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ABSTRACT

Overcrowding in prisons is a common problem that affects many countries. It is difficult to define this term because there is no single internationally accepted standard. However, this is a situation that must be counteracted, because people's behaviour can be affected to the extent that it leads to self-harm or violent behaviour to others. But prison overcrowding also has other effects on the health and well being of the people living in these conditions and may also adversely affect public health and the prison system. It can increase the prevalence of diseases, particularly infectious and psychiatric disorders. It may also hinder the work of social rehabilitation and lead to inhuman, cruel or degrading treatment. This paper reviews the scant literature about overcrowding in prisons. Increasing awareness about the issue in the international community and prison administrations and above all, assigning specific economic resources, are key elements in preventing this deficit in social welfare and health care.

Keywords: prisons; legislation; public health; communicable diseases; mental disorders; violence; suicide; Spain.

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1. INTRODUCTION

When we think about poverty and misery it is common to imagine some regions of Asia, Africa or Latin America part of what we know as "Developing countries", indeed they constitute part of the poorest and most needed countries. Nevertheless we often forget the so-called "Fourth World": poor and socially excluded populations that mainly come from migration flows, world wide spread and specially settled in big cities' run-down areas. It is precisely in these developed countries' settlements with low standards of living jointly with low levels of education, where diseases proper of developing countries (transmissible diseases) as well as those with a socio-cultural origin (alcoholism, drug abuse, occupational diseases, perinatal mortality, etc.) still prevail. These socially excluded masses are too the origin of most of the Spanish imprisoned population.

When talking about inmates' health problems we are normally referring to the pathological processes that affect the imprisoned population and often we forget about the living conditions; that necessarily have an influence on health. In fact, it is common to misunderstand healthcare intervention only as a couple of standardized actions focused on improving inmates' health. It is usually forgotten that the population's health is the reflection of the standard of living, and that this standard of living must be measured taking into account not only healthcare indicators, but also economic and social ones. If this same mistake is persistently made, it is common to find that healthcare improvements are only and exclusively evaluated considering increases in staff or in dedicated technical resources, omitting the efforts and attention put on improving the population's quality of life (accommodation, nutrition, dining rooms, sport facilities, etc.) fundamental for having a good level of general health[1]. Health related provisions within the penitentiary institutions must include assistance, as part of secondary and tertiary prevention, but also in a preeminent way of promoting health. Health promotion, understood as the efforts done for extending lifespan, improving its quality and prolonging active life expectancy, must include activities and programs that reduce bad living conditions and improve the indexes of welfare. One of these interventions must be to fight against overcrowding or prison overpopulation, as it magnifies the bad living conditions and reduces the welfare indexes. The aim of this research work is therefore to analyse the socio-sanitary consequences of overcrowding or overpopulation within

the penitentiary context and consider possible measures to avoid or relieve this problem.

2. WHAT IS OVERCROWDING OR OVERPOPULATION?

In the Dictionary of the Royal Academy of Spanish (Real Academia Española de la Lengua, RAE) the term overcrowding comes down, common and old, as the action of crowding which its exact meaning is to "pile, accumulate or gather without order" and refers to a situation in which the container barely can store its content. Another term that has a more recent use and that can be found in the RAE Dictionary is "overpopulation" referred to the "excess of individuals in a certain space"[2]. Therefore, on the basis of the criteria of the RAE, in order to describe the situation in which the number of inmates is disproportionally higher to the one envisaged we can use either of the terms "overcrowded" or "overpopulated" indistinctively. However, were the adverbial form "disproportionally higher" to be used it could drive to confusion since there is neither a commonly agreed definition on how to measure the overcrowding or a value from which to measure the overcrowding of prisons, even if some penitentiary systems establish an estimate figure of the maximum capacity of occupation of its prisons. These estimated figures are based on local definitions of what can be considered as an acceptable space. However, in relation to this point, there is not a universal and internationally accepted standard.

The European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) recommends the use of a 4 square metres per person as a useful measurement reference in order to improve the levels of totally unacceptable levels of overcrowding. Nevertheless, it describes 4.5 m^2 individual cells as a "very small" and inadequate for detention periods which exceed one or two days; 6 m^2 cells are described as "rather small" and 10 m^2 cells as "a good size for it to be occupied by one indivual" but "rather small for two individuals". The CPT considers that 8 and 9 m^2 cells for one only occupier provide "completely satisfactory and reasonable" detention conditions[3].

3. SITUATION IN SPAIN

The Ombudsman is an institution which main task is the knowledge, analysis and ruling of claims raised by citizens in reference to the functioning of Public Administrations. It can also act ex-officio when it knows of disfunctionalities or anomalies within the Public Administrations. This Institution is attached to the Congress to which it raises its reports, although it has an independent functioning. The Ombudsman reports are not legally binding but they have an undeniable moral strength.

That is why whenever a Public Administration is affected by these reports it usually focuses immediately all its efforts in order to solve the reported anomalies since inaction or passivity is associated to a sullied image of the Administration. Moreover, the Administration can be impelled to take political or judicial actions in a latter moment.

The Spanish Ombudsman issued a very negative report on the situation of Spanish prisons in November of 1987[4]. One of the chapters was focused on the healthcare situation of prisons and reported many lacks. In response to this report the Spanish government launched a plan to provide for human resources and equipments. The main goal of this plan was to ensure a decent healthcare provision in prisons in a time in which inmates infected by HIV raised to 30-40% of the incarcerated population according to some reports [5, 6] and more than one third of young inmates that entered prison were already infected by HIV[7].

Further to the referred report of the Ombudsman a plan on the amortization and creation of new penitentiary centres was published and passed by the Council of Ministers in 1991 and amended in 2005[8]. This Plan established a new concept of penitentiary centre that made a break with the classic criteria. It opted for centres in which there were not only residential modules but also modules for complementary facilities (a nursing facility, socio-cultural and sports areas, kitchen, etc.) as well as occupational workshops, with the intention of transforming prisons into an almost self-sufficient structure. The area of each cell in this model was 10 m^2, two more metres than the assigned in the 1981 Prison Regulations, which was then in force, that assigned 8 m2 to each residential cell. However, due to high levels of occupation, cells were usually occupied by two or even three inmates.

Currently, there are two Public Administrations competent in penitentiary issues in Spain: a) the one attached to the Ministry of Interior of the Government of the State, that manages 85% of the Spanish penitentiary system; and b) the one attached to the Government of Catalonia, which manages the remaining 15%.

To the date of 15th July 2011 there were 68 centres under the ordinary prison regime in the territory managed by the State Administration with a total

35,805 residential cells and 6,976 complementary ones (nursing facilities, isolation cells, entry cells, etc.); a total of 42,781 penitentiary places. Moreover there were also 30 other Social Integration Centres (Centros de Inserción Social, CIS) for inmates who served their sentence in an open regime. These centres had 3,047 residential cells and 49 complementary ones[9]. The total penitentiary population rose to 62,810 inmates, out of whom 7,216 were in the so called "open" regime, under which the inmates only come back to prison to spend the night[10]. In Catalonia, to date of 31st May 2011, there were 11 penitentiary centres of ordinary regime and three other under the open regime with a total of 8,198 penitentiary places and 10,857 inmates, from whom 1,953 were under the open regime[11]. Table 1 shows the occupation in penitentiary centres under the ordinary compliance regime and the CIS centres. The total penitentiary occupation rose to 132.43% in Catalonia and to 136.91% in the rest of the State, breaching article 19.1 of the Spanish General Prison Act which establishes that, except for occasional cases, inmates must be alone in a cell in order to safeguard their right to intimacy within the possibilities.

The penitentiary occupation of the aforementioned Administrations is very conditioned by the high incarceration rate in Spain. This rate raises to 140 out of 100,000 inhabitants in Catalonia and to 167 out of 100,000 in the rest of the State. In comparison to other European countries, the rate in the territory managed by the Spanish Government is the highest in Europe and in the territory managed by the Catalonian Administration the third highest in all Europe. This rate is only higher in England and Wales, with a rate of 152 out of 100,000 incarcerated inhabitants. Other countries present considerably lower rates, such as Portugal, Italy. France, Germany, Sweden, Denmark and, most of all, Holland[12].

The overcrowding of Spanish prisons is being tackled by Penitentiary Administrations mainly by three means: a) enhancing the open regime of compliance: in Catalonia the rate of occupation in centres under such regime overcomes 300% and 200% in the rest of the State (table 1); b) building more prisons: in the past years five prisons have opened with over 5,000 new residential cells and 1,200 complementary ones, and one other centre (CP) will open shortly with 150 more cells and some other are in an advanced state of construction; and c) assigning a bigger space to residential cells. The new centres of Murcia II and Las Palmas II, which respectively opened in March and July of 2011, can be set as an example. In these centres there are, for the first time in the Spanish penitentiary history, 13m^2 assigned to each cell. Even in the case in which such cells have to be shared by two inmates, it is foreseen that the space gained will have a positive influence in the coexistence of inmates as well as in other aspects, such as intimacy, anxiety, aggressiveness, behaviour, etc.

4. SHARING THE CELL: ARE THERE ANY CONSEQUENCES?

Probably the fact that two people coexist for a period of months in 10m^2 spaces may have side effects. However there are few research works on the analysis of the true influence of such situation in matters such as behaviour, keeping optimum levels of intimacy, aggressiveness, stress or other aspects. In 2002, the Spanish Ombudsman, ex-officio, issued a recommendation[13] urging the General Directorate of the Popular Party (PP) Government, which was then in its Second Term, to analyse the side effects of sharing the cells. The Ombudsman considered that such situation hindered "*an adequate expression of the right to intimacy of inmates during their stay*" being "*a factor that may cause anxiety*" for "*the sharing of a scarce space originates aggressiveness and, consequently, the longer the time the cell has to be shared, the more conflicts*

Table 1. Rate of occupation in penitentiary centres in Catalonia and the rest of the Spanish State.

	CP Compliance			CPIS or Open Regime			Total		
	Places	Inmates	TO (%)	Places	Inmates	TO (%)	Places	Inmates	TO (%)
AGE	42,781	55,594	129.95	3,096	7,216	233.07	45,877	62,810	136.91
Catalonia	7,673	8,904	116.04	525	1,953	372.01	8,198	10,857	132.43

C.P. Penitentiary Centre; CPIS Penitentiary Centre of Social Integration; TO Rate of Occupation; AGE State General Administration

there will be". Further to this recommendation, the General Directorate prepared a survey on the "Effects associated to the sharing of cells"[14]. The main results of such survey are the following.

The survey was based on the hypothesis that "sharing cells generated anxiety in inmates, a more negative than positive effect and it increases the levels of conflict, being these higher the longer the time cells were shared". The survey aimed to answer three questions:

a) Is sharing a cell a factor that originates anxiety?
b) Does loneliness during imprisonment generate anxiety?
c) Is sharing a cell an obstacle to the right to intimacy of inmates?

The survey comprehended a population of 379 randomly selected inmates from the prisons of Madrid who voluntarily filled an "ad hoc" questionnaire. The survey studied two main aspects: the sociological, focused in gathering the inmates 'opinion on the fact of sharing cell and its concomitant effects; and the psychological aspect, which aimed to study the effects of sharing the cells by assessing the inmates' state of anxiety. In 2005, when the survey was conducted, 84.9% of the inmates subject of the survey shared cell, 75% by obligation and 1.6 years was the average time during which they shared.

85% of inmates considered that "there were too many inmates for the prison space" but the fact of sharing cells had positive aspects:

- 67.1% believed that a good cell mate could make the stay in prison easier and more comfortable
- 40% considered that by sharing the cell loneliness and other negative thoughts could be prevented
- 33.3% thought that sharing the cell could help avoid aggressiveness and anxiety.

However, inmates also reflected negative aspects:

- For 50% of the inmates sharing cell created concentration difficulties
- For 33.3% of the inmates it generated insecurity and it didn't avoid aggressiveness and was a serious discomfort
- For 25% it increased risks or menaces, had an influence in the origin of negative thoughts and didn't tackle anxiety
- For 73% it negatively affected intimacy (higher anxiety feeling —52%—; higher levels of conflict —50.7%—; more aggressiveness —44%—) although it had positive effects (avoids hopelessness and suicidal ideas, doesn't affect intimacy —40%— and decreases frustration —33%—)

Being alone in a cell could create anxiety (45%), be unpleasant (55%), favour depression (49.8%) and increase aggressiveness (32.9%). 60% of inmates preferred to be alone and inmates who had shared cell for a longer time (> 1.6 years) were the ones who more wanted this. The most troublesome situations were the ones deriving from the order and cleanliness of cells.

Finally, the survey provided the following conclusions:

1. For inmates, intimacy was affected by the fact of having to share the cell. 50% believed that the lack of intimacy creates a higher feeling of anxiety which implicates more general aggressiveness and conflicts with the cell mate. Consequently, the lack of intimacy is more than a discomfort and may influence on the normal coexistence within the prison.
2. Nevertheless, 40% considers that loneliness originates anxiety and depression and 33% thinks that it increases anxiety.

Therefore, there are two main confronted opinion groups on the convenience of sharing or not cells. Most of all, it should be emphasised that the group of inmates that prefers to be alone is larger, particularly when sharing cell is not a voluntary option, but by obligation.

5. EFFECTS OF OVERCROWDING

Overcrowding can entail on a general level: a) a violation of international rules on the separation of inmates (men-women; preventive-sentenced inmates, etc.); b) a risk to the psychological and physical health of inmates; c) a risk for the public healthcare; d) a dangerous environment for inmates and for penitentiary professionals; and e) an attack against human rights, for it can lead to a cruel or inhuman treatment.

In this report we will strictly focus on the healthcare issues; meaning by this, the effects that prison overcrowding can have both in individual and public health.

5.1 Effects of overcrowding in the physical health of persons:

Penitentiary overcrowding or overpopulation can have consequences in the physical health of persons. The increase in physical contact, the lack of ventilation and light, as well as a shortage of time spent outdoors favours disease propagation, essentially infectious and parasitic diseases. For example, it has been observed that the prevalence of respiratory symptoms that long over three weeks as well as pulmonary tuberculosis symptoms are 39 and 35 times more frequent, respectively, in overcrowded prisons of Brazil than in the general population[15]. Hussein and cols[16] also found that the risk to develop a latent tuberculosis infection was almost three times higher among inmates who were housed in barracks of under 60m^2 of area. The association of tuberculosis to overcrowding has also been observed in other research works[17, 18]. The same association to other infectious diseases, such as bacterial meningitis[19], infection by methicillin resistant *staphylococcus aureus* (MARSA) [20] or pneumococcal pneumonia[21], has also been observed. In general it can be affirmed that the prevalence of all aerially transmissible infections increases in overpopulated environments or those with inadequate ventilation.

Moreover, there is a higher risk of contracting parasitoses in overcrowded prisons. Poudat et al have documented a lower prevalence of scabies and other parasitoses in penitentiary modules in which inmates were housed alone[22]. As to skin diseases, both infectious and non infectious, were too more frequent in overcrowded barracks[23]. Although it is a more controversial aspect, it has been suggested that overpopulation could be an indicator in reference to sexually transmitted diseases, such as syphilis and HIV or B hepatitis, since it favours risk-taking behaviours among inmates[17, 24-26].

Another side effect of overpopulation is passive smoking. In a recent article on cardiovascular risk factors among inmates, a 78.8% of smoking prevalence was observed among inmates in Castellon[27]. Despite the obligation to establish smoking spaces in prisons under the Spanish law, the lack of available space makes difficult the compliance of this law.

5.2 Effects of overcrowding in the behaviour and the psychological health of persons

Overcrowding can cause behavioural disorders and affect the psychological health of persons[28-31, 35-37]. Gaes and McGuire observed that overcrowding was the strongest indicator for violent behaviours in 14 federal prisons of the United States[28]. This is a consequence of the anxiety produced by an overpopulated environment which generates hetero and self aggressive behaviours, as shown in other research works[29-31]. Anselmi associated the higher number of self aggressive behaviours (self inflicted wounds by incisions, ingestion of strange bodies, etc.) to overcrowding in prisons[30]. A recent survey has documented a higher index of aggressions to the hospital staff in overcrowded psychiatric wings[32] and it is logical to think that the same risk may be encountered in overcrowded penitentiary institutions. In reference to this aspect, it is interesting to emphasize that overcrowding in a medical environment has a direct relation to a higher number of psychiatric disorders —most of all, depressions— among the caregivers since a higher number of antidepressant treatments has been associated to those who have worked for six months or more in rooms with over a 10% excess of occupation[33]. Equally, it has been observed that the hospital staff that works in such rooms have twice the risk of failure to attend their work places due to depression than those who work in rooms with a normal level of occupation[34].

Suicide has also been related to penitentiary overcrowding. It has been proved that overcrowding involves a higher rate of suicides[35, 36] and that in the most overpopulated prisons the number of suicides is up to 10 times higher[37].

5.3 Effects of prison overpopulation in public health

Although prisons are the classic prototype of closed institutions, in some countries, such as Spain, prisons are not isolated from the exterior. Apart from the penitentiary professionals there are many persons (worship ministers, lawyers, NGO personnel, volunteers, etc.) who enter the prisons daily and may have direct contact with some of the inmates. These also enter and exit the prison, because of exit permits, judicial authorisations or other causes. Therefore the intra-extra prison contact is frequent and can affect public health. If overcrowding is a factor that favours the transmission of some infections, such transmission can also relocate to the exterior of prisons[38], most of all in non diagnosed cases or in cases in which the inmate abandons the treatment that was prescribed for them before their release. Such cases can contribute to the increase of the impact rates of such diseases. In order to avoid these situations or diminish their consequences it is very recommendable to coordinate the penitentiary and extra-penitentiary health resources.

Such coordination would probably be safer and more effective if health teams, both within and outside prisons, were attached to the same heath network. Regretfully this does not happen actually in Spain.

6. COROLARY

As it has been observed, overcrowding or overpopulation in the penitentiary environment is a frequent problem. However it has rarely been studied from a health point of view and there are few international references. Probably, this is due to, on one hand, because overcrowding is usually believed to be a political or judicial-legal problem or as a prevision and organization defect in the management of prisons and less as a health related problem. On the other hand, it can also be because overcrowding or overpopulation occurs in an environment, as the penitentiary, where health care assistance has been and continues to be today insufficient or very malfunctioning in many countries and where investigation or critical analysis has been therefore infrequent. Despite the fact that indeed overpopulation or overcrowding is a political and judicial problem, it is also a socio-sanitary issue as we have pretended to recall in this review. It must be emphasized that overpopulation in penitentiary establishments increases the prevalence of some diseases, specially the infectious and psychiatric ones, which may cause violence and risks both for the inmates and the penitentiary professionals as well as hindering the social reintegration process. Moreover, it is an attack to the rights of the people and represents an inhuman or degrading treatment. The basic elements to avoid such socio-sanitary deficits are increasing the awareness of the International Community and of the Public Administrations and, most of all, assigning specific economic resources to the matter.

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