

Diseases and access to treatment by the Peruvian prison population: an analysis according to gender

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ABSTRACT

Objective: In Peru, prisons are spaces with overcrowding, deteriorated infrastructure, poor sanitary conditions and difficult access to medical treatment. The objective of this study is to estimate the burden of disease and access to treatment for different morbidities in the Peruvian inmate population.

Methods: An analysis of secondary data of the First National Penitentiary Census (PCNP) 2016 in Peru was carried out. The absolute frequencies and percentages of each self-reported health condition, the presence of a diagnosis of a disease before entering the prison system and access to treatment were obtained.

Results: 74,130 inmates were included in the analysis. The most common diseases in prisons are depression (9.6%), anxiety (8.6%), chronic lung disease (8.4%) and arterial hypertension (6.9%). All diseases included, with the exception of hepatitis, have a diagnostic before the incarceration of less than 60%. Access to medical treatment was higher in women than in men and in general, mental health illnesses had low access to medical treatment.

Conclusions: Chronic and infectious diseases are frequent in those deprived of liberty, with mental health problems being more prevalent in women. In general, access to treatment is low, especially in men and for mental health illnesses. This situation reflects the need to develop intervention programs that promote health and increase the universality of health care in those deprived of liberty.

Keywords: prisoners, health status, health services accessibility, Peru.

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INTRODUCTION

The World Health Organisation and the United Nations regard access to health services without any discrimination as a fundamental right for prison inmates¹. The growth in rates of imprisonment worldwide² and increasing morbidity from chronic diseases³ has made maintaining good levels of physical and mental health in the prison population a challenge for prison systems.

Since 2001, the prison population on the American continent (excluding the USA) has increased by 175%. Increases of 67% and 175% were reported in Central and South America respectively. The countries with the greatest increases in the prison population are Nicaragua (67%), Ecuador (37%), El Salvador (23%), Argentina (16%) and Peru (12%)⁴.

Several studies have shown that the prison population has higher prevalences of sexually transmitted diseases, infectious diseases, chronic illnesses and mental disorders^{5,6}. Some characteristics of this population sub-group, such as poverty, overcrowding inside prisons and low educational levels have been linked to a high-burden disease load⁷. It has been identified that women, persons of 55 years of age and over and young people present highest morbidity from infectious and chronic diseases in comparison with other inmates⁸. The increase in disease burden amongst inmates represents a challenge in public health terms, because this population returns to the community at some point with their health in worsened conditions and without treatment.

The prisons in Peru are characterised for being spaces with considerable overcrowding, deteriorated

infrastructure and poor healthcare conditions. Consumption of some kind of drugs is frequent amongst inmates, especially those under 18 years of age⁹. The internal characteristics of the prisons, the patterns of drug use amongst young inmates and the rapid growth of this population¹⁰ may exacerbate the risks of transmission of infectious diseases, increase the morbidity of chronic diseases and even increase the risk of mental disorders.

Access to medical treatment in Peruvian prisons is low, mainly because of the lack of medicines in the health services and the lack of money available to prisoners⁹. Despite the challenge that this represents to public health, there is little in the way of evidence that assesses the health and access to treatment for diseases of this population.

This study sets out to estimate the disease load and access to treatment for different morbidities in the Peruvian prison population.

MATERIALS AND METHODS

An analysis was conducted of secondary data taken from the Peruvian First National Prisons Census 2016, carried out by the National Institute of Statistics and Informatics (Instituto Nacional de Estadística e Informática (INEI)), with the support of the Ministry of Justice and Human Rights, and the National Prisons Institute (Instituto Nacional Penitenciario (INPE)), in April 2016. This included the entire population of the 66 prisons in Peru. The information was collected from a questionnaire with 173 questions, previously validated and subjected to a pilot test with 30 inmates. The test evaluated the effectiveness, structure, sentence formation, understanding of the questions and the alternative ways of answering the questionnaire. It also enabled training strategies on how to manage it to be identified along with the type of language to be used in the registration. Four work teams were organised for the field operations of the pilot test. Each one consisted of two professionals, one of whom was responsible for conducting the interview, while the other observed the proceedings, measured the times used, evaluated the functionality and management of the items used during the training.

The data was gathered with a mobile device (tablet). Each person responsible for this process carried out the census in accordance with the instructions they received during training, asking each question from the information gathering instrument. At the end of each interview, the digitally recorded data was checked, and then the information was copied

onto an external memory drive. The data gathering monitoring process was carried out at the central office in Lima, Peru.

The data bases were obtained from the website of the INEI (<http://inei.inei.gob.pe/microdatos/>) and was analysed with the software Stata® v.14.2 (Stata Corporation, College Station, Texas, U.S.A.). The self-evaluated health variables included in the analysis according to gender were as follows: chronic lung disease, high blood pressure, diabetes *mellitus*, cancer, tuberculosis, sexually transmitted disease, human immunodeficiency virus (HIV)/AIDS, hepatitis, depression, anxiety and substance addiction.

Firstly, the socio-demographic characteristics of the population were described using absolute frequencies and percentages. Then the absolute frequencies and percentages of the diseases for the total population and for each sex were obtained. To establish if there are differences in the proportions of ill inmates by gender, this was considered as a statistically significant difference if $p < 0.05$. Finally the absolute frequencies and percentages of the presence of a diagnosis of a disease before entering the prison system and access to medical treatment were estimated for the entire population and according to gender.

This study did not require the approval of an ethics committee, since it is an analysis of secondary data that was obtained from a freely accessible public domain that did not permit the surveyed subjects or their prisons to be identified.

RESULTS

The total number of inmates included in the PCNP 2016 was 76,180, but after removing observations due to missing data, 74,130 inmates (97.3%) were included in the analysis. 94.2% of them were male, were 20 and 29 years of age (33.1%), and half of them were married or cohabiting (50.3%). Six of every ten inmates had passed secondary education, and 56.3% had health insurance (Table 1).

The most prevalent infectious disease amongst inmates is tuberculosis (4.3%), and is more common amongst men than women (4.5 and 1.3%, respectively). Sexually transmitted diseases and HIV/AIDS had a prevalence of 0.8 and 0.4% for the total population (Table 2).

The most prevalent chronic diseases amongst inmates are chronic lung disease (8.4%) and high blood pressure (6.9%). Women reported higher a higher prevalence of chronic diseases in comparison to men. Likewise, depression and anxiety presented an overall

Table 1. Socio-demographic characteristics of inmates (n=74.130)

Characteristics	Absolute frequency (%)
Sex	
Male	69,830 (94.2)
Female	4,300 (5.8)
Age in years	
<20	1,150 (1.5)
20-29	24,523 (33.1)
30-39	23,616 (31.8)
40-49	14,789 (20.0)
50-59	7,192 (9.7)
≥60	2,860 (3.9)
Marital status	
Single	32,500 (43.8)
Married or cohabiting	37,255 (50.3)
Divorced/separated	3,420 (4.6)
Widow(er)	955 (1.3)
Educational level	
No formal education	1,781 (2.4)
Primary	18,659 (25.2)
Secondary	44,493 (60.0)
Higher education	9,197 (12.4)
Health insurance policy contributor	
No	32,371 (43.7)
Yes	41,759 (56.3)

prevalence of 9.6% and 8.6%, and were more common amongst women than men (Table 2).

As regards multi-comorbidities, 0.1% of inmates presented tuberculosis and HIV/AIDS, 1.0% suffered from diabetes and high blood pressure and 0.6% had depression plus anxiety plus addiction to psychotropic substances (Table 2).

The diseases that presented the highest percentage of diagnoses prior to entry and the prison system were: hepatitis (61.1%), HIV/AIDS (55.0%), cancer (53.9%) and diabetes (52.9%), while the diseases with a lower percentage of diagnoses were anxiety (10.3%), depression (12.6%) and substance addiction (17.7%). Women presented a higher percentage of diagnosis of diseases, with the exception of cancer and hepatitis (Table 3).

Access to treatment for inmates varies according to the disease and gender. The diseases with most access to treatment are HIV/AIDS (72.2%), dia-

betes (59.5%) and tuberculosis (50.2%); while the diseases with lowest access to treatment are: anxiety (11.7%), substance addiction (11.8%) and depression (15.4%). In general terms, women have more access to treatment of diseases than men (Table 3).

DISCUSSION

This study showed that the diseases most commonly self-reported by inmates were: depression, anxiety, lung disease and high blood pressure. The findings underline the high prevalence of mental illnesses and the need for their diagnosis and treatment in the prison population. In all the diseases, with the exception of hepatitis, the percentage of diagnosis is below 60.0%. Access to medical treatment was generally higher in women than in men.

The estimated prevalence of infectious diseases amongst the prison population is higher than it is amongst the Peruvian general public^{11,12}, which matches the evidence of high-income countries⁸. The limited privacy and enclosed spaces characteristic of many prisons represents a risk for the propagation of infectious diseases. Likewise, the risk of infection from sexually transmitted diseases increases as a result of inadequate management¹³ and the possible frequent practice of unprotected sexual relations before and after incarceration¹⁴. The prison population is therefore a group that is vulnerable to sexually transmitted diseases.

On the other hand, the prevalence of diabetes reported in the prison population is similar to that of the general public¹⁵, while the reported prevalence of high blood pressure amongst inmates is lower than that of the general public (6.9% compared to 13.6%)¹⁶. This finding goes against what was reported in another study, which indicates that inmates present a higher prevalence of chronic diseases in comparison to the general public⁸. One possible explanation for this finding is that most inmates are young and so the morbidity of chronic diseases may be low. Despite the lower proportion of chronic diseases, this segment of the population may have risk behaviours such as intravenous drug use, and consume alcohol and tobacco, which further the development of chronic diseases such as cancer and heart disease.

The high prevalence of mental illness in the prison population matches the results of other studies^{17,18}. The load that such illnesses represent and limited access to medical treatment represent a risk of a return to criminal activities¹⁹⁻²¹. According to Fazel & Yu²⁰, providing prisoners with medical treatment tends to

Table 2. Distribution of diseases amongst inmates according to sex (n=74.130)

Disease	Total population Frequency (%)	Men Frequency (%)	Women Frequency (%)	P value
Chronic lung disease				
No	67,895 (91.6)	64,059 (91.7)	3,836 (89.2)	<0.001
Yes	6,235 (8.4)	5,771 (8.3)	464 (10.8)	
High blood pressure				
No	68,994 (93.1)	65,381 (93.6)	3,613 (84.0)	<0.001
Yes	5,136 (6.9)	4,449 (6.4)	687 (16.0)	
Diabetes				
No	72,022 (97.2)	67,968 (97.3)	4,054 (94.3)	<0.001
Yes	2,108 (2.8)	1,862 (2.7)	246 (5.7)	
Cancer				
No	73,876 (99.7)	69,651 (99.7)	4,225 (98.3)	<0.001
Yes	254 (0.3)	179 (0.3)	75 (1.7)	
Tuberculosis				
No	70,918 (95.7)	66,673 (95.5)	4,245 (98.7)	<0.001
Yes	3,212 (4.3)	3,157 (4.5)	55 (1.3)	
Sexually transmitted infections				
No	73,506 (99.2)	69,289 (99.2)	4,217 (98.1)	<0.001
Yes	624 (0.8)	541 (0.8)	83 (1.9)	
HIV/AIDS				
No	73,803 (99.6)	69,545 (99.6)	4,258 (99.0)	<0.001
Yes	327 (0.4)	285 (0.4)	42 (1.0)	
Hepatitis				
No	73,483 (99.1)	69,219 (99.1)	4,264 (99.2)	0.792
Yes	647 (0.9)	611 (0.9)	36 (0.8)	
Depression				
No	67,022 (90.4)	63,626 (91.1)	3,396 (79.0)	<0.001
Yes	7,108 (9.6)	6,204 (8.9)	904 (21.0)	
Anxiety				
No	67,748 (91.4)	64,268 (92.0)	3,480 (80.9)	<0.001
Yes	6,382 (8.6)	5,562 (8.0)	820 (19.1)	
Addiction to psychoactive substances				
No	72,031 (97.2)	67,805 (97.1)	4,226 (98.3)	<0.001
Yes	2,099 (2.8)	2,025 (2.9)	74 (1.7)	
Tuberculosis + HIV/AIDS				
No	74,058 (99.9)	69,762 (99.9)	4,296 (99.9)	0.928
Yes	72 (0.1)	68 (0.1)	4 (0.1)	
Diabetes + high blood pressure				
No	73,478 (99.1)	69,276 (99.2)	4,202 (97.7)	<0.001
Yes	652 (0.9)	554 (0.8)	98 (2.3)	
Depression + anxiety + addiction to psychoactive substances				
No	73,786 (99.5)	69,502 (99.5)	4,284 (99.6)	0.311
Yes	344 (0.5)	328 (0.5)	16 (0.4)	

Table 3. Diagnosis of disease and access to treatment for inmates

Disease	Disease diagnosed prior to entry into prison system				Inmates with access to treatment			
	Total n (%)	Men n (%)	Women n (%)	<i>P</i> value	Total n (%)	Men n (%)	Women n (%)	<i>P</i> value
Chronic lung disease	2,950 (47.3)	2,653 (46.0)	297 (64.0)	<0.001	2,144 (34.4)	1,912 (33.1)	232 (50.0)	<0.001
High blood pressure	1,872 (36.5)	1,568 (35.2)	304 (44.3)	<0.001	2,116 (41.2)	1,730 (38.9)	386 (59.2)	<0.001
Diabetes	1,116 (52.9)	978 (52.5)	138 (56.1)	0.290	1,254 (59.5)	1,063 (57.1)	191 (77.6)	<0.001
Cancer	137 (53.9)	102 (57.0)	35 (46.7)	0.135	106 (41.7)	73 (40.8)	33 (44.0)	0.639
Tuberculosis	1,230 (38.3)	1,205 (38.2)	25 (45.5)	0.286	1,613 (50.2)	1,585 (50.2)	28 (50.9)	0.918
Sexually transmitted infection	284 (45.5)	241 (44.5)	43 (51.8)	0.220	240 (38.5)	202 (37.3)	38 (45.8)	0.152
HIV/AIDS	180 (55.0)	151 (53.0)	29 (69.0)	0.040	236 (72.2)	205 (71.9)	31 (73.8)	0.799
Hepatitis	395 (61.1)	378 (61.9)	17 (47.2)	0.092	124 (19.2)	114 (18.7)	10 (27.8)	0.239
Depression	892 (12.6)	718 (11.6)	174 (19.3)	<0.001	1,094 (15.4)	840 (13.5)	254 (28.1)	<0.001
Anxiety	656 (10.3)	546 (9.8)	110 (13.4)	0.004	744 (11.7)	596 (10.7)	148 (18.0)	<0.001
Addiction to psycho-active substances	372 (17.7)	353 (17.4)	19 (25.7)	0.112	248 (11.8)	229 (11.3)	19 (25.7)	0.005

reduce the rate of relapses into criminal behaviour. When inmates return to society, measures geared towards encouraging social reintegration and the provision of adequate and appropriate medical treatment can help this group and lead to major benefits for public health.

Existing surveillance and healthcare programs in the prison system can be used to promote health and for the medical treatment of inmates. Health promotion programs can be designed that reinforce education about infectious diseases^{22,23}, provide better supervision to reduce sexual abuse inside prison, encourage the use of condoms²⁴, conduct regular medical evaluations and routine check-ups for the early detection of diseases such as cancer, diabetes and HIV/AIDS²⁵.

Programs designed for medical treatment of inmates who are already ill should focus on making access to medical care a universal option. The vulnerable groups inside prison should be given priority. However, there is no information to date in Peru that identifies these groups. Therefore, inequalities in access to medical treatment should be investigated in depth in order to identify vulnerable groups and design adequate intervention programmes. The findings of this

study enable the situation regarding the disease load amongst inmates to be described. This information can be used to develop further research that permits more appropriate planning of effective strategies to reduce the disease load.

There are some limitations to this study. The first limitation is that the information from the PCNP is compiled by self-reporting, which makes it sensitive to memory bias and social desirability bias. The second is that the information about access to treatment does not come from medical records. The third is that the study uses a non-standardised questionnaire to gather information. However, the pilot test that was carried out validated the questionnaire for the target population of the study. The results obtained in this study are representative for the entire inmate population, and its findings can be used for designing intervention programmes that can improve the health of this group of persons.

CONCLUSIONS

To conclude, the results show that chronic diseases such as lung disease and diabetes are common amongst inmates, especially women. It was also found

that mental health problems are prevalent amongst female inmates. Generally speaking, there are low percentages of medical diagnosis and treatment, especially amongst men and for mental disorders. These findings represent an initial starting point for future research and interventions that set out to improve inmates' health.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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