

## Prevalence of Mental Health Disorders among Prisoners: A Systemic Review and Meta-Analysis

Dr. Shailla Cannie, Dean,

*Shri Mata Vaishno Devi University*

*Principal, Shri Mata Vaishno Devi College of Nursing, Kakryal, Katra*

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**ABSTRACT:** The 12th edition of the World Prison Population List engendered by the Institute for Malefactor Policy Research (ICPR) in 2018, estimates that there were over 11 million people in confinement ecumenically in 2018, either in pre-tribulation detention or after conviction and sentence. Around a moiety of all prisoners are in just four countries – the US, China, Russia and Brazil. Concretely immensely colossal increases have been recorded in South America (175 per cent) and Southeast Asia (122 per cent). In India, twelve of the immensely colossal and mid-sized states included in the study had occupancy of over 100%. Chhattisgarh (222.5%), Madhya Pradesh (208%), and Uttar Pradesh (168%) were especially overburdened. The objective of the study was to review and analyze the prevalence of mental disorders among prisoners. The meta-analysis was performed according to the MedClac statistical software and PRISMA guidelines. The prevalence of highest mental disorders found in all the studies was Depression followed by Psychosis and Stress/Anxiety followed by lower range of disorders as PTSD in women, suicidal attempts and self-truculent deportment. Along with that a very few number of prisoners have neurotic disorders and delusions. Prisoners who are potential candidates for hospital treatment may be abnegated by psychiatric accommodations because they are perceived as too perturbed or hazardous, or optically discerned as malefactors who are unsuitable for treatment.

**KEYWORDS:** Prisoners, prevalence, mental disorders, prison

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### I. INTRODUCTION

The 12th edition of the World Prison Population List engendered by the Institute for Malefactor Policy Research (ICPR) in 2018, estimates that there were over 11 million people in confinement ecumenically in 2018, either in pre-tribulation detention or after conviction and sentence. Around a moiety of all prisoners are in just four countries – the US, China, Russia and Brazil. There are very paramount regional differences in confinement populations. Since 2000, the total prison population in Oceania has incremented by 86 percent; in the Americas by 41 percent; in Asia by 38 per cent; and in Africa by 29 per cent. Concretely immensely colossal increases have been recorded in South America (175 per cent) and Southeast Asia (122 per cent). In Europe; by contrast, the total prison population has decremented by 22 per cent, reflecting immensely colossal falls in confinement populations in Russia (45 percent) and additionally in Central and Eastern Europe. Outside of Russia, Europe's prison population has incremented by three per cent. The paramount decrease in Russia's prison population has led to the closing of 93 prisons in the last seven years. Psychiatric disorders occur at high rates in all countries of the world.<sup>[1]</sup>

Despite the high caliber of need, these disorders are frequently under diagnosed and poorly treated. Several studies have suggested that prisoners experience a number of pre-prison adversities which contribute to subsequent mental health. However, there are adscititious reports that prisoners develop mental illness due to the prison environment. These disorders are especially prevalent in confinement populations. An unequal soaring rate of psychiatric disorders in prisons is cognate to several factors. The widespread misconception is that all people with mental disorders are a peril to the public; the general intolerance of many societies to arduous or perturbing deportment; the failure to promote treatment, care and rehabilitation, and, above all, the lack of, or poor access to, mental health accommodations in many countries. The issues related to mental disorders may be present afore admission to prison, and may be further exacerbated by the stress of confinement. However, psychological disorders may withal develop during confinement itself as a consequence of prevailing conditions and withal possibly due to torture or other human rights breaches.<sup>[2]</sup> In India, twelve of the immensely colossal and mid-sized states included in the study had occupancy of over 100%. Chhattisgarh (222.5%), Madhya Pradesh (208%), and Uttar Pradesh (168%) were especially overburdened.<sup>[3]</sup> It is analyzed that schizophrenia is the most prevalent disorder followed by dejection and adjustment disorder found in prisoners. The various substance-use disorders such as cannabis, alcohol, and nicotine are conspicuously prevalent.<sup>[4]</sup>

**OBJECTIVE:** The objective of the study was to review and analyze the prevalence of mental disorders among prisoners.

**METHOD:** The meta-analysis was performed according to the MedClac Statistical Software and PRISMA guidelines

**Search Strategy:** The author probed the literature utilizing different keywords such as (prevalence, mental health, prisoner’s mental health) in available electronic data bases such as Google Scholar, PubMed, Science Direct and other sources like Research Gate. The search was not circumscribed to one country/ continent or region. The search was conducted for the studies published 2005 onwards. All the included studies had one common objective/ purpose and setting but the study designs were different. The entire process was independently consummated by the author.

**Inclusion and exclusion criteria:** The research studies obtained were screened and segregated according to the inclusion and exclusion criteria. The inclusion criteria was as mentioned: 1) original studies based on the prevalence of mental health disorders among male and female prisoners; 2) sample was obtained from the prisoners present in the jails; 3) the multi design studies were included having common aim or objective of their study; 4) studies that are published and available to access from 2005 to 2019. The exclusion criteria set for the meta-analysis was: case reports, systemic reviews and any editorials; 2) studies with unclear information or does not meet the same objective.

**Data extraction:** Utilizing the predefined protocol, the author probed, amassed, extracted, and evaluated the information from each selected individual study included in the review as per the inclusion criteria. The information extracted from the individual studies included; the designation of the author, study population, including the year of publication, setting, research design of the study, tools used to collect data, number of prisoners. The final check list was reviewed by the corresponding author and the eligible studies were enrolled in the final Meta-analysis.

**Statistical Analysis:** In this study, the researcher used a Random Effect Model to combine the results and Meta regression analysis was also used to find the heterogeneity of studies. Meta-analysis was conducted using MedClac statistical software using pooled random effects odd ratios. There was limited number of studies available to provide adequate statistical power for Meta –regression. The numbers of studies included for Meta-analysis have evaluated common symptoms present in the prisoners. In this study, a two-stage approach will be applied. In the first step, the individual studies are analyzed resulting in effect estimates with standard error. The significance and magnitude of heterogeneity across studies were calculated using  $I^2$  statistics; significantly high levels of heterogeneity were indicated for Depression and Stress/Anxiety.

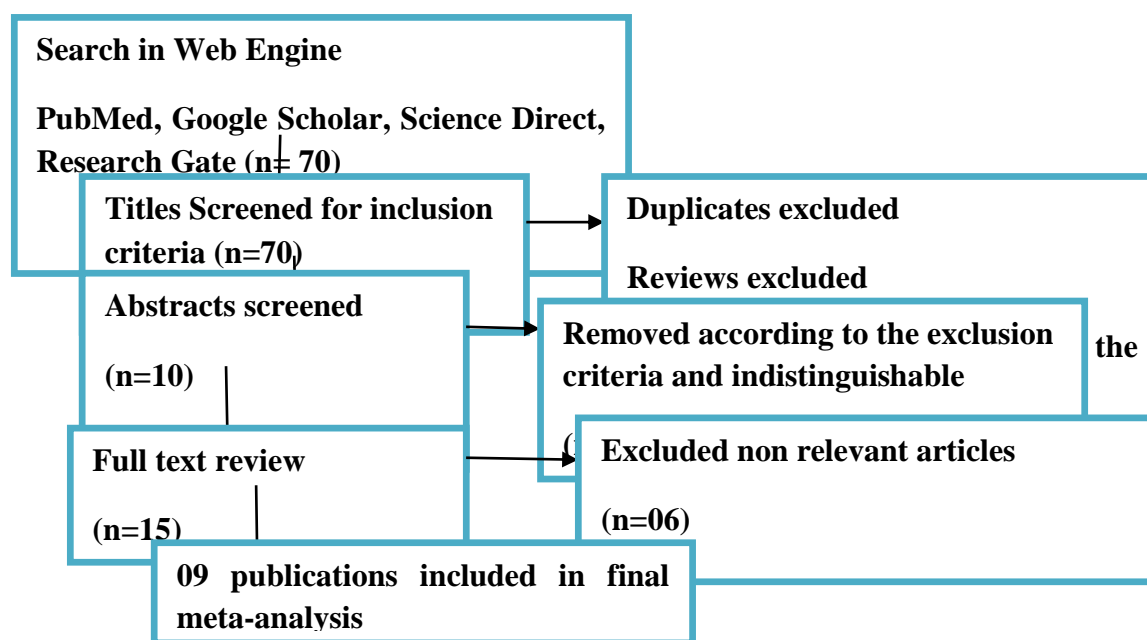


Figure1. Flow diagram showing the different steps involved in searching for relevant publications (2007-2019)

## II. RESULTS

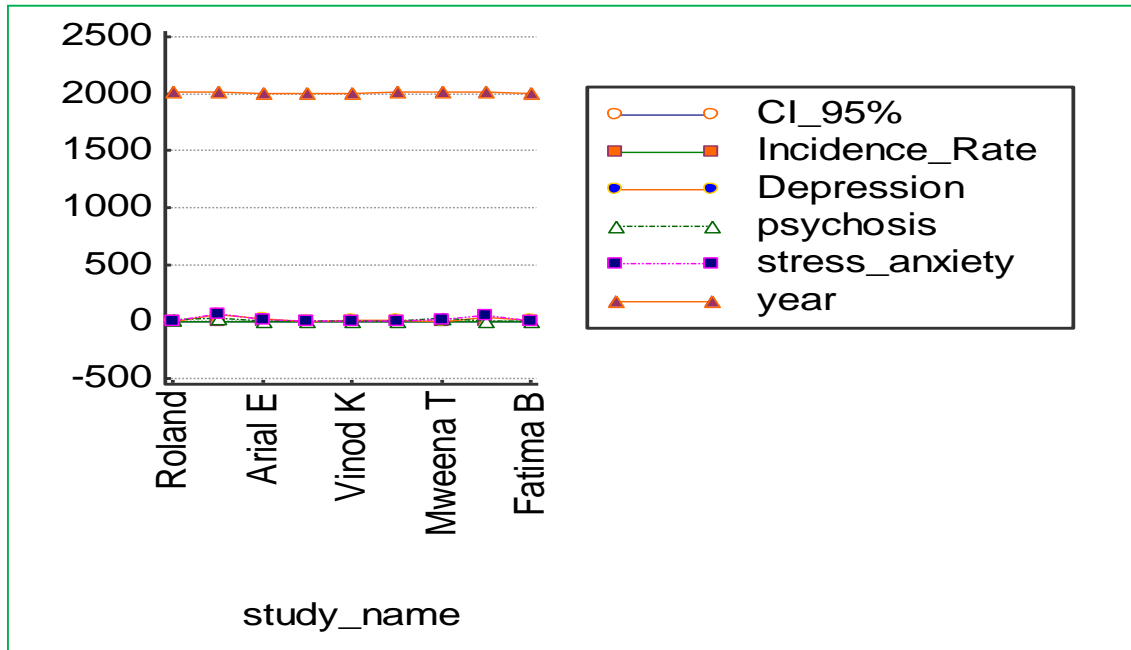
Key features of included studies The 09 studies included for Meta-analysis reported on a coalesced sample of male and female prisoners of High, Low and Middle Income countries comprising USA, Canada, Switzerland, Zambia, India, Iran, Brazil and Pakistan. Most of the studies did not define the specificity of age group of the prisoners. The study design implements used while conducting the individual study is depicted in the **Table-1** below. The prevalence of highest mental disorders found in all the studies was Depression followed by Stress/Anxiety and Psychosis respectively whereas a lower range of disorders as PTSD in women, suicidal attempts and self-truculent behaviour were as well found in the prisoners. Along with that a very few number of prisoners have neurotic disorders and delusions. The pooled sample size included a total number of 5699 prisoners.

Table1. Features and characteristics of the studies included in the study

| Author details                       | Period of publication | Geographic location    | Study design    | Assessment Instrument   | Study Setting | Sample size | Source of information on Subjects |
|--------------------------------------|-----------------------|------------------------|-----------------|-------------------------|---------------|-------------|-----------------------------------|
| Ronald M.Jones <sup>[5]</sup>        | 2019                  | Ontarion,Canada        | Cross sectional | DUNDRUM 1&2             | Prison        | 641         | Yes                               |
| Carolina Gabrysch <sup>[6]</sup>     | 2019                  | Chile, USA             | longitudinal    | MINI                    | Prison        | 782         | Yes                               |
| Ariel Eytan <sup>[7]</sup>           | 2010                  | Geneva, Switzerland    | Cross sectional | AUDIT & medical records | Prison        | 1510        | Yes                               |
| Amanda M <sup>[8]</sup>              | 2007                  | Rhode Island, USA      | Experimental    | MINI                    | Prison        | 124         | Yes                               |
| Vinod kumar <sup>[9]</sup>           | 2013                  | Kota, Rajasthan        | Cross sectional | IPIS                    | prison        | 118         | Yes                               |
| Mahmoud Shirazi <sup>[10]</sup>      | 2016                  | Zahedan, Iran          | Comparative     | SCL 90                  | Prison        | 275         | Yes                               |
| Mweene T <sup>[11]</sup>             | 2016                  | Kabwe, Zambia          | Cross sectional | SRQ 20                  | Prison        | 399         | Yes                               |
| Patricia Constantino <sup>[12]</sup> | 2016                  | Rio de Janerio, Brazil | Cross sectional | BDI 21 & LSSI           | Prison        | 1573        | Yes                               |
| Fatima Bilal <sup>[13]</sup>         | 2011                  | Adyala, Rawalpindi     | Cross sectional | SRQ 20                  | Prison        | 275         | Yes                               |

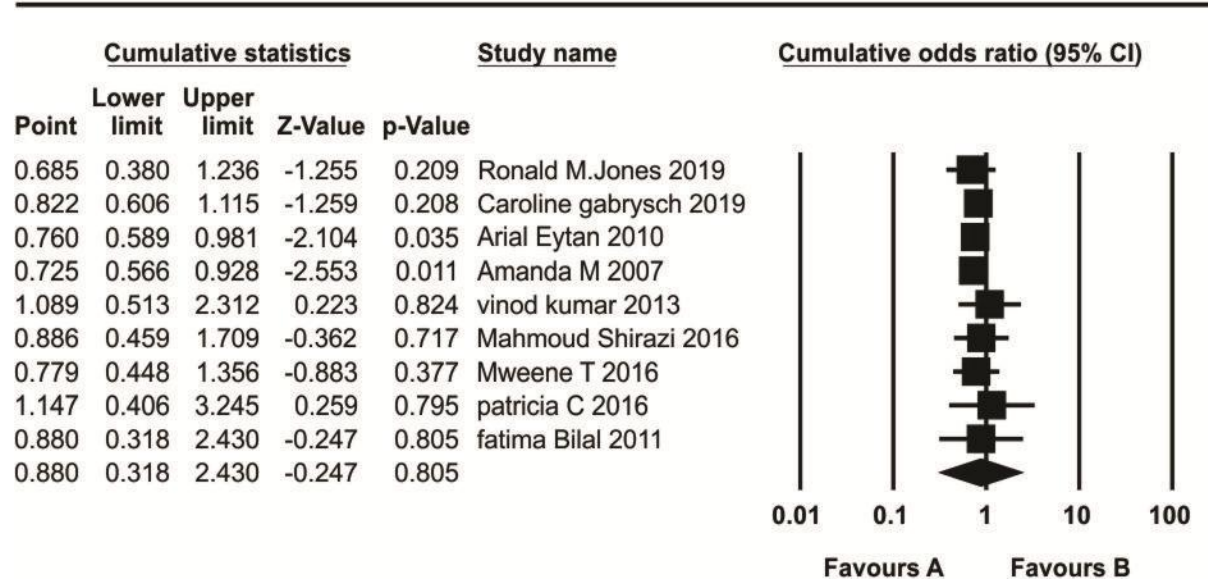
**Abbreviations of Assessment Instruments:** DUNDRUM 1&2-Dangerousness, Understanding, Recovery and Urgency Manual, MINI- Mini International Neuropsychiatric Interview, AUDIT-Alcohol Use Disorders Identification Test, IPIS-Indian Psychiatry Interview questionnaire, SCL-90 Symptom Checklist, SRQ 20-Self Reported Questionnaire, BDI 21-The Beck Depression Inventory, LSSI-The Lipp Stress Symptom Inventory for Adults

**Prevalence Studies:** Analysis of all studies was calculated to assess the cumulative statistics of the selected studies according to the inclusion criteria. The CI (95%) of selected studies for mental disorders range from 0.04% to 0.81%. The pooled prevalence of mental disorders at Incidence Rate among prisoners is 0.75. The analysis also depicted a significant heterogeneity among selected studies at p-value <0.001. The graph 1 represents the Incidence Rate, Confidence Interval of the selected studies for mental disorders (depression, psychosis, stress/anxiety) having higher prevalence among prisoners. The mean value at 95% CI for the selected studies for Depression range from 6.37 to 17.61 at significance level P< 0.0001 whereas the mean value at 95% CI for Psychosis and Stress/ Anxiety is 10.21 and 11.58 at significance level P< 0.0001. Many studies reported that environment and non facility of psychiatric treatment is the basic reason for prevalence of mental disorders among prisoners.



The graph indicates the range expected with 95% confidence Interval and incidence rates. Results are illustrated for a study size of n=5699.

### Meta Analysis



#### Meta Analysis

The figure explains the results of meta-analysis. The Confidence Interval of all individual studies across the line –of-no-effect (relative risk) represents non-overlapping CI, indicates the heterogeneity of the studies. The heterogeneity is significantly associated with the p-value (0.03)

### III. DISCUSSION

The Meta analysis of prevalence studies revealed high pooled prevalence of mental disorders among prisoners in jails. However, the studies were heterogeneous. The author endeavoured to explore and explicate the prevalence at 95% CI. The most valid finding of the meta-analysis is that we have statistically shown that the studies were conducted on distinct populations. This is not surprising given that the populations emanate from across the world are detained in a variety of variants of institutions and under distinct penal policies. Accordingly, it is consequential to interpret the meta-analysis findings cautiously as the heterogeneity may limit the validity of providing a single point estimate for distinct populations. All of this underscores the desideratum for more research

on mental health in confinement settings and better standardization of the implements used to assess phrenic and substance use disorders.

#### **IV. CONCLUSION**

Prisoners who are potential candidates for hospital treatment may be declined by psychiatric hospitals because they are perceived as too perturbed or hazardous, or optically discerned as malefactors who are unsuitable for treatment.<sup>[14]</sup> As a result these prisoners remain untreated or undertreated leading to accumulation of psychiatric population in prisons and this is additionally seems a possible cause of high percentage of psychiatric morbidity in prisoners.<sup>[15]</sup> The mental-health dilemma collectively arise consequential levels of unmet psychiatric treatment. Prisons are detrimental to mental-health, and the standards of psychiatric care are significantly lower in some countries than those for the general public. The remedial measures must be implemented for a better future of prison and its community because ultimately these prisoners will be relinquished from prison and become a component of community.

Conflict of Interest

NIL

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