DOI: 10.1590/1413-81232015217.01222016

The impact of prisons on the mental health of prisoners in the state of Rio de Janeiro, Brazil

Patricia Constantino [1]
Simone Gonçalves de Assis [1]
Liana Wernersbach Pinto [1]

Abstract *The aim of this article is to assess the mental health status of inmates and people in custody in the state of Rio de Janeiro and the association between mental health and imprisonment using the Beck Depression Inventory and the Lipp Stress Symptom Inventory for Adults. Sample: 1,573 individuals, via stratified sampling with probability proportional to size. Study population: more than half have up to 29 years old; 70.6% were black/brown; 77.4% had strong family ties; 42.9% had been incarcerated for under a year; and 22,9% performed work tasks in prison. Stress: 35.8% of men and 57.9% of women. Factors associated with stress among men: length of time in prison and family ties. Male prisoners who had been in prison for between 1 and 9 years are 0.55 times less likely to experience stress symptoms than those who had been in prison for less than a year; those with regular/weak family ties are more likely to experience stress than those with strong ties. Women with only regular/weak family ties are more likely to experience stress; work tasks performed in prison was a protective factor. Depression: 7.5% of women and 6.3% of men. Among men, practicing a religion, maintaining strong family ties, and performing prison work tasks are protective factors. Among women, an association was found between depression and family ties.*

Key words *Mental health, Depression, Stress, Prisons*

[1] Departamento de Estudos de Violência e Saúde Jorge Careli, Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz. Av. Brasil 4036/700, Manguinhos. 21040-361 Rio de Janeiro RJ. paticons@fiocruz.br

Introduction

Brazil's prison population in 2013, including people in police custody, was 574,027 inmates, which is equivalent to a national incarceration rate of 393.3 per 100,000 population. In the same year, the shortage of prison places in the national prison system amounted to 220,057. Brazil has the second highest prison population in in the Americas after the United States[1]. According to the Superintendency of Human Resources of the Department of Prison Administration of the State of Rio de Janeiro, the state's prison population was 38,762 inmates (95.4% male) in September 2014.

Prisons in Brazil are characterized by a number of structural and procedural deficiencies that directly affect the health and rehabilitation of offenders. Studies have shown that factors such as inactivity, overcrowding, lack of health, social services, and education professionals, as well as precarious infrastructure and an insalubrious prison environment reinforce stigmas and breed iniquity and disease.

Other studies have shown that the prevalence of mental disorders is higher among prisoners than in the general population[2,3]. Estimates of prevalence of severe mental illness among prisoners range between 10 and 15%, compared to 2% in the general population[4,5]. Over half of inmates in the United States have mental health problems: 56% of state prisoners, 45% of federal prisoners, and 64% of inmates in local jails[6]. Teplin et al.[4]points out that the prevalence of mental disorders among prisoners in the State of Chicago was three to four times higher than in the general population. Furthermore, this difference was even higher among women prisoners for all mental disorders except schizophrenia, suggesting that gender differences exist. The most common mental disorders observed by Teplin et al. were depression, substance abuse, and post-traumatic stress disorder. In addition, approximately 81% of women prisoners in Chicago had experienced some kind of psychiatric disorder[4]

Research carried out with French prisoners found that 40% of inmates of both sexes had mental disorders[7], while a nationwide study of inmates undertaken in New Zealand revealed a high prevalence of mental problems, particularly those associated with drug abuse, psychosis, affective disorders, obsessive-compulsive disorder and post traumatic stress[8]. A study conducted in England and Scotland demonstrated that nine out of every 10 prisoners had a mental disorder and revealed quite alarming prevalence rates for particular disorders: psychosis, 10% of men and 14% of women; neurosis, 59% of men and 76% of women; alcoholism, 58% of men and 36% of women; attempted suicide, 2% in the last week, and 25% of women over the last year[9]. A study in Honduras found that the overall prevalence rate of mental disorders among prisoners was 43.7%[10].

In Brazil, a study conducted in the State of São Paulo in 2006 showed that the prevalence rate of mental disorders among the prison population was high, especially among women. The same study revealed that 61.7% of prisoners had suffered from some type of mental illness during their lives and that around 25% of prisoners in closed systems had had a mental disorder during the 12 months leading up to the study. Furthermore, around 11.2% of male inmates and 25.5% of women prisoners had suffered from some form of severe mental illness, which is equivalent to 60,000 prisoners when extrapolated to the national level[11,12].

Depression among prisoners is a widely researched topic. Symptoms consist of a persistently depressed mood, loss of joy or interest in life, and lack of energy, which lead to fatigue and reduced activity levels. A study conducted in the State of Paraíba that used a depression screening scale showed that 22.9% and 33.1% of male and women prisoners, respectively, had moderate to severe depression, and that 10.5% of men and 17.2% of women suffered from severe depression[13]. The findings also showed that the prevalence of moderate and severe depression was higher among new prisoners, while mild depression was more prevalent in older prisoners, suggesting that inmates adapt to the prison environment over time. A study carried out in the south of Brazil showed that the prevalence of severe depression among women inmates was 48.7%[14].

Another study conducted with the prison population of the State of Santa Catarina showed that symptoms of depression were associated not with specific mental disorders, but rather with the insalubrious environment of prison settings, including factors such as: overcrowding, which means that prisoners have to sleep together in the same bed or on the floor; dark foul smelling and unventilated cells; poor diet; sedentary lifestyle; living with violent and aggressive people, including correctional officers; confinement in "solitary", where physical space is minimal; and being deprived of sunlight and human contact[15].

Stress is a mental health problem associated with various physical and mental disorders - including depression; an organism's nonspecific

Ciência & Saúde Coletiva, 21(7):2089-2099, 2016

organic response to stressful situations[16]. A moderate level of stress means normal adaptation to daily demands: however, excessive levels are a manifestation of psychological distress with physical and emotional reactions, and symptoms vary depending on the stage[17]. Experiencing stress – acute or chronic – in a prison environment is intimately related to depression, is generally more common among new prisoners, and associated with a greater risk of prison suicide[18].

Influenced by the World Health Organization's "Health in Prisons Project" in 1995, which included the guide "Health in Prisons", research on prisoner health is relatively recent[19]. Since then, the quality and scope of prison health care have been defined by international norms that emphasize the principle that prisoners should not leave prison in a worse condition than when they entered. This principle is adopted and reinforced by Recommendation No. R (98) 7 of the Committee of Ministers of the Council of Europe and by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT)[19].

With these concerns in mind, this article aims to assess the mental health status of prisoners and people in custody of both sexes in the State of Rio de Janeiro, based on the prevalence of symptoms of depression and stress and their association with personal, family, and prison-related factors, and explore the link between these two mental disorders.

Materials and Methods

The data from this study came from a cross-sectional study of self-rated health assessments among the prison population of the State of Rio de Janeiro conducted in 2013. Health status, life habits, use of health services, and quality of life were measured using an anonymous, self-completed questionnaire collectively administered by a team of qualified researchers.

The study sample of 24,231 inmates incarcerated in 33 units of the State of Rio de Janeiro Prison System was proportionately stratified according to location of the prison unit (Capital, Baixada and inland) and sex (male and female). The following facilities were excluded from the sample universe: hospitals, penal institutes, *patronatos* (young offenders correctional facilities), *casas de albergado* (open correctional facilities), *colônias agrícolas* (prison farms), and military facilities.

Proportions were estimated using an absolute error of 7%, 95% confidence level, and a prevalence rate of 50% for each of the events of interest. The final sample consisted of 1,573 individuals: 1,110 men and 463 women. The analyses incorporated weighting and a sampling plan[20].

The following stages were undertaken prior to data collection in the prison units: (1) a list of names of all prisoners housed at each unit was obtained from the Public Prosecutor's Office; (2) prisoners were randomly selected to draw the study sample; (3) an official letter was sent to the director of each unit to schedule research activities and inform the names of the researchers. Upon arrival at each unit, the prisoner name list and a list of replacements was handed to the chief of security, who initially located the wing or pavilion where each prisoner was housed. This stage was particularly time-consuming since the lists supplied by the Public Prosecutor's Office were out of date, thus making it necessary to use the replacement list, also drawn up from randomly selected prisoners from the lists originally provided by the Public Prosecutor's Office.

After the prisoners were located, they were escorted to a room where the questionnaires were administered. Before the application of the questionnaires, the research team spent a significant amount of time explaining the study to the prisoners. The informed consent form was read out loud and all doubts were resolved. It was also explained that researchers were at hand to help prisoners interested in participating in the study who had trouble reading or writing fill out the forms.

The following personal characteristics were considered: age group (18-29, 30-49, 50 years and over); skin color (white, black/brown, yellow/indigenous); whether the individual practiced a religion and frequency (yes, frequently; yes, sometimes; no); marital status (single, married, widow(er), separated); existence of symptoms of depression assessed using the Beck Depression Inventory[21]; and existence of symptoms of stress measured using the Lipp Stress Symptom Inventory for Adults. The following variables related to the prison environment were also covered by the questionnaires: family ties (maintains strong ties, maintains normal/weak ties, does not maintain ties, does not have a family); existence of family visiting in prison (yes, no); length of time spent in prison (under a year, between one and 9 years, and 10 years or over); performance of work tasks in the prison (classified and nonclassified).

The Beck Depression Inventory is a 21-item, self-report rating inventory that uses a four-point

scale to indicate the degree of severity of depression[22]. The scores of each item are summed to obtain a total score that is used to classify individuals as follows: minimal depression (0 to 11 points), mild depression (12 to 19 points), moderate depression (20 – 35 points), and severe depression (36 – 63 points). In the present article, the outcome variable *depression* only encompasses the categories moderate and severe depression.

The Lipp Stress Symptom Inventory for Adults (LSSI) [23] is based on a three-stage stress model developed by Selye[24]: stage 1, alarm; stage 2, resistance; and stage 3, exhaustion. However, an evaluation of the original tool led to the addition of another stage prior to exhaustion called near-exhaustion. The LSSI consists of three sections that reflect the four stages mentioned above, the second of which assesses two stages together. Each section lists the physical and psychological symptoms associated with each stage. The first section refers to symptoms observed in the last 24 hours, the second to symptoms experienced in the last week, and the third to symptoms in the last month. The scale encompasses 37 physical symptoms and 19 psychological symptoms. This tool allows the assessment of the following: (1) whether the individual is experiencing significant symptoms of stress; (2) which stage of stress a person is passing through; and (3) the most frequent symptoms (physical or psychological). Determining the final score involves a series of stages and the use of correction tables, beginning with the sum of the symptoms marked in each section to obtain the score for each of the three sections. A score of over six, three, and eight in the first, second, and third sections, respectively, indicates stress. The corresponding percentage for each raw score is then determined using the correction tables. The largest percentage indicates the stage of stress, where section 1 is the alarm stage, section 3 is the exhaustion stage, and section 2 is divided between the resistance (score between 4 and 9) and near-exhaustion (score between 10 and 15 with a percentage of over 50) stages. Finally, two other correction tables are used to determine the prevailing symptoms (physical or psychological).

Statistical analysis was performed to determine the simple and relative frequency of the study variables. Subsequently, bivariate analysis was performed using *depression* and *stress* as outcome variables. The chi-square test was used to explore the association between the outcome variables and the other study variables, adopting a 5% significance level. Four models were then run to analyze the outcome variables by sex. Initially, variables with p-values of less than 0.20 were entered into the logistic regression model. Variables with p-values of less than 0.05 were maintained in the final model. Crude and adjusted odds ratios and their 95% confidence intervals were calculated. Statistical analysis was performed using the complex samples module of the software SPSS version 20.0 and the Survey package of the program R 3.1.2. Expanded data was used to permit inferences about the study population.

The t-test was used for independent variables to determine whether there was any difference between men and women for moderate symptoms of depression and stress. In addition, using the original scores obtained for *depression* and *stress*, simple linear regression was used to determine whether there was an association between the two outcomes of interest, where the variable *stress* was included in the model as a predictor and *depression* as an outcome variable.

This study was approved by the Research Ethics Committee of the Oswaldo Cruz Foundation and was conducted in accordance with the National Health Council Resolution Nº 466/2012 that regulates research involving human participants.

Results

Table 1 shows the prisoner profile by sex. It can be observed that over half are in the 18-29 age group and have black/brown skin color. Approximately 80% of the inmates practiced some kind of religion frequently or sometimes. With respect to marital status, 47.2% of the overall sample were single and 43.7% were married, while the proportion of women prisoners that were single was 58.8%.

Strong family ties were maintained by 77.4% of the prisoners from the overall sample and by only 68.7% of women prisoners. Visits were received by 73.9% of men and 58.6% of women.

With respect to length of time spent in prison, it is interesting to note that around 42% of men and 47% of women had been in prison for less than a year, and that only 3.2% of inmates had been in prison for 10 years or over. Only 22.9% of prisoners mentioned that they performed work tasks.

The results of the Lipp Stress Symptom Inventory for Adults showed that 35.8% of men and 57.9% of women suffered from stress.

Ciência & Saúde Coletiva, 21(7):2089-2099, 2016

Table 1. Prisoner profile in the State of Rio de Janeiro – 2013.

Variable (N = total)	Total (%)	Men (%)	Women (%)
Personal factors			
Age group (N = 22.082)			
Up to 29 years	54.5	55.0	47.0
30 to 49 years	39.4	39.0	46.6
50 years and over	6.1	6.0	6.4
Skin color (N = 23.442)			
White	23.7	27.4	26.0
Black/brown	67.2	67.0	70.6
Yellow/indigenous	5.5	5.6	3.5
Practices religion (N = 23.173)			
Yes, frequently	30.5	30.2	36.8
Yes, sometimes	49.0	48.8	53.4
No	20.4	21.1	9.8
Marital status (N = 23.016)			
Single	47.2	46.5	58.8
Married	43.7	44.5	30.7
Widow(er)	0.9	0.7	4.8
Separated	8.2	8.3	5.7
Stress (N = 23.871)			
Yes	37.0	35.8	57.9
No	63.0	64.2	42.1
Depression (N = 12.615)			
Minimal depression	36.3	37.2	22.2
Mild depression	31.7	31.7	30.7
Moderate depression	25.7	24.8	39.6
Severe depression	6.3	6.3	7.5
Aspects related to prison life			
Family ties (N=22.786)			
Maintains strong ties	77.4	77.9	68.7
Maintains normal/weak ties	10.7	10.4	15.1
Does not maintain ties	10.2	9.9	14.2
Does not have a family	1.8	1.8	1.9
Prison visits (N = 23.401)			
Yes	73.1	73.9	58.6
No	26.9	26.1	41.4
Length of time spent in prison (N = 23.226)			
< 1 year	42.9	42.6	47.1
1-9 years	53.9	54.1	50.5
10+ years	3.2	3.3	2.4
Work tasks performed in prison			
No	77.1	77.1	77.2
Yes	22.9	22.9	22.8

It was also observed that 7.5% of women showed symptoms of severe depression, as opposed to 6.3% of men. It is interesting to note that the prevalence of moderate depression was particularly high: 24.8% among men and 39.6% among women. However, it should be noted that it was not possible to calculate the score for 48% of men and 46.1% of women and therefore, due to the large amount of missing data for this variable, these results should be treated with caution. This problem did not occur with the Lipp Stress Symptom Inventory, where the proportion of missing data was only 1.5%.

Stress

The results of the bivariate analysis showed that there was a statistically significant association between stress and the variable *length of time spent in prison* among men ($p < 0.001$).

Table 2 shows the results of the adjusted model used to analyze the association between stress and other variables among male prisoners. The variables *length of time spent in prison* and *family ties* were maintained in the final model. The table shows that prisoners who had been in prison for between one and nine years are 0.55 times less likely to experience stress symptoms than those who had been in prison for less than a year, while those with normal/weak family ties are 1.81 times more likely to suffer from stress than prisoners who maintain strong ties.

With regard to women, the results showed a statistically significant association between stress and the variables *family ties* (p = 0,04) and *work tasks performed in prison* (p = 0,01), which were maintained in the final model (Table 3). Thus, as was observed in the other models, prisoners that maintain normal/weak ties are more likely to develop mental health problems (OR = 1.95; IC95% = 1.06-3.63). The variable *work tasks performed in prison* was a protective factor against stress among women (OR = 0.53; IC95% = 0.33 – 0.85).

Depression

The results of the bivariate analysis showed that among men there was a statistically significant association between depression and *marital status* (p = 0.028), *religion* (p = 0.002), *family ties* (p = 0.005), *prison visits* (p = 0.011), *age group* (p = 0.03), and *work tasks performed in prison* (p = 0.02). The variables with a p-value of less than 0.20 (*religion*, *family ties* and *work tasks performed in prison*) were included in the final model. The results presented in Table 4 show that male prisoners who sometimes practiced a religion were 2.34 times more likely to suffer from symptoms of depression than those who frequently practiced a religion. With respect to family ties, prisoners who maintained normal/weak ties (OR = 2.46; IC95% = 1.32 – 4.57) were more likely to suffer from symptoms of depression than those who maintained strong ties. Performing work tasks in prison was shown to be a protective factor against depression (OR = 0.49; IC95% = 0.28 – 0.87) among men.

With regard to women, the results showed that there was a statistically significant association between depression and the variable *family ties,* whose p-value was less than 0.20 after logistic regression. Women prisoners who did not maintain family ties were 2.49 times more likely to suffer from depression than those who maintained strong ties.

An analysis of moderate symptoms of depression and stress between men and women showed that there was a statistically significant difference ($p < 0.001$ and $p < 0.001$, respectively). Average stress and depression scores were higher among women (20.6 and 19.71, respectively, with a standard error of 1.2 and 0.7, respectively, among women, compared to 11.27 and 16.3, respectively, with a standard error of 0.7 and 0.6, respectively, among men). The results of the adjusted linear regression model used to evaluate stress as a predictor of depression showed that there was a statistically significant linear association for both men ($\beta = 0.14$; $p < 0.001$) and women ($\beta = 0.13$; $p < 0.001$).

Table 2. Stress-related variables maintained in the final model – men.

Variable	Crude OR	Adjusted OR*	95% confidence interval*
Length of time spent in prison			
< 1 year	1	1	---
1-9 years	0.57	**0.55**	**0.39 – 0.75**
10+ years	0.91	0.68	0.43 – 2.47
Family ties			
Maintains strong ties	1	1	---
Maintains normal/weak ties	1.68	**1.81**	**1.13 – 2.87**
Does not maintain ties	1.34	1.37	0.86 – 2.19
Does not have a family	0.61	0.68	0.23 – 2.01

* Statistically significant associations are in bold.

Discussion

The high prevalence of stress (35.8% in men and 57.9% among women) and moderate and severe depression (31.1% and 47,1%, respectively) among prisoners in the State of Rio de Janeiro observed by the present study are corroborated by national and international statistics, confirming concerns regarding mental illness among inmates, particularly women prisoners[15,25-30].

A study conducted in the United States[6] showed that in state prisons 73% of women prisoners and 55% of male prisoners had at least one mental health problem, while in federal and local prisons these rates were 61% and 44%, and 75% and 63%, respectively. Another study carried out in Chicago[4] observed that 6.4% of men and 15% of women had a severe mental illness such as schizophrenia, bipolar disorder or severe depression, while a study undertaken in Farmington[31] showed that over two-thirds of inmates had had at least one psychiatric disorder throughout their life, almost half had had an anxiety disorder, and that almost a third had had an affective disorder. With the exception of antisocial personality disorder, the prevalence of psychiatric morbidity is higher in women prisoners[31]. The above findings reiterate the crucial importance of providing mental health services in prisons that give special emphasis to the care needs of women prisoners.

The findings show that prisoners in Rio de Janeiro are more likely to be young, black or brown, single (especially women) or married, maintain strong family ties (especially men), and practice some kind of religion. The majority of prisoners have spent only a short time in prison, and few (22.9%) perform work tasks. Providing a more detailed description of this group, Minayo[20] suggests that prisoners are generally poor, have a low level of schooling, worked in the informal sec-

Table 3. Stress-related variables maintained in the final model – women.

Variable	Crude OR	Adjusted OR*	95% confidence interval *
Family ties			
Maintains strong ties	1	1	---
Maintains normal/weak ties	2.01	**1.95**	**1.06 – 3.63**
Does not maintain ties	1.80	1.72	0.93 – 3.17
Does not have a family	0.80	0.68	0.16 – 2.90
Work tasks performed in prison			
No	1	1	---
Yes	0.55	**0.53**	**0.33 – 0.85**

* Statistically significant associations are in bold.

Table 4. Depression-related variables maintained in the final model – men.

Variable	Crude OR	Adjusted OR*	95% confidence interval*
Practices a religion			
Yes, frequently	1	1	---
Yes, sometimes	2.42	**2.34**	**1.39 – 3.94**
No	1.76	1.79	0.98 – 3.28
Work tasks performed in prison			
No	1	1	---
Yes	0.53	**0.49**	**0.28 – 0.87**
Family ties			
Maintains strong ties	1	1	---
Maintains normal/weak ties	2.67	**2.46**	**1.32 – 4.57**
Does not maintain ties	1.64	1.55	0.79 – 3.04
Does not have a family	2.23	1.98	0.42 – 9.39

* Statistically significant associations are in bold.

tor before being detained, and belong to what is commonly termed in Brazil the "popular classes", those at or near the lower end of the socio-economic hierarchy. Official statistics from the National Prisons Department[32] show that 75.2% of Brazilian prisoners are completing sentences of up to eight years, 93.8% are men, 67% are brown or black, 55.3% are aged between 18 and 29 years, and 57% are single. As Wacquant[33] poses, Brazilian prisons are "concentration camps for poor people", which are more like "industrial warehouses of social waste" run by public companies than institutions that serve a penological purpose (such as reintegration).

The results of the models run using stress as the outcome variable show the importance of preserving strong family ties for both male and women prisoners. The findings indicate an association between *length of time spent in prison* and stress only among men, showing that symptoms were more common among newly arrived prisoners than in those who had been in prison for between one and nine years. The variable *work tasks performed in prison* was shown to be a protective factor against stress only in women.

According to Brazil's *Lei de Execução Penal* (the Law of the Execution of Sentences), prison work should be educational and productive. However, in practice, work tasks are seen as a way of reducing operational costs or keeping the prisoner occupied[28,34]. In a study conducted in the State of Rio Grande do Sul, prisoners complain about the lack of work selection criteria and the inertia of institutions when it comes to providing meaningful work tasks[35].

Canazaro & Argimon[14] observed a significant association between length of time spent in prison and severity of depression among women prisoners in the south of Brazil, in contrast to the findings of the present article, which show a similar association, but only among men. According to Canazaro & Argimon, the condition is less common in prisoners who have been in prison for over 26 months. The study also demonstrated that women prisoners who performed some kind of work activity showed fewer symptoms of depression, as found by the present study.

Ahmad & Azlan[18] highlight that one of the factors associated with the onset of stress in prison is the fact that the individual's perceptions of control over life are severely shaken in prison settings. Other factors that facilitate the onset of stress are unsuitable environments, overcrowding, poor diet, sedentary lifestyle, and social relationships formed by inmates.

The results of the models run using depression as the outcome variable show, once again, that preserving strong family ties is the only protective factor common to both male and women prisoners. Two other factors were also important among men – frequently practicing a religion and performing prison work tasks.

Few studies in Brazil have addressed mental health in the prison population and its relationship with religiousness. A study conducted with 358 women prisoners in São Paulo showed that being more religious was associated with a lower prevalence of mental disorders in the bivariate analysis: however, the variable was not maintained in the multivariate analysis[36]. The study showed that the prevalence of disorders was lower in women who said they were very religious and religious than in those who said that they were not very religious or did not follow a religion. The international literature suggests that religiousness is a protective factor against mental health[37,38]. One study involving women prisoners in Ribeirão Preto in the State of São Paulo found that those who did not practice a religion were 6.09 time more likely to suffer from moderate depression, and that this likelihood was greater among young women[39].

The association between stress and depression observed in this study is corroborated by other studies[18,40-42]. Trestman et al.[31] observed a high rate of psychopathological comorbidity between prisoners, highlighting substance dependence, posttraumatic stress disorder, and severe depression. These facts suggest the need for a wide-ranging assessment of mental health in prisons. The following statements from some of the prisoners who participated in this study exemplify the suffering caused by the conditions of prisons in the State of Rio de Janeiro[20]: *humiliating treatment does not change people, it breeds resentment*, *we are not rehabilitated here, we are humiliated*; *the prison brings psycho-emotional problems*. The sentiment was the same among the men: *it's a massacre here*, *it's impossible to socialize in these conditions*; *it's shameful to treat human beings in such a way*; *we suffer physical and mental embarrassment and personal offenses*.

Limitations of this study include the reliance on self-reported data rather than clinical assessment of mental health and the lack of a more comprehensive investigation into the comorbidity of mental disorders among prisoners. Further research using more complex and comprehensive methodology is necessary to gain a deeper understanding of these aspects among this vul-

nerable group. Further research is also necessary with the target audience of this study using the Beck Depression Inventory given its complexity and the wide range of disorders encompassed by this tool. It is important to note however that these limitations did not substantially affect the analysis. Furthermore, the fact that items were left unanswered by certain participants did not substantially affect the results since these items did not address specific issues and the individuals that did not complete the items did not differ from those who completed the questionnaire.

Final considerations

The findings of this study indicate the need for greater investment in the prison system to improve the availability and quality of mental health services in prisons in order to deliver adequate care to this group, with an emphasis towards women prisoners. It is important to highlight that family ties is an important protective factor against mental health problems. Therefore, apart from being a right that should be protected, giving prisoners the opportunity to maintain family ties is a protective factor against the aggravation of emotional problems.

We believe that these results provide an important input for informing future interventions in the prison system and the elaboration of mental health policies. Such demands were highlighted by the National Prison System Health Plan (*Plano Nacional de Saúde do Sistema Penitenciário*) created in 2003. This document provides for the development of actions to prevent psychosocial health problems caused by imprisonment and reduce the serious damage to health caused by the use of alcohol and drugs. However, these goals are far from being met.

The provision of health care to people deprived of their liberty is a human right. However, it is necessary to go beyond the simple diagnosis and treatment of mental health problems and other prisoner health demands: the whole prison system must be rethought given the many elements of prison settings that put prisoners at risk of ill health, including overcrowding, cell conditions, inactivity, and poor diet. In its current form, the prison system often deepens the social exclusion experienced by prisoners prior to incarceration.

The cumulative effect of the factors mentioned above on prisoner health together with the lack of adequate healthcare provision in prisons lead to the deterioration of physical and mental health, resulting in the violation of a fundamental right of those who are imprisoned - to enjoy good health. There is an urgent need to acknowledge that the only right that a prisoner should lose upon being incarcerated is the right to liberty; all other rights should be protected. Unfortunately the reality is different in the State of Rio de Janeiro's prison system.

Collaborations

P Constantino, SG Assis e LW Pinto participated equally in all stages of preparation of the article.

References

1. Lima RS, Bueno S, coordenadores. *Anuário Brasileiro de Segurança Pública 2014*. São Paulo: Fórum Brasileiro de Segurança Pública; 2014. v.8
2. Butler T, Allnutt S, Cain D, Owens D, Muller C. Mental disorder in the New South Wales prisoner population. *Aust N Z J Psychiatry* 2005; 39(5):407-413.
3. Gunter DT, Arndt S, Wenman G, Allen J, Loveless P, Sieleni B, Black DW. Frequency of mental and addictive disorders among 320 men and women entering the Iowa prison system: use of the MINI-Plus. *J Am Acad Psychiatry Law* 2008; 36(1):27-34.
4. Teplin LA, Abram KM, McClelland GM. Prevalence of psychiatric disorders among incarcerated women. *Arch Gen Psychiatry* 1996; 53(6):505-512
5. Lamb HR, Weinberger LE, Gross BH. Community treatment of severely mentally ill offenders under the jurisdiction of the criminal justice system: a review. *Psychiatr Serv* 1999; 50(7):907-913.
6. James DJ, Glaze LE. *Mental Health Problems of Prison and Jail Inmates*. Washington: US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2006.
7. Minervine J. Psychiatrieenmilieupénitentiaire. *1ére Journée dês soins Psychiatriquesen Milieu Pénitentiaire*. Conférence; Franche-Comté; France; 2001.
8. Brinded PM, Simpson AI, Laidlaw TM, Fairley N, Malcolm F. Prevalence of psychiatric disorders in New Zealand prisons: a national study. *Aust N Z Psychiatry* 2001; 35(2):166-173.
9. Reed J. Mental health care in prisons. *Br J Psychiatry* 2003; 182:287-288.
10. Irías-Ortiz R, Martínez-Molina G, Amaya-Martinez G, Soto RJ, Reyes-Ticas A. Prevalencia de trastornos mentales en personas privadas de libertad. *Rev. Med. Post UNAH* 1999; 4(4):129-136.
11. Andreoli SB, Ribeiro SW, Quintana MIS, Higashi MK, Dintof AM. *Estudo da prevalência de transtornos mentais na população prisional do estado de São Paulo* [relatório científico final]. Brasília: CNPq; 2008.
12. Andreoli SB, Abdalla-Filho E, Santos MM, Marques CM, Taborda JGV. Transtorno Mental e Prisão. In: Taborda JGV, Abdalla-Filho E, Chalub M, organizadores. *Psiquiatria Forense.* 2ª ed. Porto Alegre: Artmed; 2012. p. 585-597.
13. Araújo FAFM, Nakano TC, Gouveia MLA. Prevalência de depressão e ansiedade em detentos. *Avaliação Psicológica* 2009; 8(3):381-390.
14. Canazaro D, Argimon I. Características, sintomas depressivos e fatores associados em mulheres encarceradas no Estado do Rio Grande do Sul, Brasil. *Cad Saude Publica* 2010; 26(7):1323-1333.

15. Damas FB, Oliveira WF. A saúde mental nas prisões de Santa Catarina, Brasil. *Cadernos Brasileiros de Saúde Mental* 2013; 5(12):1984-2147.
16. Selye H. Confusion and controversy in the stress field. *J Human Stress* 1975; 1(2):37-44.
17. Lipp MEN. *Mecanismos neuropsicológicos do stress: teoria e aplicações clínicas*. São Paulo: Casa do Psicólogo; 2003.
18. Ahmad A, Mazlan NH. Stress and Depression: A Comparison Study between Men and Women Inmates in Peninsular Malaysia. *International Journal of Humanities and Social Science* 2014; 4(2):153-160.
19. World Health Organization (WHO). *Health in prisons: a WHO guide to the essentials in prison health*. Copenhagen: Organization Regional Office for Europe; 2007.
20. Minayo MC. *Estudo das Condições de Saúde e Qualidade de Vida dos Presos e Custodiados e das Condições Ambientais do Sistema Prisional do Rio de Janeiro*. Relatório de Pesquisa: FAPERJ; 2014.
21. Beck AT, Ward C, Mendelson M. Beck Depression Inventory (BDI). *Arch Gen Psychiatry* 1961; 4(6):561-571.
22. Cunha J. *Manual em português das Escalas Beck*. São Paulo: Casa do Psicólogo; 2011.
23. Lipp MEN, Guevara AJH. Validação empírica do Inventário de Sintomas de Stress. *Estudos de Psicologia* 1994; 11(3):43-49.
24. Selye H. *The Stress of Life*. New York: McGrawHill; 1984.
25. Kravitz HM, Cavanaugh Junior JL, Rigsbee SS. A cross-sectional study of psychosocial and criminal factors associated with arrest in mentally ill female detainees. *J Am Acad Psychiatry Law* 2002; 30(3):380-390.
26. Jordan K, Schlenger WE, Fairbank A, Caddell JA. Prevalence of psychiatric disorders among incarcerated women. *Arch Gen Psychiatry* 1996; 53(6):513-519.
27. Almeida KM. *Metáforas de um pena capital: um estudo sobre a experiência prisional e suas relações com a saúde mental das presidiárias* [tese]. Salvador: Universidade Federal da Bahia; 1998.
28. Lemgruber J. *Cemitério dos vivos*: *sociologia de uma prisão de mulheres*. Rio de Janeiro: Forense; 1999.
29. Oliveira VAS, Guimarães SJ. Saúde atrás das grades: o Plano Nacional de Saúde no sistema penitenciário nos estados de Minas Gerais e Piauí. *Saúde e Debate* 2011; 35(91):597-606.
30. Silva NC, Rosa MI, Amboni G, Mina F, Comim CM, Quevedo J. Transtornos psiquiátricos e fatores de risco em uma população carcerária. *Arquivos Catarinenses de Medicina* 2011; 40(1).
31. Trestman RL, Ford J, Zhang W, Wiesbrock V. Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. *J Am Acad Psychiatry Law* 2007; 35(4):490-500.
32. Moura TW, Ribeiro MR. *Levantamento Nacional de Informações Penitenciárias.* Brasília: DEPEN; 2015.
33. Wacquant L. *As Prisões da Miséria*. Rio de Janeiro: Jorge Zahar Ed.; 2001.
34. Julião EF. O impacto da educação e do trabalho como programas de reinserção social na política de execução penal do Rio de Janeiro. *Rev Brasileira de Educação* 2010; 15(45):529-596.
35. Lemos AM, Mazzilli C, Klering LR. Análise do trabalho prisional: um estudo exploratório. *Rev. adm. Contemp* 1998; 2(3):129-149.
36. Moraes PAC, Dalgalarrondo P. Mulheres encarceradas em São Paulo: saúde mental e religiosidade. *J Bras Psiquiatria* 2006; 55(1):50-56.
37. Larson D, Swyers JP, McCullough ME. *Scientific research on spirituality and health: a consensus report*. London: National Institute for Healthcare Research; 1997.
38. Koenig HG, Larson DB. Religion and mental health: evidence for an association. *Intern Rev Psychiatry* 2001; 13:67-78.
39. Pinese CSV. *Identificação da Depressão em Mulheres no Sistema Prisional* [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto; 2008.
40. Boothby JL, Durham TW. Screening for depression in prisoners using the Beck Depression Inventory. *Criminal Justice and Behavior* 1999; 26(1):107-124.
41. Birmingham L. Mental Disorder and Prisons. *Psychiatric Bull* 2004; 28:393-397.
42. Gunter TD. Incarcerated women and depression: A primer for the primary care provider. *J Am Med Womens Assoc* 2004; 59(2):107-112.

Article submitted 09/10/2015
Approved 27/02/2016
Final version submitted 29/02/2016