

Social support at work: a cohort study with civil servants from a public university

Apoio social no trabalho: um estudo de coorte com servidores de uma universidade pública

Marluce Rodrigues Godinho^I , Aldo Pacheco Ferreira^{II} , Denise Cristina Alves de Moura^{III} , Rosangela Maria Greco^{IV} 

ABSTRACT: *Introduction:* Social support at work – related to the interaction between co-workers and supervisors in cooperation toward work achievement – can contribute to reducing the strain on workers and health risks. Therefore, the present study aimed to analyze the social support at work and associated factors among the technical-administrative staff in education from a public university. *Methods:* This is a cohort study with 328 active civil servants, who answered a questionnaire providing information about the social support at work and the independent sociodemographic variables related to work and health. We used Student's *t*-test, the χ^2 test, and logistic regression to analyze the prevalence of and factors associated with social support at work. *Results:* The workers were predominantly males, with a mean age of 47 years, married, with children, had higher education and beyond, showed good working conditions, health status, and high social support at work (85.7%). Factors associated with social support at work included work shift, depression, and work ability. *Conclusion:* The factors associated with social support should be properly analyzed in order to maintain this positive interaction in the work environment.

Keywords: Occupational health. Social support. Work. Government employees. Cohort studies.

^IGraduate Program in Public Health, Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz – Rio de Janeiro (RJ), Brazil

^{II}Department of Human Rights, Health, and Cultural Diversity, Escola Nacional de Saúde Pública Sergio Arouca, Fundação Oswaldo Cruz – Rio de Janeiro (RJ), Brazil

^{III}School of Medicine, Graduate Program in Collective Health, Universidade Federal de Juiz de Fora – Juiz de Fora (MG), Brazil.

^{IV}Department of Basic Nursing, School of Nursing, Universidade Federal de Juiz de Fora – Juiz de Fora (MG), Brazil.

Corresponding author: Marluce Rodrigues Godinho. Rua Orestes Fabiano Alves, 71, ap. 703, São Pedro, CEP: 36037-120, Juiz de Fora, MG, Brasil. E-mail: marlucerodriguesenf@gmail.com

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RESUMO: *Introdução:* O apoio social no trabalho, relacionado à interação entre colegas e chefias na cooperação para a realização do trabalho, pode contribuir para a diminuição do desgaste do trabalhador e dos riscos à saúde. Portanto, o presente estudo objetivou analisar o apoio social no trabalho e os fatores associados dos servidores técnico-administrativos em educação de uma universidade pública. *Metodologia:* Estudo de coorte, com 328 servidores em exercício ativo de sua função, dos quais as informações sobre o apoio social no trabalho e as variáveis independentes sociodemográficas, relacionadas ao trabalho e à saúde, foram coletadas por meio de questionário. Os testes *t* de Student, do χ^2 e a regressão logística foram utilizados, a fim de analisar as prevalências e os fatores associados ao apoio social no trabalho. *Resultados:* Os trabalhadores eram, predominantemente, homens, com idade média de 47 anos, casados, com filhos, com nível universitário ou mais, apresentaram boas condições de trabalho e de saúde e alto apoio social no trabalho (85,7%). Os fatores associados ao apoio social no trabalho foram o turno de trabalho, a depressão e a capacidade para o trabalho. *Conclusão:* Os fatores associados ao apoio social devem ser devidamente analisados para que seja conservada essa interação positiva no ambiente de trabalho.

Palavras-chave: Saúde do trabalhador. Apoio social. Trabalho. Servidores públicos. Estudos de coortes.

INTRODUCTION

Humans, unlike most other living creatures, are inherently social beings living in a community/society, with which they interact, establishing the most diverse relationships¹. Due to this social character of human beings, for many years, some authors have suggested that the rupture of social ties affects the body defense system, making the individual more susceptible to diseases and influencing the health maintenance, in addition to hindering adaptive behaviors in stress situations^{2,3}. Other authors⁴, when investigating the influence of social ties on the risk of falling ill and dying, found that being part of a social network and receiving help from individuals who belong to it can, in fact, benefit the health and well-being.

Considering the above, social network and support are significant in maintaining the health of individuals. Social network relates to the group of people with whom the individual can keep contact or some kind of social bond, while social support concerns the resources that other people, such as friends and family, can provide in situations of need⁵. Thus, we can assume that work integrates with the social network of individuals, particularly when taking into account that people spend most of their day at work⁶.

However, when labor activities are developed under inadequate environmental, organizational, and physiological conditions, health damage can be accelerated or exacerbated as a result of these activities⁷. Therefore, it is necessary to evaluate the social relationships established in the work environment as a factor that can also affect the health of individuals, especially when analyzed together with other work-related aspects.

In this regard, Johnson and Hall created a way to assess social support at work, including this dimension in an already existing scale, developed by Robert Karasek at the end of

the 1970s and early 1980s, focused on researching the causes of work-related stress and their effects on health. With the introduction of the social support dimension, the scale was renamed to Swedish Demand-Control-Support Questionnaire (DCSQ), in which the social support at work is related to the interaction between co-workers and supervisors in cooperation toward work achievement and can contribute to reducing the strain on workers and health risks⁸⁻¹¹.

Negeliskii and Lautert¹² consider that social support should be the basis of work relationships and a social organization strategy in institutions, as it can decrease or even prevent occupational stress. These authors further highlighted that valuing work relationships and environment benefits the health and ability of workers¹².

Studies on social support at work relating to different aspects of labor activities have been carried out with workers from numerous areas and sectors; among them, we underline the workers who act on the public sector, particularly on universities¹³⁻¹⁵. Nevertheless, in Brazil, workers from the public sector are stereotyped as inefficient and costly, and, for this reason, derogatory names are associated with both the institutions and the civil servants¹⁶.

Integrating the group of university workers is the technical-administrative staff in education (*técnico-administrativos em educação* – TAEs), who stand out for encompassing a variety of roles within different training/working areas, covering positions that require schooling levels ranging from elementary to higher education¹⁷, representing the heterogeneity of the population, and being of great scientific importance to the field of worker's health.

In 2012, a study carried out with TAEs from a public university in Minas Gerais found an increased prevalence of civil servants with high social support at work¹⁷. Thus, the present study aimed to analyze the social support at work and its associated factors among TAE civil servants from a public university to give continuity to the research mentioned above.

METHODS

This prospective cohort study, with a quantitative approach, is the second stage of the base-study “Work ability and associated factors of Brazilian technical-administrative workers in education.” The present study was carried out at the Universidade Federal de Juiz de Fora (UFJF), located in the city of Juiz de Fora, state of Minas Gerais, and the population of this study consisted of permanent TAE workers from this university. The workers were invited to participate in the research through direct contact (in-person at the workplace), telephone, or e-mail, when both parts agreed to meet in a place that ensured the privacy of the interviewee, where they would receive and sign the Informed Consent Form and be interviewed.

The present investigation considered as inclusion criteria: having participated in the base-study between January 2012 and April 2013. The exclusion criteria were: having

filled the questionnaire of the base-study incorrectly or incompletely; being off-work due to sick leave, maternity leave, or leave of absence granted by the National Institute of Social Security; having leave to accompany a spouse; or having been transferred to another institution.

Civil servants who were not found after three attempts, who retired for the length of service, age, or disability, those dismissed, or who died were regarded as losses. We also respected the individual's right not to continue participating in the study, and these cases were considered refusals.

Data were collected through interviews conducted by trained researchers or self-administered questionnaires between August 1, 2016 and April 28, 2017, that is, 4 years after the conclusion of the base-study.

We characterized the profile of civil servants by analyzing variables related to sociodemographic characteristics (age, gender, marital status, ethnicity, schooling, number of children), work aspects (age at first job, number of jobs, weekly workload, total length of service, length of service at UFJF, night shift, psychosocial stress at work, social support at work), and health status (signs and symptoms of depression, physical activity, and work ability)^{18,19}.

Work conditions were analyzed through issues concerning the occupational history and by using the DCSQ, a reduced scale that addresses stress and social support at work adapted to Portuguese¹⁰. The Demand-Control Model covers four specific work situations: high-strain job; passive job, active job; and low-strain job. Social support at work has two possible classifications – low or high support^{9,20,21}.

Information about health status was collected using the following instruments:

- Patient Health Questionnaire (PHQ-9), brief instrument that evaluates, diagnoses, and monitors depressive disorder. Kroenke et al.²² provided evidence of validity, and Pfizer (Copyright© 2005 Pfizer Inc., New York, NY, USA) published the translation into Portuguese. In Brazil, Osório et al.²³ validated the instrument. It comprises 9 items, distributed in a 4 point-scale: 0 (not at all) to 3 (nearly every day), with a score ranging from 0 to 27 to assess the frequency of signs and symptoms of depression in the prior two weeks. A score greater than or equal to 10 corresponds to a positive indicator of major depression;
- International Physical Activity Questionnaire (IPAQ), which covers data related to the practice of physical activity by the individual. Validated in 12 countries, IPAQ is a questionnaire that allows the estimation of the weekly time spent on mild, moderate, and vigorous physical activities. In Brazil, Pardini et al.²⁴ validated the instrument;
- Work Ability Index (WAI), based on the worker's self-perception. Researchers from universities in the state of São Paulo²⁵ translated and adapted WAI for Brazil, and later, a study carried out with workers from a power company in the state of São Paulo²⁶ validated the instrument.

The independent variables were sociodemographic characteristics, work aspects, and health status, and we evaluated their association with the outcome – social support at work. Chart 1 presents the variables studied and their categories.

We analyzed the data with the software *Statistical Package for the Social Sciences*, based on descriptive statistics, using measures of central tendency and dispersion for continuous variables, and frequency distributions for categorical variables. We verified the presence of statistically significant differences among the study groups using Student's *t*-test and the χ^2 test and selected the variables associated with the outcome with a *p*-value ≤ 0.20 for the logistic regression. After the multivariate analysis, variables with a *p*-value ≤ 0.05 were considered statistically relevant to explain the social support at work.

The Research Ethics Committees of the Escola Nacional de Saúde Pública (REC/ENSP) and UFJF approved this study under the reports no. 1,574,457 and 1,673,735, respectively.

Chart 1. Study variables and their categories, Juiz de Fora, 2017.

Variables/categories				
Age	Up to 40 years	41 to 59 years	60 years or older	-
Gender	Male	Female	-	-
Ethnicity	White	Non-white	-	-
Marital status	Married	Unmarried	-	-
Schooling	Higher education and beyond	Up to high school	-	-
Children	No	Yes	-	-
Number of jobs	1	2 or more	-	-
Work schedule	Fixed	Flexible	-	-
Weekly workload	Up to 40 hours	More than 40 hours	-	-
Length of service at UFJF	Up to 15 years	16 to 30 years	Over 30 years	-
Previous job	No	Yes	-	-
Night shift	No	Yes	-	-
Age at first job	18 years or older	Younger than 18 years	-	-
Depression	Absent	Present	-	-
Physical activity	Active or very active	Moderately active	Sedentary	-
Demand control	Low-strain job	Active job	Passive job	High-strain job
Social support at work	High	Low	-	-
Work ability	Great	Good	Moderate	Low

UFJF: Universidade Federal de Juiz de Fora.

RESULTS

Among all TAEs who participated in the base-study, 328 comprised the cohort of this study, as shown in Figure 1.

When comparing the participant and non-participant population, the statistical analysis showed that the two groups did not differ with respect to most sociodemographic, health, and work variables investigated in the present study, except for age, ethnicity, and schooling.

The sociodemographic profile of TAEs, presented in Table 1, indicates that they are predominantly male, with a mean age of 47 years (ranging from 25 to 67 years), a higher incidence in the age group 41 to 59 years, white, married, with children, and have higher education or beyond.

Regarding the work- and health-related characteristics of TAEs, we found that most of them had only one job, with fixed working hours, weekly workload that did not exceed 40 hours, did not work at night, had up to 15 years working at UFJF, had another job before starting to work at the university, and were older than 18 years at their first job. Most TAEs

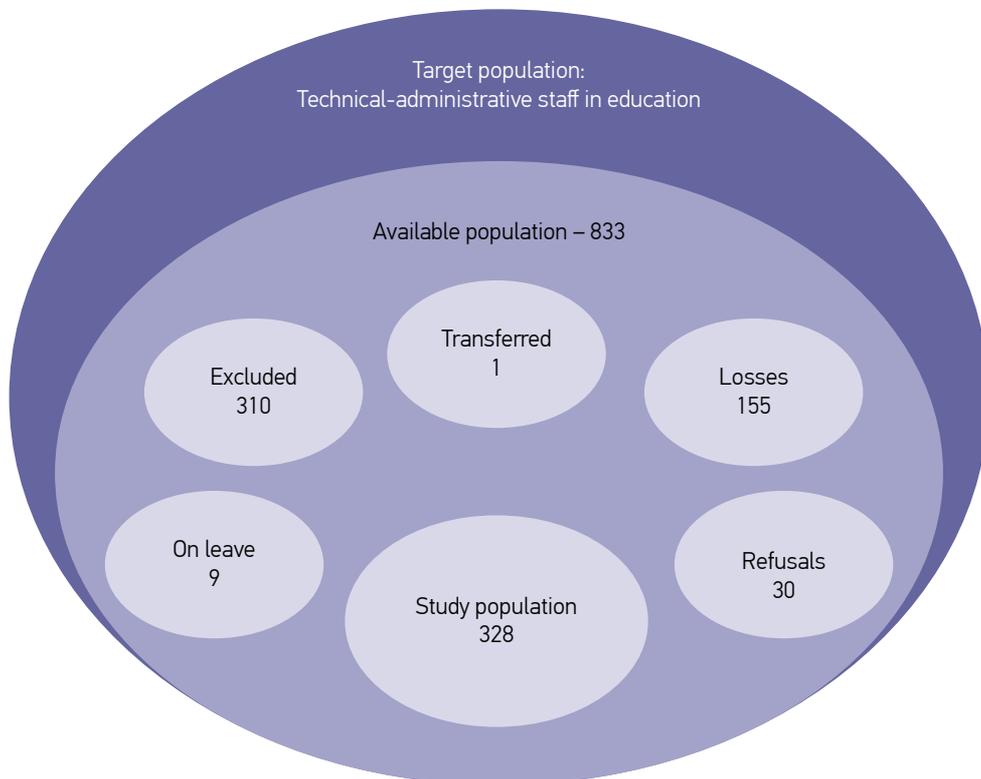


Figure 1. Population design from the cohort study conducted between 2012/2013. Juiz de Fora, 2017.

did not show any signs and symptoms of depression, were classified as active or very active concerning their level of physical activity, had passive work and high social support at work.

In the follow-up period (2012/2013 to 2016/2017), some variables have changed, as many individuals got married, had children, and improved their level of schooling. Concerning work-related aspects, more civil servants started working fixed hours and up to 40 hours per week, and the percentage of workers with high social support at work increased. On the other hand, the percentage of individuals who did not work at night decreased, and two civil servants no longer have just one job.

As to health status, one TAE no longer had signs and symptoms of depression, and the number of workers with good WAI increased. In contrast, relating to the level of physical activity, the number of individuals classified as active or very active dropped.

Table 1. Profile of the technical-administrative staff in education throughout the cohort follow-up. Juiz de Fora, 2017.

Variables	Category	2012/2013		2016/2017	
		n	%	n	%
Age	41 to 59 years	171	52.1	175	53.4
Gender	Male	163	50.2	163	50.2
Ethnicity	White	235	72.8	235	72.8
Marital status	Married	204	63.4	221	67.4
Schooling	Higher education and beyond	281	86.7	302	92.4
Children	Yes	180	55.4	199	60.7
Number of jobs	1	273	83.2	271	82.9
Work schedule	Fixed	274	83.5	283	86.3
Weekly workload	Up to 40 hours	250	77.6	288	87.8
Length of service at UFJF	Up to 15 years	186	56.9	186	56.9
Previous job	Yes	268	81.7	268	81.7
Night shift	No	277	85.5	256	79.3
Age at first job	Older than 18 years	176	54.5	176	54.5
Depression	Absent	297	90.8	298	91.1
Physical activity	Active or very active	170	52.0	157	47.9
WAI	Good	145	44.5	150	45.7
Demand control	Passive job	125	38.2	132	40.3
Social support at work	High	247	75.8	281	85.7

UFJF: Universidade Federal de Juiz de Fora; WAI: Work Ability Index.

When performing bivariate and regression analyses of independent variables with the outcome – social support at work –, we identified that, in the bivariate analysis, the variables type of work schedule, night shift, signs and symptoms of depression, level of physical activity (active/very active versus sedentary), demand control, and WAI had some influence on social support at work, with a p-value ≤ 0.20 , as shown in Table 2.

After the multivariate analysis, the variables night shift, signs and symptoms of depression, and WAI remained associated with the outcome, and the data indicated that the probability of the worker having low social support at work is approximately 3.2 times higher if he or she works the night shift; five times higher if the individual presents signs and symptoms of depression; and three times higher when the worker has his or her work ability impaired.

Table 2. Sociodemographic characteristics, health status, work conditions, and their influence on social support at work, Juiz de Fora, 2017.

Variables	Crude OR	95%CI	p	Adjusted OR	95%CI	p
Age						
Continued to be younger than 40 years	1	0.38 – 3.22	0.859	-	-	-
Continued to be/changed to 41 to 59 years	1.10			-	-	-
Continued to be/changed to ≥ 60 years	0.95	0.34 – 2.70	0.929	-	-	-
Marital status						
Married or have gotten married	1	0.54 – 2.08	0.859	-	-	-
Unmarried or became unmarried	1.06			-	-	-
Schooling						
Continued to have or completed higher education	1	0.12 – 2.43	0.423	-	-	-
Continued to have up to high school	0.55			-	-	-
Children						
Never had children	1	0.54 – 1.94	0.941	-	-	-
Has or had children	1.03			-	-	-
Number of jobs						
1 job	1	0.67 – 3.11	0.353	-	-	-
2 or more jobs	1.44			-	-	-

Continue...

Table 2. Continuation

Variables	Crude OR	95%CI	p	Adjusted OR	95%CI	p
Type of work schedule						
Fixed	1	0.90 – 4.34	0.085	1	0.31 – 2.33	0.752
Flexible	1.98			0.85		
Weekly workload						
Continued or started working up to 40 hours	1	0.68 – 3.71	0.278	-	-	-
Continued or started working more than 40 hours	1.59			-	-	-
Night shift						
Did or does not work	1	1.40 – 5.44	0.002	1	1.42 – 7.14	0.005
Continued or started working	2.76			3.18		
Depression symptoms (PHQ-9)						
Continued to be or became absent	1	3.29 – 16.7	0.000	1	2.02 – 13.5	0.001
Continued to be or became present	7.41			5.22		
Level of physical activity (IPAQ)						
Continued to be or became active/very active	1	0.27 – 1.51	0.307	1	0.28 – 1.35	0.223
Continued to be or became insufficiently active	0.64			0.61		
Continued to be or became sedentary	0.48	0.19 – 1.21	0.122	0.85	0.31 – 2.36	0.757
Demand control						
Continued or started working in a low-strain job	1	0.16 – 1.08	0.072	1	0.56 – 4.66	0.370
Continued or started working in an active job	0.412			1.62		
Continued or started working in a passive job	0.988	0.36 – 2.74	0.981	1.15	0.48 – 2.79	0.749
Continued or started working in a high-strain job	0.526	0.21 – 1.29	0.160	1.54	0.51 – 4.65	0.444
WAI						
Continued to be or became adequate	1	1.59 – 5.65	0.000	1	-	-
Continued to be or became impaired	3.01			3.10	1.53 – 6.28	0.002

OR: odds ratio; 95%CI: 95% confidence interval; PHQ-9: Patient Health Questionnaire; IPAQ: International Physical Activity Questionnaire; WAI: Work Ability Index.

DISCUSSION

The first aspect to be discussed in the present study concerns the comparison between participants and non-participants, and it is important to emphasize that both groups differed only in relation to ethnicity, schooling, and age. The difference is justified by the fact that the mean age of the non-participant group, which included workers who had retired, was superior to that of the participant group, influencing the distinction between the groups, since the mean age of non-white individuals and those with a lower level of schooling was higher. We underline that, over the cohort follow-up period, 88 individuals retired, and the mean age of these retirees was 58 years.

With respect to the results of the cohort participants, the profile of these civil servants was similar to that found by other authors who also conducted studies with Brazilian workers and identified that most of the study population had high social support at work^{15,27}.

In the multivariate analysis, the variables night shift, signs and symptoms of depression, and WAI remained associated with social support at work. We found that individuals who work at night have 3.2 times more chance of presenting low social support at work. Thus, we emphasize that working the night shift causes health damage to the worker, including interference in the circadian rhythm, incompatibility of schedules with family and friends, social isolation, and physical and mental strain²⁸.

Another variable associated with social support at work was signs and symptoms of depression, as the data showed that individuals who presented these signs and symptoms were more likely to have low social support at work. The Whitehall II study, conducted with British civil servants, demonstrated that repetitive occupational stress and low social support at work increased the risk of major depressive disorder (MDD), indicating the relevance of social support at work²⁹.

Research carried out with workers in Bahia¹⁵ revealed that individuals exposed to a high-strain job and low social support at work showed a prevalence of common mental disorders, evidencing that low social support can negatively impact their health. In this scenario, some authors argue that social support behaves as a beneficial factor, as it contributes to minimizing the perception of a threat and works as a fundamental element in the process of facing adverse situations¹⁵.

When analyzing the influence of health status on the outcome, we could identify that impaired work ability showed a statistically significant association with low social support in this study. The analyses showed that individuals with impaired work ability were approximately three times more likely to present low social support at work.

Other researchers³⁰ found a similar result when evaluating whether different stressors affect the work ability of young and aging nursing professionals. Their findings revealed that the work ability of younger professionals was influenced by several of the stressors analyzed, including the worsening in social support³⁰.

Some authors argue that improvement in the work ability is strongly associated with a better relationship with the supervisor and the organizational process at work. Therefore,

social support should be the basis of work relationships and a social organization strategy in institutions, as it can decrease or even prevent occupational stress. Valuing work relationships and environment can benefit the workers' health and ability^{12,17}.

Despite the lack of significant differences between participants and non-participants, we cannot refrain from considering the size of the study population as a limitation. Also, extrapolating data to the general population requires caution, given that TAEs from the university have health and working conditions that might not reflect the reality of the general Brazilian population. Nonetheless, our results can contribute to designing intervention strategies that could to promote social support, prevent occupational stress and illnesses in workers with characteristics similar to those of the sample of this study.

CONCLUSION

We concluded that it is crucial to implement actions aimed at controlling risk factors associated with low social support at work and measures that promote a balanced work environment focused on existing social relationships, both among co-workers and between employees and supervisors. These actions can help to prevent diseases among workers, which often leads to a leave of absence, a situation that can happen early in some cases.

Thus, it is essential to have an ongoing multidisciplinary support program for civil servants from the university who presented low social support at work and health deficiencies, paying special attention to psychological support and the maintenance of functional capacity. For this multidisciplinary support program for civil servants, we suggest that the university includes its student body under the supervision of faculty members, integrating the TAEs in the process so that they can maintain an active and healthy life inside and outside the work environment.

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