Anthropometric indices and health status among adult prisoners in Albania

Drita Jaka[1], Enver Roshi[2]

[1]General Directorate of Prisons, Tirana, Albania;
[2]University of Medicine, Tirana, Albania.

Corresponding author: Dr. Enver Roshi
Address: University of Medicine, Rr. "Dibrës", No. 371, Tirana, Albania;
Telephone: +355672013660; E-mail: roshienvi@yahoo.com

Abstract

Aim: The objective of this study was to assess the association of anthropometric indices with the health status among adult prisoners in Albania.
Methods: A cross-sectional study was conducted in 2013 including 401 prisoners in Albania: 290 (72%) males and 111 (28%) females. All participants were measured height and weight and waist and hip circumferences, based on which the anthropometric indices were calculated (body mass index [BMI] and waist-to-hip ratio [W/H]). In addition, an anonymous and structured questionnaire was administered including data on self-perceived health status, health-related problems, lifestyle factors (smoking, alcohol intake and drug use) and demographic and socioeconomic characteristics (age, sex, educational attainment and income level). Binary logistic regression was used to assess the association between self-reported health status and anthropometric indices.
Results: Mean BMI was 27.84±3.91 among participants who reported a poor health vs. 26.16±3.62 in individuals who did not report a poor health status. Conversely, mean W/H was 0.92±0.07 and 0.89±0.06, respectively. In age-adjusted analysis, poor self-reported health status was positively related to the overall obesity (OR=1.59, 95%CI=1.14-2.18, P<0.01) and abdominal obesity (OR=1.72, 95%CI=1.23-2.34, P<0.01).
Conclusion: Findings from this study point to a strong positive association between anthropometric indices and poor health status among Albanian adult prisoners. These findings should raise the awareness of policymakers and health care providers in Albania dealing with this marginalized segment of the population.

Keywords: anthropometric indices, body mass index, marginalized groups, prison health, self-perceived health status, waist-to-hip ratio.

Introduction

The health status and general conditions of adult prisoners are an issue of serious concern in both developed/industrialized countries (1,2) and developing/transitional societies (3). Furthermore, the data on prisoners' health in developing countries is scarce and of limited quality and this fact holds true also for transitional societies in the Western Balkans such as Albania and Kosovo which are currently undergoing a process of difficult political and socioeconomic transformation towards a market-oriented system. The situation of prisoners in Albanian settings is problematic both in terms of access and quality of health care services which are mainly provided by detaining authorities. However, successful experiences in some pioneering industrialized countries suggest that the most effective way to provide high-quality health care services is to delegate the provision of health care services to health authorities instead of the detaining authorities (3). From this point of view, there has been made a significant progress in health care provision for adult prisoners in several developed countries (4-8).

Notwithstanding the lack of well-documented scientific reports, current evidence points to a high prevalence of various diseases among adult prisoners in Albania which raises serious concerns for this particularly vulnerable population subgroup. In this context, the aim of this study was to assess the association between health status and anthropometric indices of adult prisoners in transitional Albania.

Methods

This was a cross-sectional study conducted in 2013 which included 401 adult prisoners in Albania [290 (72%) males and 111 (28%) females].

All prisoners included in this survey were measured height and weight and waist and hip circumferences, based on which the anthropometric indices were calculated (body mass index [BMI] and waist-to-hip ratio [W/H]). In addition, all participants were administered an anonymous and structured questionnaire including information on self-perceived health status (dichotomized in the analysis into: poor vs. not poor), health-related problems (presence of various diseases including acute diseases, but also cardiovascular diseases including hypertension, diabetes, or other chronic diseases), and lifestyle/behavioural factors (smoking, alcohol intake and drug use). Furthermore, information about demographic and socioeconomic characteristics (age, sex, educational attainment and income level) was collected. Binary logistic regression was used to assess the association between self-reported health status (poor vs. not poor) and anthropometric indices (BMI and W/H). Age-adjusted odds ratios (ORs) and their respective 95% confidence intervals (95%CIs) were calculated. Hosmer-Lemeshow test was used to assess the goodness of fit of the logistic regression models. Statistical Package for Social Sciences, version 17.0, was used for all the statistical analyses.

Results

Overall, mean age of participants included in this study was 31.4±7.3 years. On the whole, there were 290 (72%) males and 111 (28%) females.

Table 1 presents the distribution of anthropometric indices among study participants by self-perceived health status. Overall, 173 (43.1%) of prisoners included in this study reported a poor health status. Mean BMI was 27.84±3.91 among participants who reported a poor health vs. 26.16±3.62 in individuals who did not report a poor health status. On the other hand, mean W/H was 0.92±0.07 and 0.89±0.06, respectively. About 55% of participants who reported a poor health status were obese compared with 47% of individuals who did not report a poor health status. The prevalence of the abdominal obesity (W/H above the cut-off) was about 51% in participants who reported a poor health status compared with 43% of individuals who did not report a poor health status.

Table 2 presents the association of anthropometric indices with self-reported health status among

study participants. In age-adjusted analysis, there was evidence of a positive association between poor self-reported health status and BMI and W/H introduced as numerical variables (OR=1.04, 95%CI=1.02-1.09, P=0.03 for BMI, and OR=1.05, 95%CI=1.03-1.11, P=0.02 for W/H). When anthropometric indices were introduced as categorical terms in the binary logistic regression models, poor self-reported health status was positively related to the overall obesity (OR=1.59, 95%CI=1.14-2.18, P<0.01) and abdominal obesity (OR=1.72, 95%CI=1.23-2.34, P<0.01).

Table 1. Distribution of anthropometric indices by health status in a sample of adult prisoners in Albania in 2013 (N=401)

Anthropometric indices	Mean (standard deviation)	
	Poor health (N=173)	Not poor health (N=228)
BMI	27.84±3.91	26.16±3.62
Waist-to-hip ratio	0.92±0.07	0.89±0.06
Anthropometric indices	**Numbers (column percentages)**	
	Poor health (N=173)	**Not poor health (N=228)**
BMI:		
Normal (BMI<25)	77 (44.5)	121 (53.1)
Overweight (BMI: 25-29.9)	61 (35.3)	68 (29.8)
Obesity (BMI≥30)	35 (20.2)	39 (17.1)
BMI:		
Normal	77 (44.5)	121 (53.1)
Overweight and obesity	96 (55.5)	107 (46.9)
Waist-to-hip ratio:		
Below cut-off*	84 (48.6)	130 (57.0)
Above cut-off	89 (51.4)	98 (43.0)

* Below cut-off values: ≤0.95 in men and ≤0.85 in women; above cut-off values: >0.95 in men and >0.85 in women.

Table 2. Association of self-reported health status with anthropometric indices; age-adjusted odds ratios (ORs) from binary logistic regression

Anthropometric indices	OR (95%CI)*	P*
BMI *(numerical)*	1.04 (1.02-1.09)	0.03
Waist-to-hip ratio *(numerical)*	1.05 (1.03-1.11)	0.02
BMI:		
Normal	1.00 (reference)	<0.01
Overweight and obesity	1.59 (1.14-2.18)	
Waist-to-hip ratio:		
Below cut-off	1.00 (reference)	<0.01
Above cut-off	1.72 (1.23-2.34)	

* Age-adjusted (introduced as a numerical variable) odds ratios (ORs: poor health vs. not poor), 95% confidence intervals (95%CI) and p-values from binary logistic regression.

Discussion

Main findings from this survey consisting of a representative sample of adult prisoners in Albania include a positive association between poor self-perceived health status and anthropometric indices. The positive relationships with the general obesity and the abdominal obesity were consistent in logistic regression models with the anthropometric indices introduced as numerical terms or categorical terms.

It has been convincingly argued that the health problems in prisons are a clear reflection to the

overall problems present in societies (3). In any case, prisoners present a poorer health status as a result of their personal circumstances including also their behavioural characteristics such as smoking, excessive alcohol consumption and drug use (2,3,9). From this point of view, regrettably, prisons constitute a particularly unhealthy setting which should be carefully considered by policymakers and decision-makers. As a matter of fact, there is convincing evidence linking poor conditions of imprisonment to adverse health outcomes including in particular the occurrence of various infectious diseases (1,10). Based on this evidence, there are strong arguments for a similar situation in the Albanian prisons which are currently characterized by lack of a proper infrastructure and poor conditions which tend to accelerate the spread of different infectious diseases. Nonetheless, the current analysis may bear several limitations such as the possibility of selection bias (pertinent to the representativeness of the study sample) and the possibility of information biases. In any case, in this survey we included a quite large sample of adult prisoners of both sexes in Albania, with a high response rate. Therefore, there is no evidence of selection bias in our study sample. As for the possibility of information bias, all participants were measured the anthropometric indices which provides an objective assessment of the overall obesity and the abdominal obesity. Regarding the self-reported information, it should be noted that we employed an anonymous and structured questionnaire which was administered to all study participants. Nonetheless, the self-reported information about the health status of study participants may be subject to information bias, at least to some degree, although we do not have explicit evidence on this issue. Last, but not least, relationships observed in cross-sectional studies should be interpreted with caution, as such associations are not assumed to be causal. Thus, there is a need for future prospective studies in Albania and Kosovo to confirm findings of our survey.

In conclusion, findings from this study point to a strong positive association between anthropometric indices and poor health status among Albanian adult prisoners. These findings should raise the awareness of policymakers and health care providers in Albania dealing with this marginalized segment of the population.

Conflicts of interest: None declared.

References

1. Fazel S, Baillargeon J. The health of prisoners. Lancet 2011;377:956-65.

2. Smith R. Prisoners: an end to second class health care? Br Med J 1999;318:9543.

3. Michael M. Prison health as public health in Afghanistan? A policy analysis of the on-going reform process. Public Health 2014;pii: S0033-3506(14)00009-2. DOI: 10.1016/ j.puhe.2014.01.007.

4. Elger BS. Prison medicine, public health policy and ethics: the Geneva experience. Swiss Med Wkly 2011;141:w13273.

5. Hayton P, Boyington J. Prisons and health reforms in England and Wales. Am J Public Health 2006; 96:1730-3.

6. Cour des Comptes, Paris. Le service public penitentiaire: "prevenirla recidive, gerer la vie carcerale". Available at: http://www.ccomptes.fr/Publications/Publications/Le-service-publicpenitentiaire; July 20, 2010. Accessed May 6, 2014.

7. Levy M. Prisoner health care provision: reflections from Australia. Int J Prison Health 2005;1:65-73.

8. Iversen JH. Norwegian Directorate of Health Prison. Health reforms in Norway e the "Import Model". Available at:www.ndphs.org/?download,3613,11.35 þJonþ-HilmarþIversen.ppt; November 24, 2009. Accessed May 6, 2014.

9. Watson R, Stimpson A, Hostick T. Prison health care: a review of the literature. Int J Nurs Stud 2004;41:119-28.

10. Weinbaum CM, Sabin KM, Santibanez SS. Hepatitis B, hepatitis C, and HIV in correctional populations: a review of epidemiology and prevention. AIDS 2005;19(Suppl.3):S41-6.