence of 80% of common mental disorders was identified in individuals with an income of less than minimum wage, and a prevalence of 60% of these disorders were identified in individuals with an income between one and three minimum wages[9]. In this study, 83.6% of workers who had been on leave had an income between one (or less than one) and two minimum wages, according to data from the literature.

In relation to work activity, most workers who had been on leave worked in an urban setting. This information corroborates other studies in which urban workers were found to have more cases of work leave compared to rural area workers[10-11].

When workers perform their activities in urban environments, lack of time appears as a barrier to the performance of non-labor activities. Together with society's idea of work as human beings' main activity, the time taken in commuting to and from work facilitates the development of mental and behavioral disorders in workers and leads to their incapacity for work activities. Such illness occurs due to the absence of leisure activities, care to oneself, the house, the children and family, in addition to lack of time for pursuing further qualifications[12].

Most workers in this study who had been on leave had a total time away from work of more than 365 days. This result diverges from other studies that addressed workers' time on leave because of MBD; in these studies, most workers were on leave for 31 to 60 days[13] or up to 15 days[14]. The ideal would be that very long work leaves were the exception rather than the rule. Long work leaves are concerning because they not only raise questions about follow-up received by workers in treatment but also about the financial burden carried by social security services.

In this study, the most widely granted benefit in a single-time case of work leave was the pension sickness benefit. This is temporary assistance granted to the beneficiary who becomes incapable of work for reasons of illness (not work related). In Brazil, "Disorders related to Chapter V of ICD-10 (mental and behavioral disorders) remained the third main reason for granting sickness benefits, with an average annual incidence of 9.3% or 34.9/10,000 insured"[15].

According to this study, the accident sickness benefit makes workers prone to more than one case of work leave. This benefit can be used when the beneficiary suffers injuries that, regardless of their nature, reduce functional capacity[14]. If an MBD diagnosis was less complex involved and workers were less often blamed for falling ill, the accident benefit could be granted to workers more frequently[16].

A study conducted in Taiwan, China with 12,528 working men and 8,396 working women concluded that work-related accidents still lack further investigation, especially when they cause psychological damage to workers[17].

The following diseases are highlighted among the ICD - 10 disorders investigated during the study period: mood disorder; schizophrenia, schizotypal and delusional disorders; disorders related to the use of psychoactive substances; and stress-related disorders and somatoform disorders. These disorders presented high prevalence for the cause of the first and second cases of work leave and were also strongly associated with cases of more than one work leave.

Humoral (affective) disorders are worthy of attention (F30 to F39). These types of disorders were also present in an analytical study conducted in São Paulo with 131 applicants for sickness benefits due to mental disorders. In the study, depressive episodes were identified as the most prevalent (F32 - 40.4%). The other disorders, F31, F33, and F34, accounted for a total of 13%[18].

The aim of a study in South Korea was to analyze depression-associated factors in 4,251 workers. The following were identified as risk factors for depression: female sex, age between 20 and 29 years, divorced, having poor self-perception about one's own health and hiding emotions while working[19]. In a systematic meta-analysis of the literature, cognitive-behavioral therapy in the workplace was encouraged as a promising intervention for reducing depression symptoms[20].

Cases of work leave resulting from psychoactive substance use disorders deserve special attention by considering that alcohol and other drug use is an emerging issue in modern society and has deleterious effects on workers' health. A similar prevalence of work leave by this type of disorder (5%) was measured in a study conducted in São Paulo with 385 workers, whose periods of absence were longer than 15 days by MBD[21].

The dependence on psychoactive substances harms the worker in several ways: the time spent obtaining the drug and the time under its effect produce a picture of disorganization with different levels of commitment; increased work absenteeism; difficulties in fulfilling stipulated tasks/goals; dismissal; neglect of social roles; family conflict; debts; lack of autonomy and confidence in the work environment; devaluation of self-image; depressive traits; and feelings involving negativity[22].

Regarding age and duration of the work leave, in a study were analyzed cases of short-term (less than 70 days) work leaves for multiple causes in 2,601 employees of a French regional bank. Diverging from those of the present study, results from this French study found that age was both a contributing factor in increasing periods of work leave and in the probability of workers' presentism. According to estimates, a 25-year-old man compared to a 55-year-old man has approximately three more days of work absence[23].

Confirming the results of this study, another study analyzed cases of Work Leave for Health Treatment (Portuguese acronym: LTS) of MBD of 8,765 public employees in the state of Santa Catarina, Brazil. This study identified weak correlations between the employees' age and number of LTS days granted or amounts paid[24]. Thus, the relationship between age and duration of work leave may not be applicable to the broader hypothesis that work leave and MBD are correlated.

Mental and Behavioral Disorders cause significant losses for workers, generate costs for social security, and affect workers in different ways. These disorders are considered to be a public health problem, as they take into account their incidence and the social and health impact generated in society and at work.

CONCLUSION

Since this is an innovative study that investigates work leaves by MBD in the state of Piauí, this research is critical for promoting discussion about the mental health of this specific population and for revealing the profile of workers on leave and of the granted medical leaves. This study may instigate further research that more deeply analyzes the correlation between age and duration of work leave and that explores the work-disease causation nexus. Furthermore, dissemination of these data can improve understanding of the subject and encourage employers to invest in workers' mental health with a view to promoting health and avoiding work leave. The study undoubtedly brings contributions to the scientific community, in spite of its restriction to a Brazilian state only. The development of new, more robust and geographically wider studies are encouraged.

RESUMO

Objetivo: Analisar os afastamentos laborais de trabalhadores por transtornos mentais e comportamentais. **Método:** Estudo transversal, censitário, realizado por meio dos dados do banco de dados do Instituto Nacional do Seguro Social, com todos os registros de trabalhadores, nos meses de junho e julho de 2017. Os dados foram analisados com o uso da estatística descritiva e testes inferenciais. **Resultados:** A amostra foi de 2.449 trabalhadores. Os trabalhadores que se afastaram por transtornos mentais e comportamentais eram, majoritariamente, mulheres, com idade entre 31 e 40 anos e renda inferior ou igual a um ou dois salários mínimos. Os transtornos

de humor foram a principal causa do primeiro e segundo afastamento. O ramo de atividade urbana foi considerado um fator de risco para mais de um afastamento (p<0,05). Os seguintes transtornos foram fortemente associados a mais de um afastamento no trabalho (p<0,001): transtorno de humor; esquizofrenia; transtornos esquizotípicos e delirantes; transtornos relacionados ao uso de substâncias psicoativas; transtornos relacionados ao estresse; e transtornos somatoformes. **Conclusão:** Espera-se estimular os empregadores a investirem nos aspectos relacionados à saúde mental dos seus trabalhadores, com vistas a promover a saúde e evitar o afastamento laboral.

DESCRITORES

Transtornos Mentais; Absenteísmo; Saúde do Trabalhador.

RESUMEN

Objetivo: Analizar las bajas laborales de trabajadores por trastornos mentales y comportamentales. **Método:** Estudio transversal, censatario, llevado a cabo mediante los datos del banco de datos del Instituto Nacional de la Seguridad Social, con todos los registros de trabajadores, en los meses de junio de 2017. Los datos fueron analizados mediante la estadística descriptiva y pruebas inferenciales. **Resultados:** La muestra fue de 2.449 trabajadores. Los trabajadores que estaban de baja por trastornos mentales y comportamentales eran, mayoritariamente, mujeres, con edad entre 31 y 40 años e ingresos inferiores o iguales a uno o dos sueldos mínimos. Los trastornos de humor fueron la principal causa de la primera y segunda baja. La rama de actividad urbana estuvo considerada como un factor de riesgo para más de una baja (p<0,05). Los siguientes trastornos estuvieron fuertemente asociados con más de una baja laboral (p<0,001): trastorno de humor; esquizofrenia; trastornos esquizotípicos y delirantes; trastornos relacionados con el uso de sustancias psicoactivas; trastornos relacionados con el estrés; y trastornos somatoformes. **Conclusión:** Se espera estimular a los empleadores a que inviertan en los aspectos relacionados con la salud mental de sus trabajadores, con vistas a promover la salud y evitar la baja laboral.

DESCRIPTORES

Trastornos Mentales; Absentismo; Salud Laboral.

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