Review

RESP

Relevance of psychogeriatrics in the prison setting: a systematic review

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ABSTRACT

Introduction: The aging of the world population is reflected in the penitentiary setting, with a progressive increase of elderly inmates. These prisoners present complex clinical processes with multiple comorbidities, and require a specialized approach. However, resources have not yet been adapted to the unique characteristics of this vulnerable subpopulation. The aim of this review is to highlight the relevance of psychogeriatrics in prison, detecting the most prevalent diseases and outlining the needs of elderly inmates.
Material and method: Narrative review through databases of those studies that analyze psychopathologies among inmates over 50.
Results: Elderly inmates present a high prevalence of substance use (especially alcohol), affective symptoms (depression) and cognitive deterioration. A significant presence of personality disorders, anxiety, post-traumatic disorders, psychotic disorders, and physical comorbidities is also observed, with rates higher than among young convicts and the general geriatric population. There is a higher prevalence for any diagnosis amongst women, mainly for affective disorders.
Discussion: Prisoners over 50 have a different profile from other prison population. They suffer from more physical and mental illnesses, and so require specific health and social approaches. It would be advisable to adapt clinical care by optimizing resources, developing prison psychogeriatrics and establishing specific assessment and treatment methods.

Key words: psychogeriatrics; prisons; mental illness; prisoners.

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INTRODUCTION

The World Health Organisation estimates that the population over 60 years of age will increase from the 900 million recorded in 2015 to about 2 billion in 2050[1]. The elderly population in Europe is expected to rise from 18.5% in 2014 (93.9 million) to 28.7% in 2080 (149.1 million)[2].

The tendency when cataloguing persons of "advanced age" in the general population is to apply the term to patients of over 60 years of age, but most studies in the prison setting include samples with lower age groups. This is justified by the fact that when mortality rates are analysed, accelerated aging is detected among individuals with a background of imprisonment[3].

This process is caused by substance use, exposure to constant stress and irregular and insufficient medical care. However, there is no clear consensus on the concept of what is an elderly inmate, and there are different arguments about where to establish the cut-off age (50, 55 and 60 years). The tendency in the literature is to define old age in the prison population from 50 years onwards[4], which is the cut-off point used for this review.

The psychopathology of the elderly person constitutes a wide field of knowledge known as psychogeriatrics. Psychiatric diseases in this population present

a series of specific clinical features caused by the neurobiological, social and functional characteristics associated with aging.

The most prevalent mental disorders in the geriatric population are: dementia (15%), depression (7-15%) and anxiety disorders (3-5%). Psychotic disorders are less frequently observed, and debuts after 50 years of age are uncommon. Substance related disorders are also common, although less so, making up 10% of geriatric mental disorders; alcohol and prescription drugs (anxiolytics and analgesics) are the main substances[5,6].

The progressive aging described in the general population is also affecting prisons. In fact, elderly inmates are the segment of the prison population that have grown most in the last two decades[7]. Between 1995 and 2010, the prison population of inmates over 55 in the USA grew by 282%, six times more than the general rate[8]. In Spain, the population of inmates over 60 years grew by 147% between 2006 and 2021, while numbers of inmates under 60 dropped by 9%[9].

At present, 10-16% of inmates are over 50 years, and 3% are over 60[10]. It is estimated that 20% of inmates in western European prisons are about 50 years of age[11]. In Spain, 21.4% of inmates are over 50, 6% are over 60, and 1.3% are over 70[9]. The reasons that explain the growth in the number of elderly inmates are many and varied, including increased life expectancy (making for a larger number of older convicted offenders)[12] and longer stays in prison due to increased recidivism[7].

Elderly inmates present complex psychiatric symptoms, products of life histories that include child abuse, substance use, social marginalisation, difficulties in self-care, limitations of mobility, cognitive deterioration, hospital admissions, sensory disabilities and chronic diseases (especially cardio-metabolic)[13].

Levels of physical diseases among the subpopulation of elderly inmates are higher than among young prisoners and members of the general public of a similar age[14]. Over 90% of inmates of over 50 years have been found to suffer from some kind of physical illness (mainly high blood pressure or osteoarthritis). When compared to the general geriatric population, they present a significantly higher risk of developing high blood pressure, cardiovascular diseases, respiratory diseases and arthritis[15].

61% of elderly inmates suffer from a mental disorder, the most common ones being major depressive disorder and alcohol use disorder[16]. They also have a negative perception of physical and mental health, which creates a poor quality of life[17]. Attempts to commit suicide are more common among younger inmates, although suicidal ideation is more prevalent among older ones. Suicidal behaviour among elderly inmates is more unpredictable and is modulated by the effects of physical diseases and depression[18]. This association is much closer in men when they are compared to female inmates[19].

In comparison to younger inmates, older prisoners show a higher prevalence of psychiatric disorders and are more likely to use substances[20]. The type of criminal offence also shows some specific characteristics: when compared to younger offenders, there are fewer sentences for theft, burglary and breaking and entering, with similar levels for drug related crimes and a higher rate of sexual offences[21].

To sum up, the global population is aging, and this process is impacting the prison population and its healthcare needs. This demographic change commenced some decades ago, which means that provisions for psychogeriatric care have not yet been included in psychiatric prison healthcare resources. Furthermore, specific research on this issue is a recent phenomenon. The aim of this review therefore is to analyse the importance of psychogeriatrics in prison, so as to summarise and update our knowledge on the issue, and offer foundations for future research.

METHODOLOGY

A systematic review was carried out, using data bases and search engines (*PubMed, Dialnet, Cochrane Library* and *Google Scholar*), following the PRISMA recommendations, with the combinations of the following medical subject headings (MeSH): “psychogeriatric” AND “prisons” OR “forensic mental health”; “older-prisoners” OR “elderly-inmates” AND “psychiatry” OR “psychiatric-disease”; “psychogeriatric” OR “older-prisoners” AND “forensic-psychiatry”; “older-prisoners” OR “elderly-inmates” AND “mental-health” OR “mental-disorder”.

All the studies that analysed psychopathologies amongst inmates over 50 were included. No exclusion criteria for design, methodology, language or publication date were applied. Articles published before 30 November 2021, when the data bases were analysed for the last time, were included.

Selection of the studies was carried out by two independent reviewers, who identified and compiled the relevant data. 239 articles were initially identified with the key words. Of these, 14 were selected after reading the title and abstract. The other studies were excluded because they were duplicates, irrelevant to the research purposes, did not analyse mental

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disorders or presented a different study group (e.g. inmates under 50 years of age or convicts under open regime).

Given that little research has been carried out in this area of knowledge, all the results of the studies included were specified and presented, regardless of the extraction procedure, variables included and statistical analysis.

The article selection process is shown in Figure 1. The methodology analysis and findings of each study are summarised in Table 1.

RESULTS

Most of the studies analysed the presence of affective, cognitive or substance use disorders. However, the study of psychotic, anxiety and personality disorders were often included in studies that generally reviewed different prevalences. No publications that study such diagnoses as primary objectives were found.

It was found that one out of two inmates over 60 years of age suffers from a psychiatric disorder[22]. When compared to their peers in the community, they present a higher risk of any disorder, except in alcohol abuse and dementia[23]. The prevalence of all the psychiatric conditions is higher among women, especially where affective disorders are concerned, where they are twice as common[24].

The results according to the most common disorders are described below:

Substance use disorder

It was found that as much as 71% of elderly inmates have a history of substance use, although almost a third have never received specific treatment[25]. Alcohol abuse is especially notable, with a prevalence that varies between 16%[23] and 46%[26]. One in five inmates present an alcohol use disorder[24], which is especially damaging when the disorder has existed for more than four decades[25].

Affective disorders

More than half of elderly inmates have scores that place them above the threshold for mild depression[27,28]. 59% have been described as taking at least one antidepressant[29]. The depressive symptoms are not associated with duration of sentence or other variables related to imprisonment, but they do correlate with chronic diseases[27] and with feelings of dissatisfaction with their physical health[28].

Most of the studies conclude that depression is the most prevalent condition, with figures that fluctuate between 30% and 50%[22,23,26], while the percentage of cases of severe depression stands at 3%[27]. A significant presence of bipolar disorder was also detected, although prevalence is variable and oscillates between 45%[23] and 18%[29].

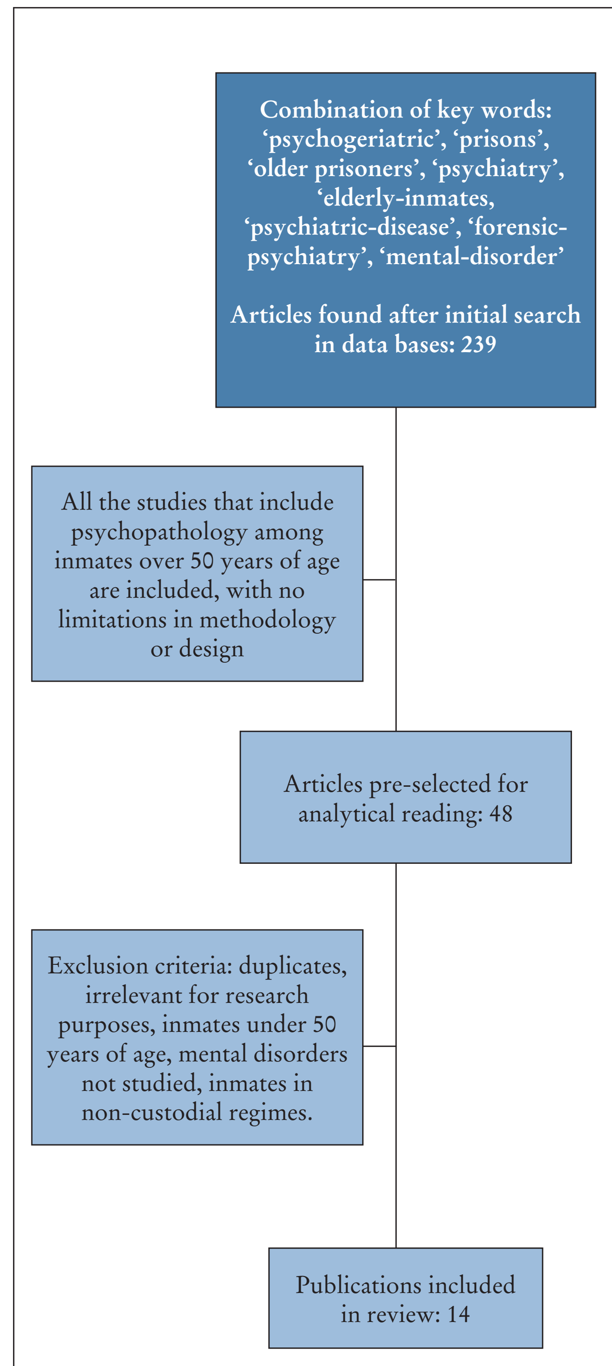

Figure 1. Article selection process.

Table 1. Analysis of studies included in the review.

Author and year	Methodology	Results and conclusions
Arndt *et al.* (2002)[25]	Interviews with inmates of the prison system of Iowa. Cohort, formed between 1996-2001, which included 9,741 men (88.93%) and 1,213 women (11.07%), with an average age of 31.5 years. 180 participants were over 55 years of age. The study was carried out with the *Iowa Department of Public Health* (IDPH).	71% of elderly inmates have a substance abuse problem. They are accustomed to taking just one substance, usually alcohol (85.04%). They have consumed the substance for an average term of 42.66 years, but 34.65% have never received specific treatment.
Fazel *et al.* (2002)[32]	Retrospective review of data in forensic-psychiatric evaluations in Sweden between 1988-2000, with a sample of 7,297 offenders; 210 cases are over 60 years of age. Socio-demographic, clinical and judicial data is included in the evaluations.	A significant prevalence was detected of dementia (7%), psychotic disorders (32%), depression or anxiety (8%), personality disorder (20%) and abuse or dependence of substances (15%). Elderly inmates are more likely to be diagnosed with affective psychosis or dementia. An association was detected between the diagnosis of dementia and convictions for sexual offences.
Caverley (2006)[29]	Cross-sectional study of inmates over 50 years of age at the Utah State Prison (USA). Sample of 360 inmates (318 men, 42 women). Demographic, economic, legal and clinical data was analysed.	13.6% have a severe mental illness. There is a notable presence of depression (57%), psychosis (25%), bipolar disorder (18%) and psychotic disorders (3%). 59% of elderly inmates take at least one antidepressant; 33% take atypical antipsychotic medication (compared to 23% of younger inmates).
Murdoch *et al.* (2008)[27]	Cross sectional study of 121 elderly inmates serving life sentences at two category B prisons in the UK. Variables were taken about Sociodemographic conditions, health and prison regime issues. The geriatric depression scale was administered (GDS-15).	48% of inmates present mild depression, and 3% present severe depression. The intensity of the depression is not related to prison variables or the effects of imprisonment, but it is related to poor and chronic physical health.
Davoren *et al.* (2015)[26]	Retrospective study of inmates of over 60 years of age in two Irish detention centres, coupling the sample with young inmates. The analysis took place from January 2006 to June 2012, and included 213 elderly inmates and 22,395 young ones. The sociodemographic, clinical and legal data was analysed.	A growing number of inmates in preventive detention was detected. Elderly inmates have high rates of affective disorders (40%) and alcohol abuse (46%), with a prevalence of psychotic illness and deliberate self-harming comparable to younger inmates. They also present more heart disease (18%) and neurological issues (27%). They therefore constitute a vulnerable group with a high risk of victimisation.
O'Hara *et al.* (2016)[28]	Cross sectional study of nine prisons in England, interviewing 100 male inmates of between 60 and 81 years. The *Camberwell Assessment of Need-Forensic Version* (CANFOR) and the geriatric depression scale (GDS-15) were used.	Unsatisfied needs were detected in treatment (38%), psychological distress (34%), daily activities (29%), possible benefits (28%), diet (22%) and physical health (21%). More than half of the sample presented symptoms of depression, with a significant association between clinical affective symptoms and unmet physical health needs.
Fovet *et al.* (2016)[22]	Qualitative review and analysis of 14 studies published before September 2013.	More than one of every two inmates over 60 years suffers from a psychiatric disorder. Severe depressive disorder is the most prevalent (30-50%), followed by personality (30%) and psychotic disorders (5%).

(continue)

Table 1. Analysis of studies included in the review *(continuation).*

Author and year	Methodology	Results and conclusions
Baidawi (2016)[31]	Cross sectional study of 173 elderly inmates (average age of 63 years) and 60 younger inmates (average of 34 years) in two Australian jurisdictions. The *Kessler Psychological Distress* (K10) was applied. Data about the interviewees' physical health and prison conditions was collected.	Greater psychological distress was detected in younger inmates when compare to older ones. However, the distress in this population is higher than that found in the general public, and is associated with the female gender and having a background of mental health issues.
Flatt *et al*. (2017)[33]	Cross sectional study of 238 older inmates (≥55 años) at a county prison in the USA. Sociodemographic variables were studied and the *primary care* PTSD (PC-PTSD) was applied.	E40% of participants have a diagnosis of post-traumatic stress disorder, only 10% previously presented the diagnosis. Participants with this diagnosis are more likely to report insecurity about medication, suffer from deteriorations in their daily life, present worse self-reported health and have a background of traumatic brain injury.
Ahalt *et al*. (2018)[36]	Cross-sectional (n = 185) and longitudinal (n = 125) study at prison in an urban county, to apply a detection test for cognitive deterioration among inmates over 55. The total sample (n = 310) had an average of 59 years. A clinical and sociodemographic questionnaire was applied, along with the *Montreal Cognitive Assessment* (MoCA).	70% of participants obtained a score under 25 in the MoCA, indicating cognitive difficulties. Those with a los score were more likely to report poor or bad health. A low score was associated with multiple visits to A&E, hospitalisations and new arrests.
Di Lorito *et al.* (2018)[23]	Systematic review and meta-analysis of nine studies in Dedember 2016. The rates of prevalence of psychiatric disorders was analysed using an aggregated weighted median, with calculation of the relative risk and statistical significance compared to community studies.	Prevalences: any psychiatric disorder (38.4%), depression (28.3%), personality disorder (22.9%), alcohol abuse (15.9%), anxiety disorders (14.2%), cognitive deterioration (11.8%), psychosis (5.5%), bipolar disorder (4.5%), dementia (3.3%) and post-traumatic stress (6.2%). Elderly inmates run a relative higher for any disorder compared to their peers in the community, with the exception of alcohol abuse and dementia.
Stoliker et al. (2019)[24]	Retrospective study in the *Survey of Inmates in State and Federal Correctional Facilities*, between 2003-2004, of 18,185 inmates housed in 287 state and 39 federal facilities. The sample was segmented and the data of inmates of 50 years was extracted, obtaining 1,537 male (mean of 56.22 years) and 370 female inmates (mean of 55.45). The clinical and demographic data was analysed.	23% have some type of psychiatric diagnosis: all the prevalences are higher in women, one notable feature being that affective disorders are twice as high among women as they are among men. Another notable feature is the presence of depressive disorder (16.2%), anxiety disorder (7.2%), post-traumatic stress (6.7%) and psychotic disorder (3.7%). Substance abuse was detected in 26.1%, with alcohol abuse at (19.9%). The most significant physical diseases were high blood pressure (47.4%), arthritis (40.8%), heart disease (22.9%) and asthma (14.4%).
Barry *et al*. (2020)[30]	Cross section study of 220 inmates over 50 years of age in eight prisons. A clinical interview was carried out along with the *Short Physical Performance Battery* (SPPB), a series of questions to self-define functional limitations, the *Geriatric Suicide Ideation Scale* y and a depression questionnaire (PHQ-9). .	Self-reported functional disability was significantly associated with suicidal ideation, and depressive symptoms modulate said relationship.

Note. PHQ-9: Patient Health Questionnaire-9; PTSD: post-traumatic stress disorder.

A significant association was found between functional limitation (objective and subjective), depressive symptoms and suicidal ideation among inmates in this profile[30]. However, deliberate self-harm presents a prevalence similar to that found among younger inmates[26].

Psychological distress in older inmates is more common than in the general population, and is associated with self-reported security, prison victimisation, employment, physical exercise, the female gender and a record of mental health issues[31]. Many present unmet needs related to treatment, daily activities, diet and physical health[28].

Personality disorders and other issues

One third of elderly inmates were found to suffer from a personality disorder[22], while other studies show 20% for similar disorders[23,32]. Other disorders worth mentioning in this regard include anxiety (14%) and post-traumatic stress (6-7%)[23,24]. Inmates with PTSD are more likely to have worse self-rated health, insecurity about drug regimes, a background of traumatic brain injury and functional deterioration in daily activities[33].

Psychotic disorders

It is estimated that about 5% of elderly inmates suffer from psychotic disorders[22,23,26], although previous studies set the prevalence of this type of disorder at 32%[34]. In any case, the belief is that the prevalence of psychosis among elderly inmates is three times greater than it is in the general public[29]. When compared to younger inmates, elderly prisoners are more likely to be diagnosed with affective psychosis[34], and 33% receive treatment with atypical antipsychotic drugs (compared to 23% of young inmates)[29].

Cognitive and organic problems

A high prevalence of cognitive deterioration (11.8%) and dementia (3.3%) was detected[23]. Other studies mention figures of around 40% for cognitive deterioration, with a significant association between cognitive performance and age, educational attainment, duration of current sentence and depressive symptoms. Furthermore, almost half presented deficits in executive functioning[35]. Low cognitive performance was correlated with more visits to A&E and hospital admissions[36], and an association was also found between diagnoses of dementia and convictions for sexual crimes[32].

Elderly inmates also present high prevalences of neurological (27%) and heart disorders (18%), making them a group of high physical vulnerability[26]. There is also a high presence of high blood pressure (47.4%), arthritis (40.8%), heart disease (22.9%) and asthma (14.4%)[24].

DISCUSSION

Inmates over 50 present a unique profile. They suffer from significantly more mental and physical diseases, and so present a greater need for medical care and specific social and healthcare approaches[16]. Decisions about the end of life, including the formulation of decisions in advance, increase the complexity of healthcare for this group[37]. Therefore, physicians who work in the forensic and prison sector need to develop skills in psychogeriatrics[8].

This review found a significant presence of psychiatric disorders among elderly inmates, especially substance-use disorders (alcohol) and affective issues (depression). This matches the conclusions of previous studies, which found that the prevalence of depression among elderly inmates was five times higher than the levels found among young inmates and elderly persons in the community[38].

However, one finding was that only 18% of elderly inmates with psychiatric morbidity receive adequate psychotropic medication[39]. Furthermore, no specific mention is made of elderly inmates in rehabilitation programmes, and the release of such inmates is often not correctly planned and no adaptations are made for their needs.

It is essential to detect inmates with greater functional limitations to enable early evaluation of the existence of depressive symptoms and prevent suicidal ideation[30]. Independently of the diagnosis, it has been shown that self-harming ideations significantly interfere with the quality of life[40].

Individualised approaches need to be taken to identify the interests, feelings and experiences of elderly inmates, who are generally less demanding and less inclined to voice their dissatisfactions than younger inmates. This may be due to the fact that elderly inmates present greater psychological adjustment, more internal resources and better adaptation to the prison setting in comparison to young prisoners, independently of the time spent in prison[41].

The prevalence of cognitive deterioration identified in the review, at about 12%, matches the evidence in previous studies[38]. Difficulties with executive functions and communication problems in elderly inmates were described[42]. It was also calculated that the prevalence of cognitive disorders in the prison set-

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ting is double (60-69 years) and four times more (in inmates over 70) than in the same population group in the community[43].

A recent review concluded that the healthcare, social and criminal justice services had not adapted to respond to the needs of inmates with cognitive issues[44]. There are proposals afoot to improve care for inmates with dementia, which include early detection programmes, specialised units, adapted activities, parole for inmates with a low risk of recidivism, and training programmes to enable younger inmates to accompany older ones[45].

A high prevalence of anxiety, psychosis, personality and substance use disorders (especially alcohol) was also detected. The existence of such psychopathologies makes the sub-population of elderly inmates a fragile group immersed in a hostile setting.

It should be remembered that 36.7% of inmates undergo some form of physical victimisation, and that assaults are 2.5 times more common among inmates with mental illnesses[46]. This vulnerability is even greater among women, who present a higher prevalence of psychiatric problems and tend to be underrepresented in research on victimisation.

Psychopathologies can have an influence of the type of offence committed, which changes according to the age segment. A specific case is the high rate of sexual crimes detected among elderly inmates[26]. There is some clinical variability according to the offence, even among elderly inmates. For example, elderly sex offenders have been described as having more schizoid, obsessive and evasive personality traits than peers sentenced for other offences[34].

Previous studies described the prevalence and types of mental illness in several Spanish prisons[47-49], but they studied young population samples (with average ages of 35 years) and did not classify the population into different age segments.

It would therefore be interesting to carry out research that would enable the psychiatric pathologies among elderly inmates to be described, analysing their specific characteristics and needs. Another recommendation would be that future research should focus on the female sub-population, given that most studies on the mental health of elderly inmates have focused on male prisoners[21].

Limitations

The heterogeneous nature of the design of the studies included in the review needs to be highlighted, as does the variations in defining the population of elderly inmates. A standard cut-off point for old age would help in future research, as this would enable studies to be replicated more exactly. It would also eliminate ambiguities and facilitate more reliable comparisons of results.

Another limitation is the fact that the research work was carried out in several countries, with different socio-cultural settings, which makes a degree of caution advisable when generalising the results. Most of the studies also focus on male inmates, which leads us to recommend more in-depth studies of the female sub-population, given the major differential implications that this implies for intervention.

Finally, subsequent studies should carry out a broader search in the data bases (such as Scopus and WoS) to contrast results.

CONCLUSION

The high prevalence of psychiatric disorders in prisons and the progressive aging of inmates suggest that psychogeriatrics should be considered in the prison setting. The growing number of elderly inmates creates a need for the prison authorities to optimise resources and infrastructures to enable a degree of adaptation to the growing physical and mental fragility of prisoners.

This review shows that elderly inmates often suffer from psychiatric disorders (addictions, depression, cognitive disorders). We would recommend adapting clinical care by developing prison psychogeriatrics, establishing evaluation methods and adjusting therapeutic approaches.

CONFLICTS OF INTEREST

No conflicts of interest were declared.

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