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PTSD in prison settings: the need for direct comparisons with the general population

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We read with great interest the recent article of Facer-Irwin and coworkers, investigating post-traumatic stress disorder (PTSD) and complex PTSD (CPTSD) in a sample of 221 sentenced male prisoners (Facer-Irwin, Karatzias, Bird, Blackwood, & MacManus, 2021). Psychiatry in detention settings has rightly been receiving increasing attention over the last 20 years and it is very encouraging to see such results published in leading psychiatry and psychology journals such as *Psychological Medicine*.

As highlighted by Facer-Irwin and coworkers, PTSD is a highly prevalent condition in imprisoned people. A recent meta-analysis, based on 56 samples from 20 countries worldwide, identified a point prevalence of PTSD ranging from 0.1% to 27% for male, and from 12% to 38% for female prisoner populations (Baranyi, Cassidy, Fazel, Priebe, & Mundt, 2018). Beyond methodological differences between studies, these strong variations could emerge from well-documented geographical discrepancies. Indeed, the lifetime prevalence of PTSD in the general population has been shown to vary from 0.3% to 8.8% depending on the country, in a large-scale cross-national (26 population surveys) study (Koenen et al., 2017). A similar observation is made for studies in detention settings since prisoners in high-income countries, particularly in the USA, have a higher PTSD prevalence than imprisoned people in other countries (Baranyi et al., 2018). Direct comparisons between the imprisoned population and the general population are thus crucial for a better understanding of the specific characteristics of PTSD in prison. Yet, only a very small number of epidemiological studies have used this approach (see e.g. Butler et al., 2006).

In France, the Mental Health in the Prison Population (MH-Prison Population) and the Mental Health in the General Population (MH-General Population) surveys offer the opportunity to compare the prevalence of a range of mental disorders, including PTSD, in prisoners with community controls. The cross-sectional MH-Prison Population survey, conducted between March 2014 and April 2017 by the *Fédération régionale de recherche en psychiatrie et santé mentale* (Regional Federation for Research in Psychiatry and Mental Health, F2RSMPsy) and the World Health Organization Collaborating Centre in mental health (WHOCC Lille), interviewed 653 randomly selected men and women who had recently been committed to the French general population prison system in the North district of France. The cross-sectional MH-General Population survey, conducted between 2001 and 2008 by the WHOCC, interviewed 12 568 subjects selected by a quota sampling method in the same geographical area (13 sites in the North district of France). Importantly, MH-Prison Population and MH-General Population both used the Mini International Neuropsychiatric Interview (MINI), to assess psychiatric symptoms (Sheehan et al., 1998). MH-Prison Population and MH-General Population surveys also used the same methodology to evaluate sociodemographic characteristics, making a direct comparison possible. Further details on the two surveys and diagnoses procedures are available elsewhere [see Fovet et al. (2020) for MH-Prison Population, see Amad et al. (2013); Pignon et al. (2018) for MH-General Population).

Here we compared the prevalence rates of PTSD among men from MH-General Population ($N = 5793$) and MH-Prison Population ($N = 630$). We identified 37 individuals with PTSD in MH-General Population, which corresponds to a prevalence rate of 0.6% (95% CI 0.4–0.9), and 30 in MH-Prison Population, leading to crude and age-standardized prevalence rates of 4.8% (95% CI 3.3–6.8) and 3.5% (95% CI 2.2–5.3), respectively. The prevalence rates among incarcerated people in the North of France are thus lower than those found by Facer-Irwin and coworkers who identified a PTSD prevalence of 7.7% (95% CI 4.5–12) and a CPTSD prevalence of 16.7% (95% CI 12.1–22.3). However, our results are in line with previous meta-analytic estimates and show an approximately fivefold higher prevalence of PTSD in male prisoners than in the general population.

Table 1. Characteristics of men with post-traumatic stress disorder (PTSD) according to the source population (Mental Health in the Prison Population, MH-Prison Population or Mental Health in the General Population, MH-General Population)

	MH-Prison Population $N = 30$	MH-General Population $N = 37$	p^a
Age, *m* (s.d.)[b]	28 (22–34)	43 (30–54)	**<0.001**
Education level, *n* (%)			**0.025**
Primary or middle school	12 (40.0)	26 (70.3)	
High school or university	18 (60.0)	11 (29.7)	
Marital status, *n* (%)			0.182
Single	10 (33.3)	8 (21.6)	
Married	17 (56.7)	19 (51.4)	
Separated, divorced, widowed	3 (10.0)	10 (27.0)	
Employment, *n* (%)	9 (30.0)	21 (56.8)	0.052
Monthly income (in euros), med [IQR][c]	357 [229–450]	637 [492–1041]	**<0.001**
Migration, *n* (%)			
1st generation	5 (16.7)	5 (13.5)	0.734
2nd generation	8 (26.7)	4 (10.8)	0.173
Number of psychiatric comorbidities, med [IQR]	3 [2–4]	1 [0–1]	**<0.001**
Mental health comorbidity, *n* (%)			
Major depression	16 (53.3)	3 (8.1)	**<0.001**
Recurrent major depression	9 (30.0)	3 (8.1)	**<0.001**
Dysthymia	3 (10.0)	4 (10.8)	1.000
Manic episode	4 (13.3)	4 (10.8)	1.000
Agoraphobia	7 (23.3)	0 (0.0)	**0.002**
Panic disorder	8 (26.7)	5 (13.5)	0.297
Panic disorder with agoraphobia	1 (3.3)	0 (0.0)	0.448
Social phobia	6 (20.0)	3 (8.1)	0.280
Generalized anxiety disorder	10 (33.3)	7 (18.9)	0.286
Alcohol dependence or abuse	18 (60.0)	9 (24.3)	**0.007**
Drug dependence or abuse	17 (56.7)	4 (10.8)	**<0.001**
Psychotic disorder	6 (20.0)	4 (10.8)	0.324
Moderate or high suicide risk	13 (43.0)	5 (13.5)	**0.014**

[a]Wilcoxon tests were used to compare medians, and χ^2 tests or Fisher tests were used to compare proportions.
[b]*m* (s.d.): mean (standard deviation).
[c]med [IQR]: median [interquartile range].

We also found that imprisoned people with PTSD have specific socio-demographical characteristics (see Table 1). Compared to men with PTSD in MH-General Population, men with PTSD in MH-Prison Population were younger [median age: 28 (22–34) *v.* 43 (30–54), $p < 0.001$], more educated (60% in high school in MH-Prison Population *v.* 29.7% in MH-General Population, $p = 0.025$), and declared lower monthly incomes [median monthly income: 357 (229–450) *v.* 637 (492–1041), $p < 0.001$].

Finally, previous studies have documented associations between PTSD and comorbid mental disorders, including depression, anxiety, and substance use disorders, as well as suicidality, both in incarcerated people (Facer-Irwin et al., 2019) and in the general population (Shalev et al., 2017). However, we observed that people in prison are more likely to have several co-morbid psychiatric disorders when suffering from PTSD (see Table 1). In our study, prisoners with PTSD in MH-Prison Population had a median of 3 (2–4) psychiatric comorbidities identified with the MINI, *v.* 1 (0–1) for individuals with PTSD in MH-General Population. Compared to their counterparts suffering from PTSD in the community, prisoners with PTSD were at higher risk of major depression (53.3% *v.* 8.1%, $p < 0.001$) or recurrent major depression (30.0% *v.* 8.1%, $p < 0.001$), agoraphobia (23.3% *v.* 0.0%, $p < 0.001$), alcohol (60.0% *v.* 24.3%, $p = 0.007$) or drug (56.7% *v.* 10.8%, $p < 0.001$) dependence or abuse, and of being at moderate or high risk of suicide (43.0% *v.* 13.5%, $p = 0.014$).

It should be noted that this study has several limitations. Women only represented 3.5% of the total sample of

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MH-Prison Population ($n = 23$), we have therefore limited statistical analysis to male individuals. Furthermore, a limitation for the comparison of the prevalence rates between the prison population and the general population arises from a time lag of about 10 years between the two studies. The prevalence rates in the general population might have changed over time but no more recent data are available at this time. Lastly, no information about the history of incarceration was available for MH-General Population subjects, which makes it impossible to explore the role of multiple incarcerations in the occurrence of PTSD and psychiatric comorbidities.

In conclusion, our results highlight that comparison with the general population is a key-point for a better understanding of the epidemiology of psychiatric disorders in prison settings, particularly regarding PTSD. Importantly, these results have also several implications for clinical practice. The specific clinical features should inform the development and operationalization of PTSD care in prison settings, and contribute to improve the screening and identification of PTSD in this environment through specific training of mental health caregivers. Moreover, we are convinced that using this comparison approach in a cross-national way could considerably help to identify the specificities of the prison environment and its impact on mental health in each country. In this perspective, community-based epidemiological surveys should also systematically investigate the incarceration history of the interviewees.

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Conflict of interest. None.

Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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