

# Prevalence and risk factors for mental health problems and suicidal expressions among young male prisoners in Cambodia: A cross-sectional study

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## Research article

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## **Prevalence and risk factors for mental health problems and suicidal expressions among young male prisoners in Cambodia: A cross-sectional study**

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### **Abstract**

**Background:** incarceration and mental health problems are empirically known to have a strong association. Many studies have confirmed the high prevalence of mental health problems among young prisoners in particular, yet none have been conducted in Cambodia. **Objectives:** this study aimed first to assess the prevalence of mental health problems and suicidal expressions among young prisoners, and second, to determine the risk factors associated with these two outcomes in Cambodia. **Method:** a cross-sectional study among 572 young male prisoners between the ages of 15 and 24 from three prisons was conducted. Sociodemographic data and detailed information on participants' profiles were gathered, and the Youth Self-Report (YSR) and the Attitude towards Suicide (ATTS) questionnaires were applied. **Results:** anxiety-depression affected 52.10% of the respondents with a similar prevalence of withdrawal depression, somatic complaints, social problems, and aggressive behaviours (around 46%). Mental health problems were strongly associated with younger age, lower educational background, and less time spent in prison. Around half (51.05%) considered life to be meaningful while 16.26% had thoughts about their own death, and 12.06% expressed wishes to die. Suicide ideation, planning, and attempts were reported by almost 6.82%, 1.75% and 2.80% of participants respectively. Prisoners who used drugs prior to imprisonment thought about death significantly more than their counterparts while suicide ideation was reported to be significantly lower among prisoners with higher education. **Conclusion:** the prevalence of mental health problems among young male prisoners was considerably high, while suicide expressions were reported to be lower compared to studies from other countries. This study highlights the need for implementing preventive interventions integrated into the prison health care system to improve the mental health of young prisoners.

**Key words:** mental health problems, suicide expressions, young prisoners, Cambodia

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## Background

The prevalence of mental disorders in prison is much higher than in the general population and there is a strong association between being incarcerated and mental health problems. It has been estimated worldwide that around 20% of female prisoners and approximately 50% of male prisoners have mental disorders (1), unlike the prevalence of mental disorders within the general population which is of around 10% (2). Studies from Europe have shown that 40% of French prisoners and 90% of inmates in the UK suffer from mental health problems, in particular depression, psychosis, and suicidal problems (3). A study from South Africa showed that 55.4% of prisoners fulfilled the criteria for emotional and behavioural disorders, principally antisocial personality disorder (46.1%), substance and alcohol abuse (42.0%), and anxiety disorder and depression (23.3%) (4).

In Asia, some studies have also observed a high prevalence of mental health problems among prisoners. In a study conducted in Hong Kong, 51.0% of the respondents reported a lifetime history of mental disorders while 39.6% reported current mental disorders (5). In India, research conducted by Bhaumik et al. (2015) showed that mental illness is threefold more common among prisoners compared to the general population (6). A systematic review of the prevalence of prisoners with mental health problems in 13 different low and middle-income countries (LMIC) reported 15.8 times higher rates of non-affective psychosis among prisoners than in the general population (7). Reasons for the high prevalence of mental disorders among prisoners are multifaceted; overcrowded prison settings constitute one important cause but others may include loss of autonomy, deprivation of decision making, and loss of freedom (1, 8). Moreover, pre-incarceration factors such as personal histories of poverty, homelessness, unemployment, lack of education, substance use/abuse, and previous mental illness are all reasons that partly help to explain the high prevalence of severe psychological problems among this population (9).

Young prisoners are particularly vulnerable to mental health problems, having higher prevalence rates than older age groups (10). A study from Australia revealed that the prevalence of suicide expression among the incarcerated youths was much higher compared to the general population with one-third of the prisoners reporting suicidal ideation and one-fifth reporting suicide attempts (11). Hofvander et al. (2017) reported that almost 93% of their respondents met criteria for at least one Axis I disorder (emotional and behavioural disorders) while mood disorder (54%) and anxiety disorder (52%) were the most common mental health problems in their study in Sweden (12).

Additionally, mental health problems among young prisoners have a significant impact on their social, economic, educational, vocational, interpersonal, and physical status (8, 13). Research has also shown that antisocial behaviours often continue with increased risk of reoffending, with these behaviours negatively affecting parenting skills, even across generations after release from prison (10, 13). Furthermore, a study assessing the needs of young prisoners found that 79% of this population needed to get support for their mental health and social relationships, which was more important than their educational or work needs (14). A focus on the mental health needs of young prisoners is therefore extremely important in any attempts to reduce re-offending (15).

It is additionally crucial to identify and assess the needs and types of mental health problems in young prisoners soon after imprisonment in order to provide effective mental health services for them (16). However, the majority of prison mental health research has been conducted in high-income countries (17). There are some studies on the mental health of prisoners in Asia but mostly among adults (18). To our knowledge, there are limited studies on mental health problems among young prisoners in LMICs such as Cambodia.

This study aimed first to assess the prevalence of mental health problems and suicidal expressions among young prisoners in Cambodia, and secondly to determine the risk factors associated with both outcomes.

## **Method**

### *Study setting and design*

Cambodia is a post-conflict and low-income country with more than three decades of genocide and wars. During the genocide regime, the health system was completely destroyed and around two out of seven million died due to execution, torture, landmines, overwork, or starvation (19). The health system in Cambodia has been revitalised gradually since 1979 (19, 20), however, it continues to remain limited—particularly in the prison setting (20, 21). There are 24 prisons spread throughout the country, one in each province, with a total of 5,552 young prisoners between the ages of 15 and 24 (22). A cross-sectional study among young prisoners was conducted from January 2018 till August 2019 in Cambodia.

### *Sampling*

Three prisons were selected at random from the total of 24 prisons. The prison data showed the number of female prisoners was very low (23), less than 1%, and therefore we decided to recruit

only young men in this study. All incarcerated young male prisoners who were on appeal or convicted and aged between 15 and 24 were invited to participate. Prisoners on trial were excluded. The prison authorities provided a list of 739 prisoners who fulfilled the criteria and all of them were included in the study. However, 167 young prisoners were released during the interview period, making a total of 572 final participants.

### *Measures*

Sociodemographic information and the behavioural profile of the young prisoners were gathered using the Youth Self Report (YSR) and Attitude towards Suicide (ATTS) questionnaires. Sociodemographic information such as age, marital status, education, employment, and religion were collected. Detailed information on types of criminality and incarceration, past and present, and history of drug and alcohol abuse were also recorded. Age was classified into two groups: 15 to 19 and 20 to 24 years of age. Marital status was divided into single, married (had wife or partner), and separated or divorced (physically, emotionally and/or legally separated from wife or partner). Education was classified into low (never attended school at all or only at primary school level), and high education (7th grade and above). Employment status was categorised as being in employment (paid job) or unemployment (no paid job) before imprisonment. Religion was simply asked as a closed question, as to whether they were Buddhist or other. Types of criminality were divided into drug related, acquisitive (burglary and robbery), violence, sexual abuse and others; in cases where the young prisoners were charged with more than one crime, they were asked to select only the main one. Previous criminality referred to whether they had been imprisoned in the past or not. Time spent in the prisons so far and time left to serve was divided into two categories: less than one year and more than one year. History of alcohol consumption and drug use was dichotomised as 'no' if they never or rarely (less than once per month) drank alcohol or used drugs, and 'yes' if they drank alcohol or used drugs more than once per month.

The Youth Self Report (YSR), a part of Achenbach system of empirically based assessment (ASEBA), captures a range of emotional and behavioural symptoms such as anxiety-depression, withdrawal depression, somatic complaints, thought problems, social problems, rule-breaking behaviour, aggression, and attention deficit (24). It consists of 112 items that were rated as 0 = not true, 1 = somewhat true, and 2 = often true. YSR has been used in previous youth studies in different countries (24, 25) including Cambodia (26, 27). The cut-off score of YSR has not been validated in Cambodia and therefore, the mean score was considered.

Attitude towards Suicide (ATTS) consisted of three parts: (1) exposure to suicidal behaviour from significant others such as relatives and/or friends, (2) attitude, belief, and misconceptions of suicide, and (3) one's own suicidal behaviour during the past one year (26, 28, 29). ATTS has been used in previous studies in Cambodia and we followed the scoring method of that study (26). The scores were rated as 0 = never, 1 = hardly ever, 2 = sometimes and 3 = often; when analysed, these scores were dichotomized into (i) never and hardly ever, and (ii) sometimes and often.

#### *Data collection process*

Conventionally both YSR and ATTS are supposed to be self-administered. However, we found that most of the prisoners had minimal education or were preliterate and therefore their ability to understand and respond to the questionnaires could be limited. In this context, the research team decided to interview the participants. Seven psychology students who had more than two years of experience in data collection in mental health research were recruited as data collectors to conduct the structured interviews. Three days of intensive training on the application of the questionnaires were carried out including a role-play illustration of asking the questions to bring uniformity in interview techniques and to minimise the differences between interviewers in administering the questionnaires. The actual interviews were conducted in specifically designated places in the respective prisons and it took approximately 30 minutes for each interview.

#### *Analysis*

Descriptive statistics were conducted to calculate the means and frequencies of all variables. In the YSR, the mean scores were considered as cut-off points. Young prisoners scoring higher than the cut-off points were considered to have mental health problems. To analyse the association between the possible risk factors and mental health, regression analyses were applied in two stages. First, crude regression analysis was performed to analyse the association between each of the independent variables and the two health measures (YSR and ATTS). Linear regression was used for YSR and logistic for the ATTS outcomes. Variables significant in these models were included in a multivariable regression model. This process was carried out only with YSR since only one variable was associated with ATTS in the crude model. The level of statistical significance was assessed using a 95% confident interval. Analysis was done using Stata programme version 15.

## **Results**

### *Participant information*

As shown in Table 1, the majority of the young prisoners were between the age of 20 and 24 which accounted for 60.84% of the sample. Most of them were single (84.62%) and 54.37% had a high educational background. Approximately two thirds were employed (75.94%) before they were incarcerated. Most of them reported themselves to be Buddhist (92.66%). Drug-related crime (55.07%) was the most common reason for incarceration. Drug use and alcohol consumption before imprisonment were commonly reported by 76.57% and 68.18% of participants, respectively.

*(Insert table 1)*

### *Prevalence of mental health problems*

As shown in Table 2, approximately half of the young prisoners scored higher than the mean score in total YSR which indicated mental health problems. Anxiety-depression was the most commonly reported mental health problems affecting 52.10% of the respondents. Withdrawal depression, somatic complaints, social problems, and aggressive behaviours were similarly common at around 46%. In addition, internalising (mood and emotional problems) and externalising problems (behavioural problems) affected the young prisoners in similar proportions, 51.22% and 48.60% respectively.

*(Insert table 2)*

### *Prevalence of suicide expressions*

The data from ATTS showed that around half (51.05%) of the participants considered life as meaningful while 27.27% felt that their life was not worth living. Nearly one-fifth (16.26%) of young prisoners thought of their own death whereas 12.06% expressed the wish to die. Suicide ideation, suicide planning, and suicide attempts were reported by 6.82%, 1.75%, and 2.80% of participants respectively.

*(Insert table 3)*

### *Factors associated with young prisoners' mental health problems*

The following variables were inversely associated with YSR both in crude and adjusted analysis (table 4): age, level of education, and the duration of incarceration. Prisoners aged between 20 and

24 registered significantly lower mental health problems than the younger prisoners ( $\beta = -0.09$ ; 95% CI = -0.17, -0.01). Those who had achieved a higher educational standard (secondary school and higher level) revealed fewer mental health problems ( $\beta = -1.15$ ; 95% CI = -0.23, -0.07) compared to those with a less advanced educational background. The prisoners who had stayed in the prisons for more than one year reported noticeably fewer mental health problems ( $\beta = -0.09$ , 95% CI= -0.18, -0.01) compared to those who had been imprisoned for less than one year.

#### *Factors associated with young prisoners' suicide expressions*

Two variables were found to be significantly associated with different suicide expressions. Prisoners who used drugs prior to imprisonment thought about death significantly more than their counterparts (OR = 2.08 95% CI = 1.12, 3.87) and suicide ideas were reported as significantly lower among prisoners with higher education (OR = 0.50, 95% CI = 0.26, 0.98). No significant association was found between the tested variables and suicide attempt.

*(Insert table 4)*

#### **Discussion**

The first ever study conducted on mental health problems and suicide expressions among young male prisoners in Cambodia showed that between 40% and 50% of them were reporting mental health problems. Younger age, low educational background, and less incarceration time were significantly associated with current mental health problems. Among suicide expressions, death thoughts and suicide ideation were significantly correlated with previous drug use and low levels of education respectively; however, no association with suicide attempts was found.

A similar study design using the same instruments, YSR and ATTS, has been previously applied among secondary school children in the 15 to 20 age group in Cambodia (30). Comparing the two populations, the mean scores of anxiety/depression, withdrawal/depression, somatic complaints, and social problems were similar. Young people in schools reported slightly higher mean scores of thought and attention problems, aggressive behaviours, and internalising problems than were uncovered in our study. However, as it might be expected, rule-breaking behaviours and externalising problems were reported to be higher among young prisoners.

Overall, there are a lack of comparable studies regarding mental health among youth prisoners. The prevalence of mental health problems in our study is comparable in certain dimensions to those reported in Sweden and Portugal among prisoners of the same age (12, 31). Anxiety problems were

at the same rate (52%) but antisocial behaviour was 63% in the Swedish study, considerably higher than in our study where the level was around 41%. Approximately 45% of young prisoners in our study reported somatic complaints while none did in the Swedish one. It is known that somatisation in LMIC has a cultural component and has been understood as a way of expressing distress and trauma; as a result, somatic complaints are often reported instead (32). In the Portuguese study, young male offenders between the ages of 14 and 20 revealed a higher prevalence of mental disorders (91.2%) while in our study 46.33% of the respondents had mental health problems (31).

We also found that the mental health problems were strongly associated with younger age, a low level of education and a short length of stay in the prison. Similarly, young prisoners in Portugal reported fewer mental disorders if they had higher level of education and if their prison stay exceeded six months but this result was not associated to age (33, 34).

This study reported a lower prevalence across all types of suicide expressions compared to the study among Cambodian school students between the ages of 15 and 20; for example, death thoughts were reported by 16.26% of the young prisoners as opposed to 25.30% by the school students (30). In a study among young prisoners from Pakistan, 22% of their respondents reported suicidal thoughts (35) while around 7% did so in our study. However, this Pakistani study investigated prisoners between the ages of 11 and 18, while our study's participants were between 15 and 24 years old. A study in Australia among young offenders revealed that 16% and 10% of their participants reported suicide thoughts and suicide attempts respectively (36) while only 7% and almost 3% were reported in our study. The lower prevalence of suicide expressions in Cambodian prisons could be explained by a potential underreporting due to the strict rules regarding suicide attempts present in the prisons. However, to some extent, some hope about the future could come from a life in the prisons, where some aspects are better, safer and more predictable than outside the prisons which may lead to lower prevalence of suicide expressions. More research should be conducted to understand this phenomena.

This study found that death thoughts and suicide ideation were significantly correlated with the history of drug use and level of education respectively. A study among the general population in Mexico also found that drug use was associated with suicide ideas and attempts (37); however, a study in Pakistan found that suicide expressions were neither associated with pre-incarceration illicit drug use or the level of education (35). Moore et al. (2015), a study in Australia, found there were no associations between suicide expression and a history of drug use or the level of education

(36). Further research would be needed to elucidate why drugs and educational level were associated with suicide ideas in our study.

### **Limitations**

To the best of our knowledge, there has not been any research on the mental health of young prisoners in Cambodia and in the region, and therefore there is no opportunity to make comparisons. The data given by the General Department of Prisons showed that the female prison population was less than 1% of the total number of young prisoners in these three prisons and due to the low number, were not included in the study. The mental health questionnaires (YSR and ATTS) were administered by face-to-face interviews due to a poor literacy level among the participants, which could have introduced responder bias. Since they were not validated in the Cambodian context, the common YSR cut-off points were not used, but the means instead, which could have affected the prevalence rates. It should be also noted that the young prisoners might have under-reported suicide expressions because of concerns of being penalised.

### **Conclusion**

The prevalence of certain mental health problems among young prisoners between the ages of 15 and 24 in Cambodia was considerably higher than in other groups of young people, particularly with regard to externalising problems. However, our findings also found less mental health problems (attention problems, aggressive behaviours and internalizing problems) compared to young people outside prisons. Anxiety-depression was found as the most common mental health problem compared to other sub-YSR domains. The mental health status of this population was strongly correlated with younger age, low educational background, and shorter prison stays. The participants reported a low suicide expression rate while death thoughts and suicide ideas were significantly associated with a history of drug use and the level of education.

This study's findings indicate the undeniable need for the implementation of preventive interventions integrated into the prison health care system to improve the mental health of young prisoners. Furthermore, research evaluating intervention programmes and qualitative studies with young prisoners and prison officials are highly recommended to understand their perspectives more deeply regarding mental health in this setting.

## **List of abbreviation**

ATTS	=	Attitude towards Suicide
ASEBA	=	Achenbach system of empirically based assessment
Caritas-CCAMH	=	Centre for Child and Adolescent Mental Health
LMIC	=	low and middle-income countries
NECHR	=	National Ethics Committee for Health Research
RGC	=	Royal Government of Cambodia
YSR	=	Youth Self-Report

## **Declarations**

### *Ethics approval and consent to participate:*

Ethical approval was granted by the National Ethics Committee for Health Research (NECHR), Ministry of Health of the Royal Government of Cambodia (RGC). The study also received permission from both the individual prison authorities and the General Department of Prisons, RGC. A consent was not sought from individual prisoner's parents because this population is living in the prison setting where prison authorities are legally considered as their guardian. However, verbal and written consent were sought from each individual participant. Voluntary participation and options to choose not to participate in the study with no negative consequences during their detention were emphasised. Confidentiality of the personal information disclosed was assured to the respondents.

*Consent for publication:* Not applicable

### *Availability of data and materials:*

Prison setting and population are well known to be restricted and confidential. Therefore, the dataset of our study is not publicly available but in case of reasonable requests, the research team will discuss and respond appropriately.

### *Competing interests;*

All authors declared no conflict of interest.

### *Funding:*

This work was partly funded by the Swedish Research Council.

### *Authors' contributions:*

PP designed the study, collected, analysed and interpreted the data, drafted the article and made changes based on the comments from other authors. LRS and KE reviewed and commented on the draft article. BJ designed the study, provided supports and supervision during data collection as well as reviewed and commented on the draft article. MSS performed as the main supervisor, involved in the study design process, analysed and interpreted the data and reviewed as well as commented on the draft article. All authors read and approved on the final version of the draft article.

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