

ASSOCIATION BETWEEN DEPRESSION, STRESS, ANXIETY AND ALCOHOL USE AMONG CIVIL SERVANTS

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Objective: To identify depressive symptoms association with sociodemographic variables, exposure and dimensions of occupational stress. **Methods:** This was a cross-sectional study with 1,239 workers in the technical and administrative category of a public university in the state of São Paulo. Questions were used to evaluate sociodemographic, depressive and anxiety symptoms, alcohol abuse and work stress. **Results:** public employees reported working under low psychological demand and had high control over the work executed, as well as working with few emergencies. About a fifth of workers presented anxious and/or depressive symptoms and 13.2% met the criteria for problematic alcohol use. **Conclusion:** The findings of this study indicate relevant aspects to be focused on for planning and studies for intervention, for the prevention mental illness of workers, mainly related to depressive symptoms.

Descriptors: Depression; Stress, Psychological; Occupational Health; Cross-Sectional Studies.

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ASSOCIAÇÃO ENTRE DEPRESSÃO, ESTRESSE, ANSIEDADE E USO DE ÁLCOOL ENTRE SERVIDORES PÚBLICOS

Objetivo: identificar a associação de sintomatologia depressiva com variáveis sociodemográficas, exposição e dimensões do estresse ocupacional. Material e método: trata-se de estudo transversal, com 1.239 trabalhadores da categoria técnico-administrativa de uma universidade pública do interior do Estado de São Paulo. Foram avaliadas questões sociodemográficas, sintomatologia depressiva e ansiosa, uso problemático de álcool e estresse no trabalho. Resultados: os servidores públicos relataram trabalhar sob baixa demanda psicológica e alto controle sobre o trabalho executado, além de atuar com baixa exigência. Cerca um quinto dos trabalhadores apresentou sintomatologia ansiosa e/ou depressiva e 13,2% preencheram critérios para uso problemático de álcool. Conclusão: os achados deste estudo indicam aspectos relevantes a serem enfocados por planos e estudos de intervenção, para prevenir o adoecimento mental dos trabalhadores, principalmente relacionado à sintomatologia depressiva.

Descritores: Depressão; Estresse Psicológico; Saúde do Trabalhador; Estudos Transversais.

ASOCIACIÓN ENTRE DEPRESIÓN, ESTRÉS, ANSIEDAD Y USO DE ALCOHOL ENTRE EMPLEADOS PÚBLICOS

Objetivo: identificar la asociación de la sintomatología depresiva con variables sociodemográficas, exposición y dimensiones del estrés ocupacional. Material y método: se trata de un estudio transversal, con 1.239 trabajadores de la categoría técnico-administrativa de una universidad pública del interior del Estado de São Paulo. Fueron validadas cuestiones sociodemográficas, sintomatología depresiva y ansiosa, uso problemático de alcohol y estrés en el trabajo. Resultados: los empleados públicos afirmaron trabajar sobre baja demanda psicológica y alto control sobre el trabajo ejecutado, aparte de actuar con baja exigencia. Cerca de un quinto de los trabajadores presentaba sintomatología ansiosa y/o depresiva y el 13,2% reunía las condiciones para un uso problemático de alcohol. Conclusión: los hallazgos de este estudio indican aspectos relevantes al ser abordados desde planos y estudios de intervención, para prevenir la enfermedad mental de los trabajadores, principalmente relacionado con la sintomatología depresiva.

Descriptores: Depresión; Estrés Psicológico; Salud Laboral; Estudios Transversales.

Introduction

Work is an individual and collective human activity, is an activity inherent to the individual as a social being⁽¹⁾. Changes in the employment

context, along with globalization and technological advances have generated a lot of competition between organizations. This fact has led to the restructuring of organizations with regard to their processes and their activities, causing anxiety

among workers, which leads to emotional stress that can turn into mental health problems such as depression, stress and anxiety⁽²⁾.

According to the Ministry of Social Security in Brazil, mental and behavioral disorders were among the diseases with the highest incidence in 2010, causing a total cost of R\$4.6 million in benefits, being 84.3% of social security, 7.3 and 8.1% in labor accident care⁽³⁾. These numbers cause social and economic impact on public health in Brazil.

Depression and stress are considered emergent mental problems in today's society and are responsible for 18% of illnesses and absenteeism related to the context of work⁽⁴⁾.

According to the World Health Organization (WHO), depression is considered the 5th largest problem in the world problem of public health. It is the leading mental illness in workers, can affect people at any stage of life, but the highest incidence is in the middle ages between 40 and 49 years. It is more common in women, with an estimated prevalence of 1.9% among men and 3.2% among women.

Depression is understood as a severe mood disorder characterized by a depressed mood or loss of interest or pleasure present for two or more weeks⁽⁵⁻⁶⁾. It negatively impacts both the employee and the organization in which it appears. Adversely affecting the quality of life, negatively interferes with daily activities, the functional skills in the workplace, causes decreased productivity, increased use of substances such as alcohol and tobacco and causes an increase in absenteeism among others⁽⁷⁾.

The relationship between depression and stress has been studied with more emphasis, especially given the importance of health problems as it relates to work in the life of the individual; thus, low levels of security, as well as authority and power over labor decisions are associated with increased depression⁽⁸⁾.

Stress is a term that has been used frequently nowadays to define situations in which the individual is able to emit adaptive responses to internal or external stimuli such as significant factors for the development of a pathological condition or not⁽⁹⁾.

One of the currently most used theoretical frameworks is the Job Strain Model (JSM) or

demand-control model. According to the JSM, a situation of increased wear on the worker and greater exposure to occupational stress, can result in a greater risk for the development of occupational diseases, this is established by a combination of high levels of psychological demands and low levels of control at work⁽¹⁰⁾.

Thus, it can be said that depression and stress are conditions that can be considered applicants in the current configuration of society and may have its pathogenesis, development and evolution associated with working experiences. Discerning the indicative risk factors and symptomatology of the relationship between depression and stress is of fundamental importance in the prevention of harm to the mental health of workers.

This study aimed to identify depressive symptoms in association with sociodemographic variables, exposure and dimensions of occupational stress and alcohol use among public university workers.

Material and Method

This is a cross-sectional cohort study with 1,239 workers in the technical and administrative category. Inclusion criteria in the study were: an employee of the technical and administrative category and was present at the referral center at the time of data collection. It was decided to conduct the study by function, encompassing the whole population, where the sample was composed of 925 participant civil servants (74.6%).

Data collection was performed by trained interviewers and occurred for a period of 18 months, and finalized in December 2010. Participants were given directions for the measuring instruments, which could be answered in the workplace or at home, with subsequent return to the team.

The instruments for data collection in this study were: the Sociodemographic Data Questionnaire (SDQ), the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI), the Alcohol Use Disorders Identification Test (AUDIT) and the Job Stress Scale (JSS).

The Beck Depression Inventory (BDI) is a self-report scale of 21 items, each with four alternatives, undergoing increasing degrees of

depression, with scores of 0 to 63. The total score is the sum of the individual scored items, which allows classification of depression intensity levels: minimum level (0-11 points), mild (12-19 points), moderate (20-35 points) and severe (36-63 points)⁽¹¹⁾.

The Beck Anxiety Inventory (BAI) consists of 21 items, with a Likert score scale of 4 points, reflecting increasing levels of severity of each symptom of anxiety (minimum, mild, moderate and severe). The sum of the scores obtained on each item results in a final score that ranges from 0 to 63 points, scoring levels: minimal (0-10 points), mild (11-19 points), moderate (20-30 points) and severe (31-63 points)⁽¹²⁾.

To assess the problematic use of alcohol the Alcohol Use Disorders Identification Test (AUDIT) was used. The test consists of 10 questions that assess recent use of alcohol, dependence symptoms, and problems related to alcohol. The scores range from 0 to 40 and, in this study, the abuse of alcohol was defined by a score higher than 7 points⁽¹³⁾.

Stress was measured by the Job Stress Scale (JSS). The scale contains 17 items distributed as the following: five items that assesses psychological demand, six items that assess job control and six items that assess social support⁽¹⁾.

From the answers obtained in the categories of psychological demand and job control, responses were assigned to four subcategories of the Job Strain Model which was proposed by Karasek⁽¹⁰⁾: low strain work, passive work, active work and high strain work. Then the four types of work were regrouped to provide exposure to occupational stress measures in accordance with these three categories: higher exposure (high demand), intermediate exposure (active work and passive) and less exposure or reference group (low strain).

The project was approved by the Research Ethics Committee of the School of Nursing Ribeirão Preto at the University of Sao Paulo (CEP-EERP/USP), under Protocol nº0846/2007.

A descriptive analysis was performed about the demographic, economic, labor, abuse of alcohol, depression, anxiety and occupational stress. For reliability, we used Cronbach's alpha. It was considered reliable $\alpha > 0.70$ ⁽¹⁴⁾. The values obtained for JSS, BAI and BDI were 0.75; 0.90

and 0.85, respectively, for which the reliability of the instruments for the sample was found.

For the association of depressive symptoms with independent variables, bivariate regression logistics were performed. Variables with a $p < 0.20$ in the bivariate analysis were selected for inclusion in the multivariate analysis for depression, being submitted to logistic regression with multiple variables. The variables with $p > 0.05$ were used to compose the final model, consisting only the variables with $p < 0.05$. We used the STATA statistical software.

Results

According to the descriptive analysis of demographic, economic and labor data, the sample consisted of 54.9% female, ages 40-49 years (40.5%), have a higher education (51.0%), practice a religion (93.6%), married (66.4%), have children (69.0 %), works at a mid-level job (52.9%), with an average income of R \$ 4,239.50 and has worked up to 10 years (45.9%).

Regarding the psychosocial aspects of work, measured by the JSS dimensions, civil servants reported working under low psychological demands (53.9%), had high control over the work performed (58.1%) and had high social support (42.2%). After the combining of psychological demands and control at work, the dimensions observed between the civil servants were: 18.7% for high strain, 23.0% in passive work, 27.4% in active work and 30.9% worked in low strain work. According to the exposure to occupational stress, the samples showed, mostly, mid-level exposure (50.4%), however, 18.7% had levels considered high exposure to occupational stress.

When asked about health conditions, 20.3% of the sampled workers had anxiety symptoms, 21.9% had depressive symptoms, 13.2% met the criteria for problematic alcohol use and 6.6% reported problems experienced by the use of alcoholic drinks.

In the bivariate analysis (Table 1), the chances of occurrence of depression symptoms, according to the independent variables were investigated. It was statistically significant ($p < 0.05$) for the variables of psychological demands at work ($p = 0.043$), job control ($p < 0.001$), social support at work ($p < 0.001$),

anxiety ($p < 0.001$) and self-reported problematic alcohol use ($p < 0.001$). These variables were included in a multiple logistic regression analysis model plus those with a $p < 0.20$; these were high exposure to occupational stress ($p = 0.195$) and the abuse of alcohol ($p = 0.055$).

Table 1 - Bivariate analysis between depression and sociodemographic variables, level of work performed, occupational stress, anxiety and alcohol use among public servants. Ribeirão Preto, SP, Brazil, 2010.

Variable	OR (CI 95%)	Value of p
Sex		
Male	1	
Female	1.21 (0.86-1.72)	0.264
Age group		
<40 years	1	
≥40 years	0.88 (0.63-1.22)	0.433
Practices religion		
No	1	
Yes	1.19 (0.80-1.77)	0.401
Children		
No	1	
Yes	1.04 (0.74-1.46)	0.820
Job level		
Basic	1	
Medium	1.04 (0.76-1.42)	0.804
Superior	0.90 (0.62-1.31)	0.585
Length of work		
<15 years	1	
≥15 years	1.15 (0.82-1.60)	0.418
Psychological demand at work*	1.04 (1.00-1.08)	0.043
Control at work*	0.89 (0.85-0.94)	<0.001
Social support at work*	0.80 (0.76-0.85)	<0.001
High exposure to work stress		
No	1	
Yes	0.75 (0.49-1.15)	0.195
Anxiety symptoms		
No	1	
Yes	7.77 (5.49-11.00)	<0.001
Problematic alcohol use		
No	1	
Yes	1.52 (0.99-2.33)	0.055
Self-reported problems of alcohol use		
No	1	
Yes	2.88 (1.69-4.92)	<0.001

*Continuous variable.

In the multivariate analysis, the following were shown to be statistically significant: depression or control over work performed ($p = 0.044$), social support ($p = < 0.001$), anxiety ($p < 0.001$) and self-reported problems of alcohol use ($p = 0.001$). These variables: psychological demand, high exposure to work stress and alcohol abuse

were not statistically significant in the multivariate analysis, and were taken from the final model (Table 2).

Table 2 - Multiple analyses for control at work, social support, anxiety and self-reported problems of alcohol use for civil servants with depression. Ribeirão Preto, SP, Brazil, 2010.

Variable	OR (CI 95%)	p
Control at work*	0.95 (0.89-1.00)	0.044
Social support at work*	0.85 (0.80-0.90)	<0.001
Anxiety	5.97 (4.14-8.60)	<0.001
Self-reported problems of alcohol use	2.76 (1.51-5.04)	0.001

*Continuous variable.

According to the results of the logistic regression, the control over work performed acts as a protective factor for depression (OR = 0.95; 95% CI = 0.89 to 1.00, $p = 0.044$).

The odds ratio observed in the analysis of multiple variables for the dimension social support at work (OR = 0.85; 95% CI = 0.80-0.90, $p < 0.001$) showed that the labor feature provides protection for depressive symptoms.

Anxiety appeared as a risk factor for depression, in which workers with the presence of anxiety symptoms showed a 5.97 times more likelihood to have depression compared with those without anxiety (OR = 5.97, 95% CI = 4, 14 to 8.60, $p < 0.001$).

The self-reported problems related to alcohol were also a risk factor for depressive symptoms, and civil servants who reported such problems had 2.76 times more likelihood for depression than those who responded negatively to this question (OR = 2.76, 95% CI 1.51 to 5.04 = $p \leq 0.001$).

Discussion

In this study, job control and social support might be considered protective factors for depressive symptoms. Anxiety symptoms and self-reported problems with alcohol use were already identified as risk factors for the occurrence of this outcome.

Another variable considered in the literature is the psychological demand in the context of employment, this was significant for depression in the bivariate analysis; however, it lost

its significance in the multivariate model. This showed that for this sample under study, there was a petition presented as a confounding variable and that, when analyzed together, has no influence on depressive symptoms.

Control exercised over the work was associated with depression as a protective factor for depressive symptoms. Note that the control reduced the statistical power of depression when inserted in the multivariate analysis, thus demonstrating that this a variable with less influence for depression in relation to social support, anxiety and self-reported alcohol use problems.

High control over work performed helps increase satisfaction levels at work and provides opportunities to engage in challenging tasks, increasing the worker's repertoire of skills⁽¹⁾. According to the hypothesis of the protective effect, a high level of control over the work performed would prevent the increase in psychological demands and the risk of disease.

The social support dimension in work associated with depression showed that characteristics of employment provides protection for depressive symptoms, and the chances of having depression decrease as the score of social support increases for the sample in question. Social support remained at the level of statistical significance in the multivariate analysis, and the odds ratio increased in the model with multiple variables. This finding says that, when analyzed together, social support is a psychosocial characteristic in the stress model with high importance for the development of depression among the workers studied.

In line with the assumption of the Karasek stress model used in this study, social support works as a buffer for depression because it can reduce tension caused by stress in the workplace⁽¹⁵⁾.

The mechanisms by which social support in the workplace interferes with health, well-being and quality of life are many. From this perspective, high levels of social support may be associated with higher levels of physical and psychological well-being, as they provide the individual adaptation to the deleterious effects of stressful events, reducing the negative effects on the body and providing welfare, predisposition to health and better quality of life indicators⁽¹⁶⁾.

Considering the behavior of the variables related to stress, control, social support and high exposure to stress, and their association to the outcome of depression in the analysis process; the withdrawal of the variable high exposure to stress in the final model, loses its statistical significance in the multivariate analysis which indicates that, for the sample studied the dimensions control and social support, the latter on a larger scale, are relevant psychosocial factors for depression in the workplace. These results reaffirm the importance of studies to consider all psychosocial components involved in determining occupational stress, not just the combination that determines the level of exposure to stress.

The self-reported problems of alcohol use were significantly associated with depression. Workers who reported problems resulting from the use of alcohol showed a 2.76 times more likelihood for depression compared to subjects who did not report this. This result becomes more interesting by the fact that the problematic alcohol use, identified by the application of the AUDIT test, was not significant for depression in the multivariate analysis. It can be hypothesized that the question applied to the study's participants was more effective in identifying the problem of the situation or even the nomenclature of the instrument may have inhibited the response of participants because they are addressing their work environments.

The association between the issues of alcohol use and depression found in this study are consistent with the literature. People who are at risk for alcohol use also feature more depression in national and international studies⁽¹⁷⁻¹⁸⁾. Alcohol use by people with depression can be considered a coping strategy, being used concomitantly with other drugs in an attempt to better cope with the situation⁽¹⁸⁾.

Mild to severe anxiety level was associated with depression among workers participating in the study. Having anxiety gives a 5.9 times more likelihood of having depression compared to subjects whose measurement showed their anxiety was minimal.

Approximately half of patients diagnosed with anxiety are also diagnosed with depression and, although they are clinically different disorders, individuals may experience symptoms of

anxiety and depression together, such as nervousness, irritability and concentration problems⁽¹⁹⁾.

From a biological perspective, it is apparent that the neurotransmitters which are related to the development of depression, such as serotonin and Aminobutyric acid (GABA), also influence the development of anxiety. A study of 121 college students, in the state of São Paulo, who performed some work function, indicated that the higher the anxiety of the participants, the more depressive symptoms they had⁽²⁰⁾.

Conclusion

In this study, it was found that for the population of employees of the technical and administrative category of a public university, control over the work performed and the social support are protective factors for depressive symptoms, whereas anxiety symptoms and self-reported problems with alcohol use are risk factors for depression.

Among the psychosocial aspects related to occupational stress, which make up the dimensions of work stress, the major result of this study is that social support is the most significant factor for depressive symptoms measured in these workers.

The findings of this study indicate relevant aspects to be focused on in planning and intervention studies that aim to prevent illness and maintain the mental health of workers, especially with regard to depressive symptoms.

References

1. Alves MGM, Chor D, Faerstein E, Werneck GL, Lopes CS. Estresse no trabalho e hipertensão arterial em mulheres no Estudo Pró-Saúde: Estudo Pró-Saúde (Pro-Health Study). *Rev Saúde Pública*. 2009;43:893-6.
2. Hazlett-Stevens H. Mindfulness-based stress reduction for comorbid anxiety and depression: case report and clinical considerations. *J Nerv Ment Dis*. 2012 Nov;200(11):999-1003.
3. Silva-Junior JS. Afastamento do trabalho por transtornos mentais e fatores associados: um estudo caso-controlado entre trabalhadores segurados da Previdência Social. São Paulo: Universidade de São Paulo; 2012.

4. Murofuse NT, Marziale MH. Diseases of the osteomuscular system in nursing workers. *Rev. Latino-Am. Enfermagem*. 2005 May-Jun;13(3):364-73.
5. DSM-IV-TR. Manual diagnóstico e estatístico de transtornos mentais. 4 ed. Porto Alegre: Artmed; 2002.
6. Vera-Villaruel P, Buena-Casal G, Zych I, Cordova-Rubio N, Celis-Atenas K, Zepeda L, et al. Chilean experimental version of the State-Trait Depression Questionnaire (ST-DEP): State subscale (S-DEP). *Psychol Rep*. 2010 Feb;106(1):65-77.
7. Lecrubier Y. Depressive illness and disability. *Eur Neuropsychopharmacol*. 2000 Dec;10 Suppl 4:S439-43.
8. Schnittker J. Gene-environment correlations in the stress-depression relationship. *J Health Soc Behav*. 2010 Sep;51(3):229-43.
9. Selye H. The stress of life. New York: McGraw-Hill; 1976.
10. Karasek RA, Theorell T. Healthy work-stress, productivity, and the reconstruction of working life. New York (US): Basic Books; 1990.
11. Beck AT, Steer RA, Ball R, Ranieri W. Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *J Pers Assess*. 1996 Dec;67(3):588-97.
12. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol*. 1988 Dec;56(6):893-7.
13. Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. AUDIT: The Alcohol Use Disorders Identification Test Guidelines for Use in Primary Care. 2 ed. Genève: World Health Organization; 2001.
14. Cummings SR, Stewart A, Rulley SB. Elaboração de questionários e instrumentos de coleta de dados. In: Hulley SB, Cumming SR, Browner WS, Grady DG, Hearst NB, Newman TB, editors. *Delineando a pesquisa clínica Uma abordagem epidemiológica*. Porto Alegre: Artmed; 2003.
15. Karasek R. The stress-disequilibrium theory: chronic disease development, low social control, and physiological de-regulation. *Med Lav*. 2006 Mar-Apr;97(2):258-71.
16. Fonseca ISS, Moura SB. Apoio social, saúde e trabalho: uma breve revisão. *Psicol América*

Latina: Rev Electron Int Unión Latinoam Entidades Psicología [Internet]. 2008 [acesso 19 jan 2014];15. Disponível em: <http://psicolatina.org/15/apoio.html>

17. Amato TdC, Pavin T, Martins LF, Ronzani TM, Batista A. Trabalho, gênero e saúde mental: uma pesquisa quantitativa e qualitativa entre bombeiros. *Cad Psicol Soc Trabalho*. 2010;13:103-18.

18. Boschloo L, Vogelzangs N, van den Brink W, Smit JH, Beekman AT, Penninx BW. The role of negative emotionality and impulsivity in depressive/anxiety disorders and alcohol dependence. *Psychol Med*. 2012 Oct;1:1-13.

19. WHO. Conquering Depression: Some facts and figures [Internet]. WHO; 2012 [acesso em 11 ago 2012]; Disponível em: http://www.searo.who.int/en/Section1174/Section1199/Section1567/Section1826_8101.htm

20. Baptista MN, Carneiro AM. Validade da escala de depressão: relação com ansiedade e stress laboral. *Estud Psicol. (Campinas)*. 2011;28:345-52.