

Working Conditions and Health of Prison Officers in Paraná (Brazil)

Fernando Braz Pauli¹, Franciele Aní Caovilla Follador², Guilherme Wendt³,
Leia Carolina Lucio⁴, Claudicéia Risso Pascotto⁵, Lirane Elize Defante Ferreto⁶

¹Enfermero. Estudiante de maestría en Ciencias Aplicadas de la Salud en la *Universidade Estadual do Oeste do Paraná*. Campus Francisco Beltrão. Paraná. Brasil.

²Doctor en Ingeniería Agrícola y profesor del Programa de Postgrado en Ciencias Aplicadas de la Salud-UNIOESTE. Campus Francisco Beltrão. Paraná. Brasil.

³Doctor en Psicología por la Universidad de Londres y profesor del Curso de Medicina de UNIOESTE. Campus Francisco Beltrão. Paraná. Brasil.

⁴Doctora en Ciencias por la Universidade Estadual de Maringá. Profesora del Programa de Postgrado en Ciencias Aplicadas de la Salud-UNIOESTE. Campus Francisco Beltrão. Paraná. Brasil.

⁵Doctor en Ciencias Biológicas (Biología Celular) y profesor del Programa de Postgrado en Ciencias Aplicadas de la Salud-UNIOESTE. Campus Francisco Beltrão. Paraná. Brasil.

⁶Doctor en Salud Colectiva y profesor del Programa de Postgrado en Ciencias Aplicadas de la Salud-UNIOESTE. Campus Francisco Beltrão. Paraná. Brasil.

ABSTRACT

Objectives: This cross-sectional study was carried out to identify the associations between working and health conditions among prison officers at a state prison in Paraná, Brazil.

Material and method: A proportional and stratified random sample of 125 individuals was used. The participants, who were not identified, completed a self-administered questionnaire.

Results: The results showed a prevalence of minor psychiatric disorders (MPD) of 30.4% (95%CI: 22.4-39.2). A total of 17.9% of the respondents had persistent stress (95%CI: 12.2-25.2), 66.4 had up to five health-related complaints (95%CI: 58.4-75.2) and 9.6% had scores that indicated higher risk for alcohol abuse and/or dependence (95%CI:4.8-16.0). Multivariate analyses showed that with an MPD outcome, health problems ($p<0.01$), physical environment ($p=0.013$) and organizational risks ($p<0.01$) were significant predictors. Persistent stress was predicted by age ($p=0.031$), health problems ($p<0.01$) and organizational risks ($p=0.023$), while health complaints were associated with health problems ($p<0.01$) and physical environment ($p<0.01$). There were no significant predictors for higher risk for alcohol abuse and/or dependence.

Discussion: In general, the results demonstrate the precarious nature of the work of prison officers, and reveal the importance of further studies to evaluate whether this is a specific reality of the unit that was investigated, or whether these results are common in other prison environments.

Key words: prisons; occupational health; mental health; cross-sectional studies; psychopathology.

Text received: 12/07/2021

Text accepted: 17/02/2022

INTRODUCTION

The Brazilian prison system is in crisis as a result of overcrowding, gang conflicts, drug trafficking within units and riots that involve serious violence¹. Prison officers (POs) find themselves in the midst of this situation and suffer the consequences of these problems on a daily basis.

POs are responsible for the internal security of prisons, a role which encompasses the discipline and security of prisoners. Among the tasks they carry out are the inspection of prisoners and visitors, the opening and closing of prison cells, making periodic rounds, providing discipline during prisoners' meals and checking the cleanliness and hygiene of the cells².

Daily and continuous coexistence in prisons leads to POs being exposed to physical, psychological, and social consequences³. Thus, this study was undertaken in the prison working environment, where POs are exposed to dangerous and stressful conditions. It is anticipated that the results obtained may encourage actions that have an impact on the working conditions of POs, and have a positive effect on their health. The study therefore sought to explore the possible relationships between working and health conditions of POs at the Penitenciária Estadual de Francisco Beltrão (the Francisco Beltrão State Prison) in the state of Paraná, Brazil.

MATERIAL AND METHOD

A cross-sectional epidemiological study was carried out with POs in a prison administered by the state of Paraná. The target population were POs who worked in a unit that serves around 1,200 male-only detainees. The title POs refers to security and disciplinary workers in penal and prison hospital units, irrespective of the functions they perform or the positions in which they work. At the time of data collection, there were around 200 POs in the penitentiary.

To select the sample of respondents, a stratified proportional random sample was used. The minimum size for the sample was calculated based on a degree of absolute precision of 5%, a confidence level of 95%, and an expected prevalence of 50%, resulting in a total of 132 respondents, plus 10% for losses and refusals, resulting in a total of 145 POs. The survey involved workers officially classified as POs by the Department of Justice.

Those on maternity leave, recovering from cosmetic surgery or sequelae from a car accident not related to work, as well as those on leave for a year or more

and who had worked as POs for less than five years were not included in the investigation. Moreover, for those who had less than 10 years of experience, the study did not include those on leave for two years¹. All the other POs were considered eligible and were invited to take part in the research.

Procedures and instruments

In the planning phase of the study, a research visit was made to the Paraná State Penitentiary to learn more about the working process and dynamics of the category of employees studied. The information collected was important for improving the research tools and data collection procedures.

This study was approved by the Ethics Committee for Research on Human Beings at UNIOESTE, under opinion number 810.648, in 2014. Participants were guaranteed that their identity would remain confidential at all stages of this research.

To collect information, a self-administered, standardized, and validated questionnaire¹ was used that included questions about sociodemographic conditions, occupational aspects, life habits, general and occupational morbidity, the presence of MPD, excessive alcohol consumption, food consumption and the existence of stress. The SRQ-20 (Self-Reported Questionnaire) was used to measure MPD. This questionnaire was developed by Harding et al.⁴ and was used to collect information on non-psychotic psychiatric morbidity in primary health care institutions. According to Fernandes et al.¹, it is a self-administered instrument, with dichotomous answers (yes/no), and a cutoff point of seven or more positive answers is indicated to classify individuals suffering from MPD⁵.

To track problems related to alcohol, the AUDIT Questionnaire⁶ was used. This is a self-reported measuring tool consisting of 10 items, in which the suggested cutoff is 8 points or more out of a total of 40 possible points. Scores equal to or above 8 are suggestive of the existence of alcohol abuse, indicating the need for further clinical investigation. If the sum of the scores is greater than 10, the probability of misclassifying cases suggestive of alcohol abuse decreases.

To assess POs with lifetime risk of alcohol abuse and/or dependence, the CAGE, a self-administered questionnaire consisting of four questions, was used. This instrument has good levels of sensitivity and specificity for the identification of individuals who have problems with alcohol consumption. Validation in Brazil was carried out by Masur and Monteiro⁷, and the suggested cutoff point was two or more positive answers¹.

To identify symptoms of stress, the type of existing symptom (somatic or psychological) and the stress stage in which it is found, the Stress Symptoms Inventory (ISS) developed by Lipp and Guevara⁸ was used. This classifies the responses as follows: 4 to 6 positive responses as transient stress; 7 to 8 as intermediate stress; 9 or more positive responses as persistent stress.

The variables related to the work environment were grouped into physical environment (noise/din, humidity, dust, light and ventilation), ergonomic risks (availability of materials and equipment to perform tasks, suitability of furniture, variety and diversity of functions, monotony, remain standing, remain seated, and going up and down stairs) and organizational risks (management pressure, relationship with management, relationship with colleagues, team size, satisfaction in carrying out tasks, independence in carrying out tasks and work in shifts/at night).

Data collection was carried out between November 2014 and January 2015. The collected data were reviewed, coded, digitized, and verified for errors or inconsistencies.

For data analyses, the chi-square test and prevalence ratios and their respective confidence intervals were calculated. Multivariate data analysis was used for examining the predictors of MPD, risk for alcohol abuse or dependence, general health complaints and persistent stress.

RESULTS

A total of 132 POs participated in the study, with seven losses and refusals, totaling 125 respondents. As the Paraná State Penitentiary serves the male prison population, only 8% of respondents (n=10) were female. The characterization of the sample is shown in Table 1. It can be seen that the highest prevalence (%) of POs had completed higher education, were married, had worked in the role for 1 to 7 years, and had a workload of up to 40 hours, with time for physical activity and leisure.

Table 2 shows the prevalence of the outcomes assessed. It is noteworthy that 30.4% of POs had MPD, 17.9% persistent stress, 66.4% up to five health-related complaints and 9.6% presented with risk of alcohol abuse and/or dependence.

Tables 3 to 4 show the results of the regression analyzes with the differing outcomes. In the MPD outcome, health problems, physical environment and organizational risks were identified as associated factors. In the persistent stress outcome,

after adjustment for regression, factors associated with age, health problems and organizational risks remained. Using the outcome of health complaints, the associated factors were health problems and the physical environment. In the case of the outcome of alcoholism, after multivariate adjustment, no variable showed statistical significance.

DISCUSSION

The objective of this research was to identify the associations between the working and health conditions of POs. Research into the illnesses of these workers remains scarce, despite being important for the development of public policies and the planning of health care services⁹.

The prevalence of MPD was found to be similar to the study by Fernandes et al.¹, which found a 30.7% prevalence of MPD in POs surveyed in the metropolitan region of Salvador, in the state of Bahia, but was higher than the 23% prevalence among police officers in the metropolitan region of Florianópolis, in the state of Santa Catarina¹⁰.

In Brazilian studies, the prevalence of MPD in the general population varies between 17% and 35%¹¹. In a survey carried out in the United Kingdom, a group of occupations was found to have a high rate of common mental disorders, including teachers, bar workers and nursing assistants. It was noted that these categories of labor may involve a certain degree of unpredictability in how clients or customers might behave towards the worker¹².

It was noted that there was a relationship between MPD and health problems, physical environment and organizational risks. In a systematic review that included studies of emergency service attendants and dispatchers, it was observed that shift work can lead to lack of physical activity, malnutrition and obesity; while in the context of work environment, outdated, ergonomically ill-adjusted equipment and physically confined and isolated workspaces can lead to physical injuries. The same study found that being exposed to verbally aggressive callers and a lack of leadership support was an additional source of stress¹³.

One notable finding of the present study was the high rate of POs who practiced sports (76.8%), while 87.2% claimed to have time for leisure. This factor may have contributed to the percentages of MPD not rising further.

Complaints of illness were made by 93.6% of prison officers, with 66.4% registering up to five complaints and 27.2% more than five complaints. In

Table 1. Distribution of prevalence of sociodemographic and work-related factors of prison officers (POs) interviewed (n=125) at a state prison in Paraná, 2015.

Variables	N	Prevalence (%)
Age		
22 - 30 years old	37	29.6
30 - 40 years old	58	46.4
Over 40 years	27	21.6
Sex		
Male	115	92.0
Female	10	8.0
Education		
Secondary school not completed	8	6.4
Secondary school completed	32	25.6
Higher education	85	68.0
Marital status		
Single	35	28.0
Married	66	52.8
Common law partner	18	14.4
Separated/Divorced	5	4.0
Time spent at prison		
Up to 1 year	42	33.6
Between 1 and 7 years	64	51.2
More than 7 years	18	14.4
Entered prison		
Up to 2 years ago	5	4.0
Between 2 and 7 years ago	59	47.2
More than 7 years ago	59	47.2
Type of work		
Shift work	110	88.0
Administrative	15	12.0
Working patterns		
24/48 and 12/48	22	17.6
24/72	2	1.6
Other	101	80.8
Performs administrative role	25	20.0
Underwent training for role	93	74.4
Hours worked per week		
36h to 40h	99	79.2
More than 40	19	15.2
Has other job	22	17.6
Often works double shift	20	16.0
Has health problem	22	17.6
Uses medications	24	19.2
Uses tranquilizers	5	4.0
Smokes	16	12.8
Plays sports	96	76.8
Has leisure time	109	87.2

Table 2. Distribution of prevalence of MPD, stress, health complaints, alcohol consumption and suspected alcoholism of prison officers (POs) interviewed (n=125) working in a state penitentiary in Paraná, 2015.

Condition	n (N)	Prevalence (%)	95% CI
Minor Psychiatric Disorders	38 (125)	30.4	22.9-28.2
Stress			
Transient	10 (123)	8.1	4.1-13.0
Intermediate	10 (123)	8.1	4.1-13.0
Persistent	22 (123)	17.9	59.2-65.2
Health complaints			
No complaints	8 (125)	6.4	2.4-11.2
Up to 5 complaints	83 (125)	66.4	68.8-74.3
More than 5 complaints	34 (125)	27.2	68.8-74.3
Alcohol consumption			
At risk for alcohol abuse or dependence	12 (125)	9.6	4.8-16.0

Note. CI: confidence interval; n (lower case): part of total sample; N (upper case): total sample.

Table 3. Distribution of crude and adjusted associations, according to sociodemographic, work-related, organizational and health variables with the outcome of minor psychological disorders and persistent stress. Prison officers (POs) were interviewed (n=125) who work in a state prison in Paraná, 2015.

Independent variable	Minor Psychiatric Disorders						Persistent Stress					
	β	PR (95% CI)	p value	a β	aPR (95% CI)	p value	β	PR (95% CI)	p value	a β	aPR (95% CI)	p value
Age	0.20	1.02 (0.98-1.06)	0.277	---	---	---	0.05	1.05 (1.00-1.10)	0.046	0.05	1.05 (1.00-1.09)	0.031
Health Problem	1.01	2.73 (1.70-4.38)	<0.01	1.09	2.98 (1.92-4.62)	<0.01	1.71	5.51 (2.73-11.1)	<0.01	1.21	5.04 (2.47-10.3)	<0.01
Physical Environment	0.09	1.09 (1.02-1.18)	0.014	0.08	1.08 (1.02-1.15)	0.013	0.06	1.06 (0.94-1.19)	0.337	---	---	---
Ergonomic Risks	0.06	1.06 (0.99-1.14)	0.113	---	---	---	0.07	1.08 (0.97-1.20)	0.177	---	---	---
Organizational Risks	0.09	1.10 (1.04-1.15)	<0.01	0.09	1.09 (1.04-1.15)	<0.01	0.06	1.07 (0.98-1.16)	0.136	0.09	1.09 (1.01-1.18)	0.023
Goodness of Fit Test: $\chi^2 = 20.431$; df = 3; p = <0.001.						Goodness of Fit Test: $\chi^2 = 19.975$; df = 3; p = <0.001.						

Note. a β : adjusted estimates; aPR: adjusted prevalence ratio; β : estimates; CI: confidence interval; df: degrees of freedom; PR: prevalence ratio.

a study of the health conditions of socio-educational agents, 62.8% mentioned using some type of medication, while when asked about the need for medical and psychological care in the last year, 79.6% and 35.5%, respectively, answered affirmatively¹⁴. In a survey carried out in Ireland, meanwhile, there seemed to be a predominance of chronic pain in POs, associated with both physical and psychological impairment¹⁵.

Persistent stress was related to older age, health problems and organizational risks. A study carried out in prisons in the USA found that when work environments were more disorderly or there was less control over work activities, levels of stress increased; in contrast, when the environment was free from violations of rules and problems with prisoners, or when POs had more control and autonomy, and support from colleagues and supervisors, stress levels were lower¹⁶.

Table 4. Distribution of crude and adjusted associations of sociodemographic, work-related, organizational and health variables, with the outcomes of general health complaints and risk of alcohol abuse or dependence for prison officers interviewed (n=125) who work in a state prison in Paraná, 2015.

Independent Variable	General health complaints (more than 5)						At risk of alcohol abuse or dependence					
	β	PR (IC 95%)	p value	a β	aPR (IC 95%)	p value	β	PR (IC 95%)	p value	a β	aPR (IC 95%)	p value
Age	0.04	1.04 (1.00-1.08)	0.023	---	---	---	0.06	1.06 (0.99-1.14)	0.104	---	---	---
Health Problem	0.81	2.24 (1.29-3.89)	<0.01	0.84	2.32 (1.39-3.88)	<0.01	1.21	3.34 (1.17-9.57)	0.024	---	---	---
Physical Environment	0.12	1.13 (1.03-1.22)	<0.01	0.13	1.14 (1.05-1.24)	<0.01	-0.07	0.94 (0.81-1.08)	0.356	---	---	---
Ergonomic Risks	0.09	1.10 (1.02-1.19)	0.017	---	---	---	0.02	1.02 (0.86-1.22)	0.807	---	---	---
Organizational Risks	0.04	1.04 (0.98-1.10)	0.190	---	---	---	-0.01	0.99 (0.88-1.12)	0.906	---	---	---

Goodness of Fit Test: $\chi^2 = 11.536$; $df = 2$; $p = 0.003$.

Note. a β : adjusted estimates; aPR: adjusted prevalence ratio; β : estimates; CI: confidence interval; df : degrees of freedom; PR: prevalence ratio.

A recent large-scale investigation also emphasized that exposure to violence and the victimisation of POs, both inside and outside jails, significantly contribute to psychopathologies such as post-traumatic stress disorder¹⁷. The exposure of workers to stressors might be mitigated when healthy habits are part of daily life, both in work and family environments. For instance, in a study carried out with Mexican police officers, the results showed that physical and leisure activities play an important role in reducing negative emotions and promoting the well-being of police officers¹⁸.

The prevalence of alcohol consumption was 68%, while 9.6% of those surveyed ran a risk of alcohol abuse and/or dependence. A national study of career firefighters in the USA indicated that more than 85% of the sample drank alcohol, and approximately one-third reported periodic heavy drinking while not at work (i.e., five or more drinks in one occasion)¹⁹.

In this study, there was an association between alcohol use and health problems, but there was no association with age or the physical, ergonomic, or organizational environment. In a cohort study carried out in the UK among soldiers suffering from stress, emotional or mental health problems, those who drank to deal with symptoms of mental disorders or social pressure, in addition to those who drank at home or alone, had a greater probability of also drinking to excess²⁰. More recently, data gathered from correctional officers in the US reinforced the idea that the occupational environment of these workers

might lead to maladaptive behaviors such as substance abuse, although lower levels of occupational distress can mediate these links, thus leading to less negative outcomes while also highlighting the unique importance of having specific policies that set out to attenuate occupational stressors²¹.

The reports of health problems and the use of medication, including tranquilizers, by the POs, and the association of these problems with the physical environment, led to reflections on factors that may be related to working conditions and psychological well-being. Literature reveals that the category of POs has been identified as stressful, involving risks to the lives of such workers and the need for intense and permanent emotional control²².

This article sought to identify possible relationships between working conditions and health outcomes of POs. We found that organizational and physical environment were related to stress and health complaints. While confounding factors might have influenced the results (i.e., family and other factors outside prisons), the collected data have important implications for policy makers and professionals responsible for POs' physical and mental wellbeing. Nonetheless, there are some limitations that should also be considered, such as the cross-sectional nature of the work that does not allow us to understand causal links between the variables examined.

By way of summary, the results demonstrate a population that is marginalized from health care by

public policies. The work environment, associated with organizational and structural issues, influence the response to stress, especially persistent stress, which requires constant adjustments in personal and structural relationships from such workers when performing their working functions. The indication of health problems was present in all the outcomes analyzed, except for alcoholism, demonstrating that the origins of such problems are most likely to be found in the complaint itself and the organizational structure of personal relationships, which include relationships with the detainee, colleagues and supervisors. Excessive distress, anxiety and dissatisfaction with working conditions can contribute to psychopathological manifestations such as minor psychiatric disorders. The results demonstrate the precarious nature of the work of POs, demonstrating the importance of future studies aimed at assessing whether this is a particular reality of the investigated unit, or whether these results are common to other POs' working environments.

CORRESPONDENCE

Fernando Braz Pauli
Universidade do Oeste do Paraná.
Campus Francisco Beltrão, Paraná, Brasil.
E-mail: fernandopauli1939@gmail.com

REFERENCES

1. Fernandes RCP, Silvany Neto AM, Sena GM, Leal AS, Carneiro CAP, Costa FPM. Trabalho e cárcere: um estudo com agentes penitenciários da Região Metropolitana de Salvador, Brasil. *Cad Saúde Pública.* 2002;18(3):807-16.
2. Vasconcelos ASF. A saúde sob custódia: um estudo sobre agentes de segurança penitenciária no Rio de Janeiro. Fundação Oswaldo Cruz: Centro de Estudos da Saúde do Trabalhador e Ecologia Humana (CESTEH); 2000.
3. Monteiro LC. A permeabilidade das grades na busca cotidiana pela ordem: um estudo sobre agentes penitenciários em Salvador-BA. Universidade Federal da Bahia: Programa de Pós-Graduação em Ciências Sociais; 2013.
4. Harding TW, Arango MV, Baltazar J, Climent CE, Ibrahim HHA, Ladrado-Ignacio L, et al. Mental disorders in primary health care: a study of their frequency and diagnosis in four developing countries. *Psychol Med.* 1980;10(2):231-41.
5. Gonçalves DM, Stein AT, Kapczinski F. Avaliação de desempenho do Self-Reporting Questionnaire como instrumento de rastreamento psiquiátrico: um estudo comparativo com o Structured Clinical Interview for DSM-IV-TR. *Cad Saúde Pública.* 2008;24(2):380-90.
6. Mendez EB. Uma versão brasileira do AUDIT (Alcohol use disorders identification test). Universidade Federal de Pelotas. Departamento de Medicina Social; 1999.
7. Masur J, Monteiro MG. Validation of the "CAGE" alcoholism screening test in a Brazilian psychiatric inpatient hospital setting. *Braz J Med Biol Res.* 1983;16(3):215-8.
8. Lipp MEN, Guevara AJH. Validação empírica do inventário de Sintomas de Stress (ISS). *Estudos de Psicologia.* 1994;11(3):43-9.
9. Lima AIO, Dimenstein M, Figueiró R, Leite J, Dantas C. Prevalence of Common Mental Disorders and Alcohol and Substance Abuse Among Correctional Officers. *Psicol Teor e Pesqui.* 2019;35:e3555.
10. Lima FP, Blank VLG, Menegon FA. Prevalência de Transtorno Mental e Comportamental em Polícias Militares/SC, em Licença para Tratamento de Saúde. *Psicol Ciênc Prof.* 2015;35(3):824-40.
11. Santos GBV, Alves MCGP, Goldbaum M, Cesar CLG, Gianini RJ. Prevalence of common mental disorders and associated factors in urban residents of São Paulo, Brazil. *Cad Saúde Pública.* 2019;35(11):e00236318.
12. Stansfeld SA, Rasul FR, Head J, Singleton N. Occupation and mental health in a national UK survey. *Soc Psychiatry Psychiatr Epidemiol.* 2011;46(2):101-10.
13. Smith EC, Holmes L, Burkle FM. Exploring the Physical and Mental Health Challenges Associated with Emergency Service Call-Taking and Dispatching: A Review of the Literature. *Prehospital Disaster Med.* 2019;34(6):619-24.
14. Greco PBT, Magnago TSBS, Beck CLC, Urbanetto JS, Prochnow A. Job stress in agents at the socio-educational service centers in the state of Rio Grande do Sul. *Rev Gaúcha Enferm.* 2013;34(1):94-103.
15. Costello E, Bogue JE, Sarma K, McGuire BE. Chronic Pain in Irish Prison Officers: Profile and Predictors of Pain-Related Disability and Depression. *Pain Med.* 2015;16(12):2292-301.
16. Ellison JM, Caudill JW. Working on local time: Testing the job-demand-control-support model of stress with jail officers. *J Crim Justice.* 2020;70:101717.

17. Ellison JM, Jaegers LA. Suffering in Silence: Violence Exposure and Post-Traumatic Stress Disorder Among Jail Correctional Officers. *J Occup Environ Med.* 2022;64(1):e28-35.
18. Hernández-Corona ME, Méndez-Rizo J, Rojas-Solís JL. El síndrome de burnout en policías: Una revisión sistemática sobre aspectos metodológicos, factores asociados, causas y consecuencias. *Dilemas Contemp Educ Política Valores.* 2021; 1-19.
19. García-Rivera BR, Olguín-Tiznado JE, Aranibar MF, Ramírez-Barón MC, Camargo-Wilson C, López-Barreras JA, et al. Burnout Syndrome in Police Officers and Its Relationship with Physical and Leisure Activities. *Int J Environ Res Public Health.* 2020;17(15):5586.
20. Abeyta S. An Exploratory Examination of the Effects of Workplace Strain on Correctional Officers. *Deviant Behav.* 2021;1-18.
21. Haddock CK, Day RS, Poston WSC, Jahnke SA, Jitnarin N. Alcohol Use and Caloric Intake from Alcohol in a National Cohort of U.S. Career Firefighters. *J Stud Alcohol Drugs.* 2015;76(3):360-6.
22. Irizar P, Leightley D, Stevelink S, Rona R, Jones N, Gouni K, et al. Drinking motivations in UK serving and ex-serving military personnel. *Occup Med Oxf Engl.* 2020;70(4):259-67.