

Original Article

Inpatient prisoners: symptom checklist-90 measurement and social support's impact on mental health

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Received May 20, 2020; Accepted July 7, 2020; Epub September 15, 2020; Published September 30, 2020

Abstract: Objective: This study was designed to measure the impact of social support on the mental health of inpatient prisoners with a Symptom Checklist-90 (SCL-90). Methods: A total of 100 inpatient prisoners admitted to our hospital from January 2019 to October 2019 were randomly selected and studied with the SCL-90 for mental health and the Perceived Social Support Scale (PSSS) for social support. The correlation between the social support received and their mental health was analyzed. Results: Compared with the national average of healthy persons, inpatient prisoners had higher scores of psychoticism, paranoid ideation, phobic anxiety, hostility, anxiety, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization and mental health ($P<0.05$). Among the inpatient prisoners, prisoners with a prison term of ≥ 5 years had higher scores of hostility, depression and obsessiveness-compulsiveness than those with a prison term of < 5 years ($P<0.05$). Prisoners who had been sentenced for two or more times had higher scores of anxiety, phobic anxiety and psychoticism than those who had been sentenced once ($P<0.05$). Prisoners aged under 25 had higher scores of depression, hostility and anxiety than those of 25 years old or above ($P<0.05$). Prisoners with primary school level of education had higher scores of interpersonal sensitivity and phobic anxiety than those with junior secondary education level or above ($P<0.05$). Mental health was significantly and negatively correlated with supports from friends, family and other sources (collectively known as "social support") as well as the total scores of social support. Conclusion: Inpatient prisoners have serious mental health problems but limited access to social support. More social support is needed to improve their mental health.

Keywords: Inpatient, prisoners, SCL-90, social support, mental health

Introduction

With the development of the society, mental health problems in various groups has become prominent and draws more clinical attention [1]. As a special group, prisoners have mental health concerns, as evidenced by an increasing number of relevant studies [2].

Some scholars have found through relevant study of the mental health of prisoners and their temperament type, that personality disorders were the result of three factors in the Eysenck Personality Questionnaire; namely, introversion-extroversion, psychoticism and emotional stability [3]. In an investigation of prisoners' mental health with Trait Coping Style

Questionnaire (TCSQ), Perceived Social Support Scale (PSSS) and Symptom Checklist-90 (SCL-90), etc., mental health problems of varying degrees were generally observed in prisoners [4]. It has been found that the mental health level of prisoners is generally lower than that of the average person, which has a certain impact on the outcome and progress of their sentences [5, 6]. At the same time, the mental health problems of prisoners are more complicated and the incidences of mental disorders and problems are much higher than those of non-incarcerated people [7]. During the period of imprisonment, prisoners are likely to have resistant emotions under the influence of factors such as the special environment and the discipline of the prison officials, and they even

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Table 1. Basic Materials of Inpatient Prisoners [n (%)]/($\bar{x} \pm s$)

| Materials | Item | n | % |
|------------------------|--|----|-------|
| Gender | Male | 91 | 91.00 |
| | Female | 9 | 9.00 |
| Age | <25 | 45 | 45.00 |
| | ≥25 | 55 | 55.00 |
| Number of sentence | 1 | 70 | 70.00 |
| | >1 | 30 | 30.00 |
| Prisoner term | <5 years | 46 | 46.00 |
| | ≥5 years | 54 | 54.00 |
| Educational background | Primary school | 84 | 84.00 |
| | Junior secondary school or higher levels | 16 | 16.00 |

commit suicide and cause self-injury in serious cases. If the mental state of prisoners' is not be addressed, serious consequence may occur [8, 9]. Social support, the most basic social network, relieves patients from mental pressure by providing information, support and feedback, so as to improve their psychological condition, help maintain social function and a high mental state, and eventually enhances their quality of life (QOL). Some scholars believe that there is a certain correlation between the degree of social support and mental health [10].

Based on this, SCL-90 was used to evaluate the mental health of inpatient prisoners, and PSSS was used to learn about the degree of social support. The differences in mental health were analyzed according to the prison term, educational background, number of sentences served, and age, while the correlation between social support and mental health was understood through linear regression analysis.

Materials and methods

Materials

A total of 100 inpatient prisoners (91 males and 9 females) admitted to our hospital from January 2019 to October 2019 were randomly selected and studied on an informed basis. Among them, 45 patients were aged under 25 years and 55 were 25 years old or above; 84 patients received only primary education and 16 had junior secondary education level or above; the prison term was less than 5 years for 46 patients and was 5 years or longer for 54 patients; 70 patients were sentenced once

and 30 were sentenced two or more times (**Table 1**).

Tools

SCL-90 was used to evaluate the mental health of inpatient prisoners, and PSSS was applied to learn about the degree of social support. Inclusion criteria: Prisoners who were informed of content of the study and voluntarily participated in the

study were included. All study participants signed written informed consent prior to participating in the study. This study has been approved by the Ethics Committee of Haikou People's Hospital. Exclusion criteria: Prisoners who requested to leave the study midway; and non-prisoners were excluded.

SCL-90 [11]: the scale consists of 90 items categorized into 9 dimensions, i.e., psychoticism, paranoid ideation, phobic anxiety, hostility, anxiety, depression, interpersonal sensitivity, obsessiveness-compulsiveness, and somatization. The scoring criteria was; 1 point for none, 2 points for mild, 3 points for moderate, 4 points for relatively serious and 5 points for serious. The scale includes sleeping, dietetic state, interpersonal relationships, living habits, thinking and feeling. A higher score indicates more serious symptoms and lower level of mental health. The Cronbach's α is 0.972 for this scale.

PSSS [12]: this scale consists of 12 items involving 3 dimensions, i.e., family support, friend support and other support. Each item is scored on a scale of 1 to 7, including 1 point for strongly disagree, 2 points for disagree, 3 points for slightly disagree, 4 points for neutral, 5 points for slightly agree, 6 points for agree and 7 points for strongly agree. The total score of social support is obtained by adding up the scores assigned to these items. The Cronbach's α is 0.928 for this scale.

Methods

A questionnaire survey was conducted on all inpatient prisoners. A total of 100 question-

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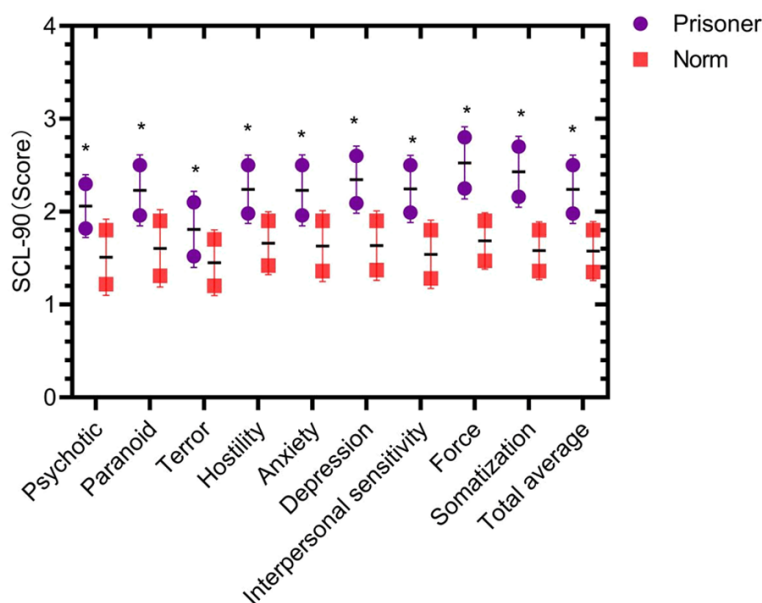


Figure 1. Comparing the inpatient prisoners' SCL-90 with the national average. Compared to the national average, inpatient prisoners had higher scores of psychoticism, paranoid ideation, phobic anxiety, hostility, anxiety, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization, and total average score of mental health ($P < 0.05$). * $P < 0.05$ vs the national average.

Table 2. PSSS ($\bar{x} \pm s$, Score)

| Dimension | Score |
|----------------------------|------------|
| Support from family | 4.12±0.12 |
| Support from friends | 4.22±0.12 |
| Support from other sources | 4.08±0.11 |
| Total | 16.42±0.25 |

naires were distributed and retrieved. The scores of each dimension and the total scores of SCL-90 were compared with the normal values to analyze the difference in mental health according to the prison term, educational background, number of sentences and age. The correlation between social support and mental health was analyzed.

Statistical analysis

Statistical analysis was performed with SPSS 22.0. In case of numerical data expressed as mean \pm standard deviation, comparison studies were carried out through t test for data which were normally distributed, and Mann-Whitney U test for data which were not normally distributed. In case of nominal data expressed as [n (%)], chi-squared test was used for

intergroup comparison. For all statistical comparisons, significance was defined as $P < 0.05$.

Results

Inpatient prisoners' SCL-90 scores

Compared with the national average, inpatient prisoners had higher scores of psychoticism, paranoid ideation, phobic anxiety, hostility, anxiety, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization and total average scores for mental health ($P < 0.05$) (Figure 1).

Inpatient prisoners' PSSS scores

According to the PSSS, the scores of family support, friend support and other support were (4.12±0.12), (4.22±0.12) and (4.08±0.11), respectively. The total score of social support was (16.42±0.25) (Table 2).

Comparison of SCL-90 scores based on prison term

There was no statistical difference in psychoticism, paranoid ideation, phobic anxiety, anxiety, interpersonal sensitivity, somatization and total average score of SCL-90 between patients with prison term of ≥ 5 years and those with prison term of < 5 years ($P > 0.05$). However, patients with prison term of ≥ 5 years had higher scores of hostility, depression and obsessiveness-compulsiveness ($P < 0.05$) (Table 3).

Comparison of SCL-90 scores based on the number of sentences

Patients who had been sentenced twice or more scored higher on anxiety, phobic anxiety and psychoticism than those who had just one sentence ($P < 0.05$). There was no significant difference found between the two groups in the scores of paranoid ideation, hostility, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization, and the

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Table 3. SCL-90 Scores of Inpatient Prisoners with Different Prison Terms ($\bar{x} \pm s$, score)

| Dimension | <5 years (n=46) | ≥5 years (n=54) | t | P |
|------------------------------|-----------------|-----------------|--------|-------|
| Psychoticism | 1.75±0.52 | 1.82±0.49 | 0.692 | 0.490 |
| Paranoid ideation | 1.79±0.69 | 1.96±0.52 | 1.403 | 0.164 |
| Phobic anxiety | 1.45±0.52 | 1.47±0.52 | 0.192 | 0.848 |
| Hostility | 1.72±0.15 | 2.22±0.52* | 6.298 | 0.000 |
| Anxiety | 1.85±0.52 | 1.91±0.53 | 0.569 | 0.571 |
| Depression | 1.78±0.22 | 2.26±0.29* | 29.114 | 0.000 |
| Interpersonal sensitivity | 1.92±0.52 | 2.02±0.49 | 0.989 | 0.325 |
| Obsessiveness-compulsiveness | 2.08±0.62 | 2.48±0.96* | 2.427 | 0.017 |
| Somatization | 1.92±0.86 | 2.01±0.89 | 0.512 | 0.609 |
| Total average | 1.92±0.52 | 1.99±0.49 | 0.692 | 0.490 |

Note: * $P < 0.05$ vs patients with the prison term of <5 years.

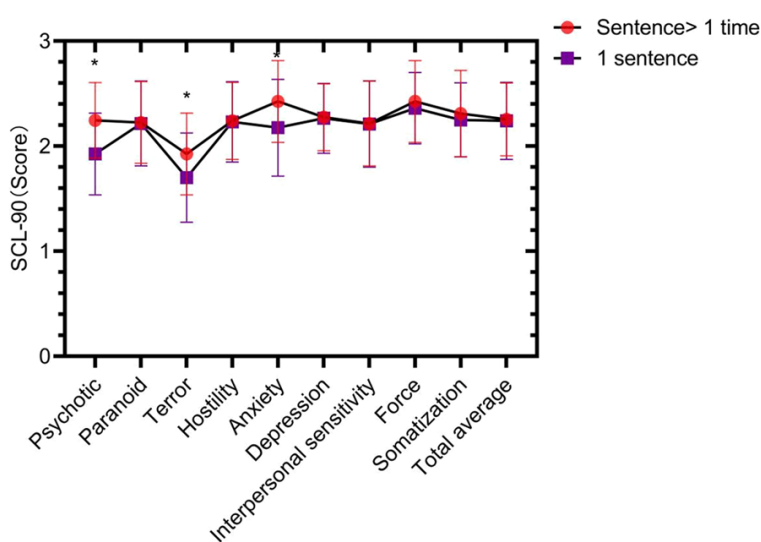


Figure 2. Comparison of SCL-90 based on the number of sentences. Inpatient prisoners who have been sentenced twice or more scored higher on anxiety, phobic anxiety and psychoticism than those who had been sentenced once ($P < 0.05$) while no difference was found in the scores of paranoid ideation, hostility, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization, and total average score of SCL-90 ($P > 0.05$). * $P < 0.05$ vs those sentenced once.

total average score of SCL-90 ($P > 0.05$) (Figure 2).

Comparison of SCL-90 scores based on age

Inpatient prisoners under the age of 25 scored higher on depression, hostility and anxiety than those of 25 years old or above ($P < 0.05$). These two groups were not statistically different in scores of psychoticism, phobic anxiety, paranoid ideation, interpersonal sensitivity, obsessiveness-compulsiveness, somatization, and total average score of SCL-90 ($P > 0.05$) (Figure 3).

Comparison of SCL-90 scores based on educational background

Patients with only primary school education scored higher on interpersonal sensitivity and phobic anxiety than those with higher educational background ($P < 0.05$). There was no difference found in the scores of psychoticism, paranoid ideation, hostility, anxiety, depression, obsessiveness-compulsiveness, somatization, and total average score of SCL-90 ($P > 0.05$) (Figure 4).

Correlation between social support and mental state

In order to clarify the correlation between the mental health of inpatient prisoners

and social support, a correlation analysis was conducted between the score of each dimension and total score of SCL-90 and PSSS, respectively. According to the results, mental health was significantly and negatively correlated with support from friends, family and other sources and the total scores of social support (Table 4).

Discussion

Serving a sentence is a negative mental stimulation and an adverse event in life. Due to the loss of personal freedom and the destruction

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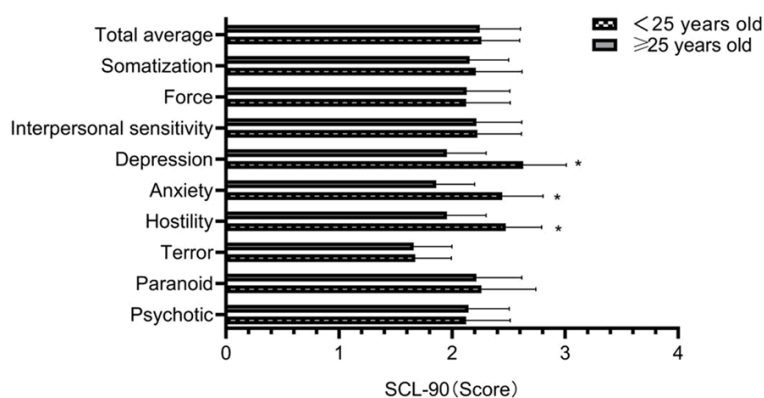


Figure 3. Comparison of SCL-90 based on age. Inpatient prisoners aged under 25 had higher scores of depression, hostility and anxiety than those of 25 years old or above ($P<0.05$); in terms of psychoticism, phobic anxiety, paranoid ideation, interpersonal sensitivity, obsessiveness-compulsiveness, somatization and total average score of SCL-90, the two groups were not significantly different ($P>0.05$). * $P<0.05$ vs those ≥ 25 years old.

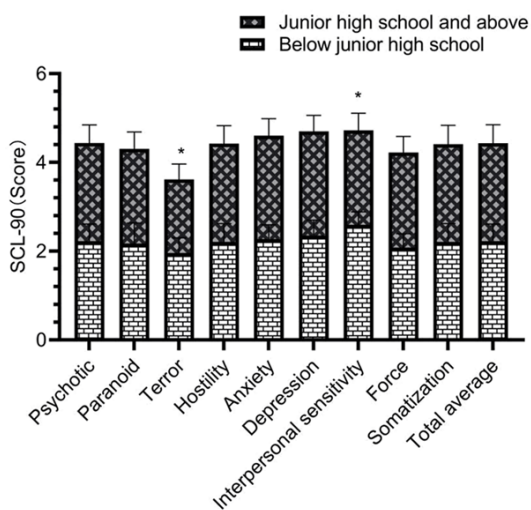


Figure 4. Comparison of SCL-90 based on educational background. Inpatient prisoners with primary school education had higher scores of interpersonal sensitivity and phobic anxiety than those with junior secondary education level or above ($P<0.05$). No difference was found in the scores of psychoticism, paranoid ideation, hostility, anxiety, depression, obsessiveness-compulsiveness, somatization, and total average score of SCL-90 ($P>0.05$). * $P<0.05$ vs those with junior secondary education or higher levels ($P<0.05$).

of the existing social system, prisoners are prone to heavy mental pressure and negative emotions [13, 14]. A large number of studies have revealed that prisoners have higher SCL-90 dimensions and scores than the average person, indicating the severe mental health

problems in this group [15]. In this study, it was also found that compared to the national average, inpatient prisoners had higher scores of psychoticism, paranoid ideation, phobic anxiety, hostility, anxiety, depression, interpersonal sensitivity, obsessiveness-compulsiveness, somatization, and total average score of mental health ($P<0.05$), highly consistent with previous findings. Factors contributing to the poor mental health of prisoners include:

1. Interrogation, investigation and trial, after which, their mental state deviated from the normality [16];
2. During the process of serving a sentence, prisoners have to change their existing concepts and fully realize their mistakes, which is a process of self-denial, so strong psychological conflict will occur [17];
3. Heavy mental pressure from family members, prison officials, etc. [18].

By analyzing the SCL-90 scores of inpatient prisoners with different characteristics, those with a prison term of ≥ 5 years scored higher on hostility, depression and obsessiveness-compulsiveness than those with the prison term < 5 years. This could be because inpatient prisoners with the prison term ≥ 5 years are more individualized, negative (as the prison term is longer) and futureless, which give rises to passive ideas and concepts [19]. Secondly, prisoners who had been sentenced twice or more had higher scores of phobic anxiety and psychoticism than those with only one sentence. The possible reason could be that prisoners in the first case are more experienced and negative toward their transformation and prison life as they have committed crimes repeatedly. Another possible reason is their inappropriate relationships with other prisoners, which makes them anxious, phobic and psychotic [20, 21]. Inpatient prisoners under the age of 25 scored higher on depression, hostility and anxiety than those of 25 years or above. The underlying reason is that they have more sharp mental conflicts during adolescence, which distorts their relationship with the surroundings and results in these negative psychologies [22]. Prisoners

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Table 4. Correlation between Social Support and Mental Health (n=100)

| Dimension | Support from family | Support from friends | Support from other sources | Total |
|------------------------------|---------------------|----------------------|----------------------------|---------|
| Psychoticism | -2.015* | -0.218* | -0.185* | -0.168* |
| Paranoid ideation | -0.148* | -0.208* | -0.168* | -0.217* |
| Phobic anxiety | -0.208* | -0.189* | -0.152* | -0.235* |
| Hostility | -0.199* | -0.289* | -0.198* | -0.296* |
| Anxiety | -0.148* | -0.249* | -0.159* | -0.238* |
| Depression | -0.208* | -0.269* | -0.189* | -0.288* |
| Interpersonal sensitivity | -0.189* | -0.216* | -0.179* | -0.248* |
| Obsessiveness-compulsiveness | -0.149* | -0.189* | -0.186* | -0.189* |
| Somatization | -0.158* | -0.179* | -0.119* | -0.189* |
| Total | -0.258* | -0.259* | -0.265* | -0.268* |

Note: * $P < 0.01$.

who only received primary school education scored higher on interpersonal sensitivity and phobic anxiety than those with education at junior secondary or higher levels. As a result of the low degree of education, prisoners fail to understand themselves comprehensively and profoundly. They are sensitive and terrified in the face of mistakes and setbacks. On the contrary, prisoners with higher education are capable to comprehend themselves, the society and the world, and accept support from other prisoners, which contribute to a more stable mental state [23, 24].

Social support, a.k.a., a social network, is considered as one of the intermediary factors of mental health and healthy relationships. It consists of material and spiritual assistance and support from trade unions, political parties and other organizations, workmates, friends, relatives and families. It is used to reflect the connectivity between the individual and the society [25]. Studies have revealed that a person's mental health responds positively to the degree of social support, which means that more social support may result in better mental health [26]. In this study, the total average PSSS score of prisoners can be further improved. Meanwhile, the correlation with the SCL-90 showed that mental health of inpatient prisoners was significantly and negatively correlated with support from friends, family and other sources and the total score of social support. The study of Gao et al [27] showed that the mental health status of inpatient prisoners was negatively correlated with the total scores of friend support, family support, other support and social support, which was highly

consistent with the results of this study. Therefore, the better a prisoner's mental health is, the more social support he could receive, and vice versa. To explore its possible mechanisms, prisoners are under psychological stress due to the influence of prison officials, other prisoners and the environment. Over time, their personalities are exposed, and support from others diminishes. Low-level social support will sharply increase the risk of mental health problems, forming a negative relationship between mental health and social support [28].

In conclusion, inpatient prisoners have serious mental health problems but limited access to social support from family, friends and other sources. More social support is needed in order to improve their mental health.

Regardless of the outcome in this study, the number of samples is limited. Future studies shall be based on a larger sample size, lasting a longer period of time and covering more aspects.

Acknowledgements

This work was supported by the Hainan Medical Research Fund, Hainan Province Health and Family Planning Industry Scientific Research Project (No: 19A200044).

Disclosure of conflict of interest

None.

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