VALIDATION OF THE MALAY VERSION OF BRIEF JAIL MENTAL HEALTH SCREEN AMONG PRISONERS IN PENGKALAN CHEPA PRISON, KOTA BHARU, KELANTAN

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DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF MEDICINE (PSYCHIATRY)

UNIVERSITI SAINS MALAYSIA

2022

ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and Most Merciful. Due to His utmost Graciousness, it has been possible for me to conduct my research project and conduct the thesis writing until completion.

I want to take this opportunity to express my utmost gratitude to my supervisors, Dr. Maruzairi Husain, Dr. Nor Asyikin Fadzil and Dr. Raishan Shafini Bakar, for their tireless guidance and support all the way through the completion of my thesis. Special mentions go to my forensic psychiatry supervisor, Dr. Johari Khamis who commitedly gave this splendid idea for me to start this research and to Dr. Kueh Yee Cheng, who has continuously assisted me in writing, particularly in analysis. Special mentions also go to Pengkalan Chepa Prison psychologists Mr. Amirul Hanif Mohd Nawawi and Mr. Mohamad Mawardi Mazuan for their tremendous support in assisting me in data collection.

I would like to express my sincerest gratitude to all my lecturers and colleagues in the Department of Psychiatry, Universiti Sains Malaysia, for their continuous support and encouragement. A token of appreciation also goes to all participants who participated voluntarily.

Last but not least, I would like to wholeheartedly thank my parents and my family for their never-ending encouragement and prayers throughout this journey.

CONTENTS

LIST OF ABBREVIATIONS

APA	American Psychiatric Association
BJMHS	Brief Jail Mental Health Screen
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMHS-M	Correctional Mental Health Screen for Men
CMHS-W	Correctional Mental Health Screen for Women
CR	Composite Reliability
EFA	Exploratory Factor Analysis
EMHS	England Mental Health Screen
FVI	Face Validity Index
ICC	Intra-Class Correlation
JSAT	Jail Screening Assessment Tool
MI	Modification Index
MINI	Mini International Neuropsychiatric Interview
RDS	Referral Decision Scale
RMSEA	Root Mean Square Residual
TLI	Tucker-Lewis Fit Index
WHO	World Health Organization
WRMR	Weighted Root Mean Square Residual

ABSTRAK

Pengenalan: Sejak beberapa dekad ini, terdapat peningkatan perhatian diberikan pada penyakit-penyakit mental dalam kalangan banduan penjara di mana saringan perlu dilakukan untuk mengesan masalah penyakit mental. Setakat ini, terdapat bukti yang terhad mengenai soal selidik saringan kesihatan mental primer untuk menilai banduan penjara di Malaysia secara objektif. Antara soal selidik yang boleh digunakan untuk menilai perihal penyakit mental dalam kalangan penghuni penjara adalah *Brief Jail Mental Health Screen* (BJMHS) namun ianya digunakan dalam bahasa Inggeris. Justeru, adalah penting untuk mengesahkan versi Bahasa Melayu soal selidik ini supaya dapat mengesan penyakit mental dalam kalangan banduan penjara di Malaysia secara lebih objektif.

Objektif: Kajian ini bertujuan untuk menterjemah dan mengesahkan BJMHS versi Bahasa Melayu dan membandingkan pengesahan diagnostik dengan *Mini International Neuropsychiatric Interview* (MINI) versi Bahasa Melayu.

Metod: Satu kajian keratan rentas telah dilakukan dari bulan Januari sehingga Mac 2022. Peserta kajian telah direkrut melalui metod persampelan bertujuan. Kriteria penglibatan adalah mereka yang berusia 18 tahun dan keatas, boleh menggunakan bahasa Melayu dengan baik, telah dijatuhkan hukuman penjara oleh pihak mahkamah, dan tidak berada dalam keadaan intoksikasi disebabkan pengaruh dadah terlarang. Kajian dilakukan secara bersemuka oleh psikologi-psikologi yang dilantik di Penjara Pengkalan Chepa, Kota Bharu, Kelantan. BJMHS telah diterjemah ke Bahasa Melayu secara terjemahan hadapan dan ke belakang oleh sekumpulan panel pakar. Indeks Pengesahsahihan telah dijalankan ke atas 30 orang peserta untuk mengesahkan konteks skala saringan. Seramai 248 orang peserta kajian

kemudian mengisi soal selidik Kertas Maklumat Sosio-demografi dan BJMHS versi Bahasa Melayu, manakala 52 orang peserta kasjian mengisi soal selidik Kertas Maklumat Sosio-demografi dan set MINI versi Bahasa Melayu. Analisis data dijalankan dengan menggunakan perisian SPSS versi 26.0 serta Mplus versi 8.0.

Dapatan: Di dalam kajian ini, seramai 248 orang peserta kajian dianalisis untuk CFA manakalah 52 orang peserta kajian dianalisis untuk pengesahan diagnostik. Ketiga-tiga sub-skala M-BJMHS dalam kajian ini didapati mempunyai kesesuaian indeks yang memuaskan namun terdapat satu atau dua soalan yang menunjukkan nilai pemuatan faktor melebihi 1 (>1.0) dan soalan-soalan tersebut mempunyai ciri-ciri varian negatif yang menyebabkan model-model tersebut tidak boleh digunapakai. Nilai kebolehpercayaan komposit tidak dapat diukur pada ketiga-tiga skala M-BJMHS. Nilai kebolehpercayaan uji-uji semula didapati amat baik (kappa=0.93; 95% CI: 0.79, 1.00, $\rho<0.001$), Nilai sensitif dan spesifik adalah 100% dan 91% selepas dibandingkan dengan MINI versi Bahasa Melayu.

Kesimpulan: Kajian menunjukkan skala-skala M-BJMHS mencapai kebolehpercayaan yang stabil serta nilai sensitif dan spesifik yang tingegi namun skala ini tidak mencapai ciri-ciri pengesahan dan kebolehpercayaan konstruk. Kajian ini adalah penting kerana ianya dapat digunakan dalam kalangan populasi banduan penjara di Malaysia walaupun dapatan kajian ini tidak menunjukkan keputusan yang memuaskan dari sudut pengesahan dan kebolehpercayaan konstruk.

Kata kunci: Analisis Faktor, Pengesahan, Penghuni Penjara, Kesihatan Mental, Malaysia

ABSTRACT

Background: For the past few decades, mental illness among prisoners is getting much attention, in which screenings need to be done in order to detect the presence of any mental illness among them. So far, there is limited validated primary mental health screening to objectively assess the major mental illness in Malaysian prison population. One of the established tools available is Brief Jail Mental Health Screen (BJMHS), but is in English version. Therefore, there is a need to validate the Malay version of BJMHS to objectively screen the mental illness among the Malaysian prison population.

Objective: The study aims to translate and validate the Malay version of BJMHS and to compare the diagnostic validity with Malay version Mini International Neuropsychiatric Interview (MINI).

Method: A cross-sectional study was conducted from January until March 2022. The participants were recruited through purposive sampling method. The inclusion criteria for the study participants are aged 18 years and above, with good Malay language command, those who have been sentenced by court to prison incarceration throughout the duration of the data collection, and those who are not in an intoxicated state due to substance or illicit drugs. The study was conducted via face to face session by the appointed psychologists in Pengkalan Chepa Prison, Kota Bharu, Kelantan. Malay version of BJMHS was initially translated from the original English version of BJMHS using forward and backward translation procedures by a group of experts. Quantification of face validity using Face Validation Index was done to ensure the Malay version of BJMHS has good face value where it was tested in 30 participants beforehand. About 248 participants then completed the socio-demographic questionnaire and the Malay version of BJMHS while 52 participants completed the socio-

demographic questionnaire and the Malay version MINI. Data were analysed using Statistical Package for Social Sciences (SPSS) version 26 and Mplus version 8.

Result: In this study, about 248 participants were used for CFA analysis and 52 participants were used for diagnostic validity. All three sub-scales of M-BJMHS revealed acceptable fit indices but have one or two items with standardized factor loading more than value of one (>1.0) and these items had negative residual variance which made the models inadmissible. The composite reliability for all three models was not measurable. The kappa value was 0.93 (95% CI: 0.79, 1.00, $\rho<0.001$) which showed excellent test-retest reliability. The sensitivity and specificity was 100% and 91% when compared to Malay version MINI.

Conclusion: The study revealed the M-BJMHS show excellent stability, with high sensitivity and specificity when compared to Malay version MINI but the construct validity and reliability were inadmissible. This study is important as it can be used in the local prison population although the result was not entirely favourable in terms of construct validity and reliability.

Keywords: Factor Analysis, Validation, Prisoner, Mental Health, Malaysia

CHAPTER 1 INTRODUCTION

1.1 Introduction

Mental illness among prisoners is getting much more attention for these past few decades. This is consistent with past findings that prisoners have higher prevalence of psychiatric disorders than the general population (Ponde et al, 2011; Vicens et al, 2011; Armiya'u et al, 2013; Ayirolimeethal et al, 2014; Al-Rousan et al, 2017). According to James & Glaze (2006), more than half of all United States prison and jail inmates had a "mental health problem" (i.e., recent diagnosis with a mental illness, mental health treatment, or mental health symptoms). Nevertheless, Johari (2020) explained that Malaysia has limited data regarding the prevalence of mental disorder in prison populations.

The total prison population was over 2 million people as of 2019 in the United States of America (USA) (prisonstudies.org, 2019). On the other hand, in Malaysia, the prisons held around 69, 507 prisoners or 212 per 100,000 populations in 2021 which showed a slight increment from 59, 278 prisoners in 2018 (prisonstudies.org, 2021). Many of the prisoners have contact to mental health services prior to imprisonment (Davidson et al, 1995; Forrester et al, 2009; Harty et al, 2003) but in Malaysia, a research by Zahari et al (2010) stated that there was only about 20% of offenders who were mentally ill had received psychiatric care prior to their incarceration. According to World Health Organization (WHO) (2001), factors that may have negative impacts on mental health include overcrowding, various forms of violence, enforced solitude or conversely, lack of privacy, lack of meaningful activity, isolation from social networks, insecurity about future prospects and inadequate health services specifically mental health services in prison. Johari (2020) further explained that most of the prisoners in Malaysia also have histories of low socioeconomic status,

unemployment, substance misuse and low education which could be another contributing factors associated with the mental health implication among them.

Screenings need to be done in order to detect the presence of any mental illness among prisoners. According to Justice Committee in the United Kingdom (2021), after the arrival of prisoners in prison, whether for the first time or not, is a dangerous point for prisoners' mental health with concomitant risks of self-harm and suicide. The National Health Service (NHS) has required healthcare providers to carry out first-day screening for all prisoners arriving in prison (Davies, 2018). This continuity of requirement was already been recommended by the American Psychiatric Association (APA) (2000) whereby all prison facilities must provide at minimum mental health screening, referral and assessment; crisis intervention and short-term treatment; and discharge and pre-release planning. Nevertheless, the evidence needed to inform the planning and development of prison mental health services, including prison mental health screening; is still currently inadequate (Kimberlie & Daria, 2017). A systematic review conducted by Martin et.al (2013) to examine mental health screening tools concluded that only six tools have replication studies. One of these tools is the Brief Jail Mental Health Screen. The Brief Jail Mental Health Screen (BJMHS) was developed in 2005 as a viable screening tool to screen for major mental disorders following the recommendation given by APA (2000). Compared to other screening tools such as the Correctional Mental Health Screen for Men (CMHS-M), the Correctional Mental Health Screen for Women (CMHS-W), the England Mental Health Screen (EMHS), the Jail Screening Assessment Tool (JSAT) and the Referral Decision Scale (RDS), BJMHS only needs 3 minutes to be administered.

There has been little research regarding mental health screening to be done among prisoners in Malaysia. The existing studies mostly focus on prevalence of mental illness among prisoners with the usage of thorough diagnostic interview which could be time consuming. Hence, a brief assessment is vital and essential as an effort to screen for mental health problems among the prisoners in Malaysia, especially once they arrive on day one at the allocated prisons. As Brief Jail Mental Health Screen offers the briefest, and able to be administered in a short amount of time, it necessitates the effort to validate its Malay version for easy administration in the local context. Reliable and validated Malay version of an objective mental health screening can facilitate the prisoners' primary mental health screen and further enabling the possibilities for future research.

1.2 Justification of Study

Numerous researches on mental illness among prisoners have been documented for decades which are evidenced by the higher prevalence of mental illness among them worldwide. Despite the needs, there are limited tools, especially validated Malay version questionnaires, to act as a primary screening for mental illness among prisoners in Malaysia which can be used by the prison wardens during admission in the prison. Hence, this necessitates our effort to validate the Malay version of Brief Jail Mental Health Screen as it offers the briefest, and able to be administered in a short amount of time compared to other existing screening tools. Reliable and validated Malay version of screening the specific major psychiatric illness can facilitate the prisoners' primary mental health screening at prison in Malaysia in the future.

1.3 Study Objectives

1.3.1 General Objective

This study aimed to translate and validate the Malay version of Brief Jail Mental Health Screen (BJMHS).

1.3.2 Specific Objectives

1. To translate Brief Jail Mental Health Screen to Malay language.
2. To establish the properties of Malay version Brief Jail Mental Health Screen by:
    i. Determining its construct validity by using Confirmatory Factor Analysis (CFA).
    ii. Determining its composite reliability by using Raykov's rho.
    iii. Determining its stability by using test retest method.
    iv. Determining its diagnostic validity compared to the Malay version Mini International Neuropsychiatric Interview (MINI).

1.4 Methodology

This cross-sectional study took place in Pengkalan Chepa Prison, Kelantan from January until March 2022. Malaysian participants aged 18 years old and above, with good Malay language command, those who have been sentenced by court to prison incarceration for at least the duration of the data collection, and those who were not in an intoxicated state due to substance or illicit drugs were recruited through purposive sampling method. The validation of Malay version of BJMHS was done in stages. The first stage was the translation from the original version to Malay language was following the steps from Beaton et al (2000). Forward translation from English to the Malay version was done by two experts who were native speakers of the Malay language. Both of them carried out the translation

independently. These two forward translations were then reconciled into a single consensus translation before being back translated. This step was important to resolve discrepancies between the translations. Another two bilingual experts; a psychiatrist and a linguist who had not seen the original English version back-translated the Malay version into the English version. The purpose of the backward translation process was to ensure that the quality of the Malay translation still gives the same meaning when the Malay version was translated back to the English language. A psychiatrist and a linguist who were competent in both Malay and English reviewed both the English translation from Malay and Malay translated version from English before finalising to Malay version of BJMHS (M-BJMHS). It was to detect and deal with any translation discrepancies between the two versions of the questionnaire. The second stage was when the final version of the Malay version of BJMHS was pre-tested among 30 prisoners to ensure clarity and easy understanding for the reference population. The result of the pre-test was satisfactory with the final Malay scale produced easily comprehended by the participants, hence no amendment was made. After the pre-test, the data was collected and analysed for CFA and diagnostic validity. Before the data collection process took place, meetings were made between primary investigators and the appointed psychologists to inform regarding the objectives and the importance of the questionnaires together with the informed consent forms being passed on to the appointed psychologists. The appointed psychologists then informed the same objectives to all participants. Dates were set by the appointed psychologists for the data collection, during their office hours. Despite obtaining consent, the participants were given the option to choose whether they wanted to participate in the study. Those who agreed were requested to sign an assent form to indicate their willingness to participate in the study. Participants were not given any monetary reimbursement for taking part in this study. Thirty participants were randomly selected from those who consented to be contacted again after 14 days from their first attempt and gave

their prison number to the researcher as a record. Thirty participants were then given a token of appreciation for their participation, which was not disclosed until they completed the questionnaire.

The Statistical Package for Social Science (SPSS) version 26.0 was used to analyse the participants' socio-demographic data, test-retest reliability and diagnostic validity for descriptive statistics, kappa statistics, and sensitivity and specificity values respectively. The Mplus version 8.0 was used to analyse the model of M-BJMHS by using Confirmatory Factor Analysis (CFA) and composite reliability. A total of 248 samples were used for CFA analysis. The analysis was conducted using Mplus 8.0. Problematic items with factor loading less than 0.50 were identified from the CFA model after the researchers carried out adequate theoretical support. Standardized residuals were inspected for items that may cause a poor fit CFA model. The modification index (MI) was examined, and item's residual correlation within the same factor was added if necessary. Several fit indices as recommended by Hair et al (2010) and Distefano et al (2017) were used to assess the fitness of the models: Root Mean Square Error of Approximation (RMSEA) with acceptable level of less than 0.07, Weighted Root Mean Square Residual (WRMR) with acceptable level of less than 1.0, Tucker-Lewis Fit Index (TLI) and Comparative Fit Index (CFI) with acceptable level of more than 0.92. Internal consistency reliability of a measurement tool is the degree to which responses are consistent across the items within a construct (Markus, 2012). It can be assessed by using Cronbach's alpha and/or Raykov's rho. The composite reliability (CR) of the CFA measurement model for the M-BJMHS scale was calculated by using Raykov's method (Raykov & Marcoulides, 2016). A recommended value for CR is at least 0.70 or higher.

Test-retest reliability analysis was conducted to examine the stability of the Malay version BJMHS by using kappa statistical analysis in SPSS 26.0. The kappa value was reported. The kappa values of 0.81 to 1.00 were considered excellent stability (Koo & Li, 2016). Diagnostic validity analysis was conducted to examine the sensitivity and specificity of Malay version BJMHS and it was compared with the gold standard diagnostic tool by using the Malay version MINI. The analysis was done using SPSS 26.0. According to Carvajal and Rowe (2010), sensitivity is calculated by dividing the number of persons who have positive test results by the number of persons who have the actual disorder based on gold standard instrument while specificity is calculated by dividing the number of persons who have negative test results by the number of persons who do not have the disorder. Expected sensitivity of at least 90% and specificity of at least 100% will be reported (Firdaus et al, 2012). Thus, in this study, 52 participants were recruited for the diagnostic validity purpose.

1.4.1 Flow Chart Methodology

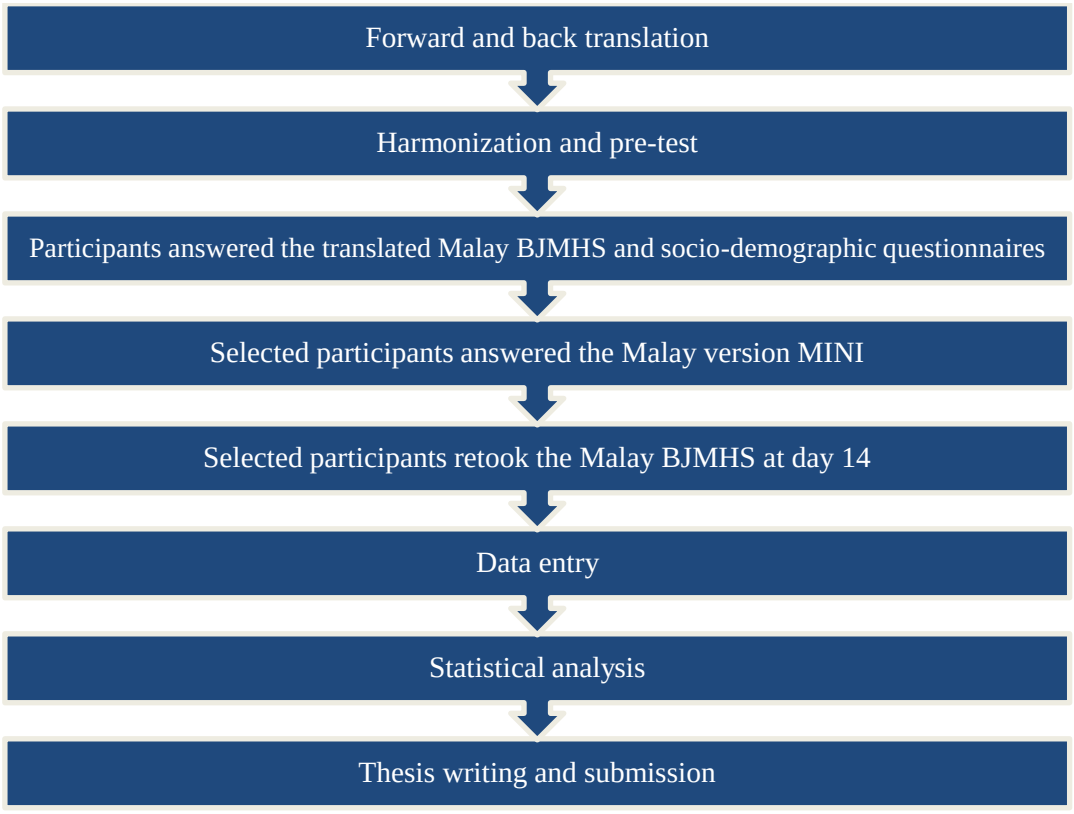

Figure 1: Flow chart methodology

1.5 Dissertation Organisation

This dissertation is arranged according to Format B Manuscript Ready based on the guidelines by Postgraduate Office, School of Medical Sciences (2016). In Chapter 2, the study protocol that was submitted for ethical approval is presented. Chapter 3 is the manuscript of Validation of Malay Version of Brief Jail Mental Health Screen among Prisoners in Pengkalan Chepa Prison that has been prepared for submission to Malaysia Correctional Journal. The appendices contain the validated questionnaires. The raw data is included in the attached CD.

CHAPTER 2 RESEARCH PROPOSAL

2.1 Introduction

2.2 Background

Suicide is not something new in Malaysia. Each person who committed a crime (suicide is still considered as a criminal act in Malaysia), not completely knowing of their mental health status, is seen as a punishable offense and can be sent to prison for incarceration. Under Section 309 of the Penal Code (Act 574, 2018) an individual may be fined and/or jailed for up to one year if convicted. Most of the time, prisoners are less likely to have their mental health needs recognized (Johari, 2020). The punishment of incarceration does not only lead to deprivation of liberty but also the provision of second-class health care (Suhaila, 2011).

It was reported that more than 10 million people are in prisons as in 2018 and United States of America (USA) hold the largest prison populations (Walmsley, 2018). In USA, the total prison population was over 2 million people in 2018 alone (prisonstudies.org, 2018). While in Malaysia, the prisons held around 74,000 prisoners or 230 per 100,000 populations in 2019 but the population trend reduced to 68,603 as of August 2020 (prisonstudies.org, 2020). Many of the prisoners have contact to mental health services prior to imprisonment (Davidson et al, 1995; Forrester et al, 2009; Harty et al, 2003) but in Malaysia, Zahari et al (2010) stated that there was only about 20% of offenders who were mentally ill had received psychiatric care prior to their incarceration.

In general, past researches have indicated that prisoners have higher prevalence of psychiatric disorders than the general population (Ponde et al, 2011; Vicens et al, 2011; Armiya'u et al, 2013; Ayirolimeethal et al, 2014; Al-Rousan et al, 2017). Malaysia, on the other hand has

limited data regarding the prevalence of mental disorder in prison populations (Johari, 2020). Prisoners are particularly exposed to developing mental health problems (WHO, 2001). There are factors in many prisons that have negative effects on mental health including overcrowding, various forms of violence, enforced solitude or conversely, lack of privacy, lack of meaningful activity, isolation from social networks, insecurity about future prospects (work, relationships, etc), and inadequate health services especially mental health services in prisons (WHO, 2001). Most of the prisoners also have histories of low socioeconomic status, unemployment, substance misuse and low education (Johari, 2020). According to Suhaila (2011), when look back in history, prison was initially designed for punishment, retribution, deterrence and/or rehabilitation for criminals and was not designed for delivering treatment for mentally ill individuals unlike in mental institutions, making the inmates in the prison setting at loss.

In order to detect mental illness among prisoners, screenings need to be done. The American Psychiatric Association (APA) (2000) has recommended that all prison facilities provide at minimum mental health screening, referral and assessment; crisis intervention and short-term treatment; and discharge and pre-release planning. Screening creates an opportunity to identify, engage and treat mental illness especially acute mental disorders within prisoner population (Birmingham, 2001). Despite the clear need to understand more about the mental health needs and outcomes for this over-burdened group, the evidence needed to inform the planning and development of prison mental health services, including prison mental health screening; is currently inadequate (Kimberlie & Daria, 2017).

A systematic review was done by Martin, et. al (2013) to look into mental health screening tools and the authors concluded that only six tools have replication studies. One of these tools is the Brief Jail Mental Health Screen. The Brief Jail Mental Health Screen (BJMHS) was developed in 2005 as a viable screening tool to screen for major mental disorders following the recommendation given by APA (2000). BJMHS is an eight item yes-no answer designed as an improvement over the Referral Decision Scale (Steadman et al, 2005). The first six questions of the BJMHS deal with symptoms that may be indicative of depression, bipolar disorder, schizophrenia or other delusional disorder (Steadman et. al, 2005). If the prisoner answers "Yes" to at least two of these six questions, further evaluation is recommended. Questions number seven and eight deal with current medication for mental health problems and past hospitalization due to mental health problems. If the prisoner answers "Yes" to either of these two questions, a further evaluation is recommended regardless of questions one to six being answered (Steadman et. al, 2005). BJMHS correctly classified 73.5% of males and 61.6% of females based on Structured Clinical Instrument for DSM-IV (SCID) (Steadman et al, 2005).

According to Johari (2020), the screening process should be brief, easy to administer in a short of time. Compared to other screening tools such as the Correctional Mental Health Screen for Men (CMHS-M), the Correctional Mental Health Screen for Women (CMHS-W), the England Mental Health Screen (EMHS), the Jail Screening Assessment Tool (JSAT) and the Referral Decision Scale (RDS), BJMHS can be administered using only 3 minutes. Despite the high prevalence of mental illness among prisoners in Malaysia (George and Hatta, 1997; Ruzanna and Hatta, 2000; Azizul, 2001; Aida, 2009; Azlin et. al, 2010; and Suhaila, 2011), there is lack of Malay validated screening tools to screen the prisoners for mental illness briefly which calls for more possibilities for future research.

Literature Review

2.3 Definition and Overview of Prison Population in Malaysia

"Prisoner" is a legal term referring to a person who is imprisoned. According to Her Majesty Stationery Office (HMSO) (1992), section 1 of the United Kingdom Prison Security Act 1992, the word "prisoner" means "any person for the time being in a prison as a result of any requirement imposed by a court or otherwise that he be detained in legal custody". In Malaysia, according to Laws of Malaysia that was enacted by the Seri Paduka Baginda Yang di-Pertuan Agong with the advice and consent of the Dewan Negara and Dewan Rakyat in Parliament assembled, Act 537 of Prison Act (1995), the term "prisoner" means "a person, whether convicted or not, under confinement in a prison and in relation to a convicted prisoner, includes a prisoner released on parole". The order of the law could be either from High Court, Magistrate or Session Court.

The annual report from Malaysian's Prison Department as of August 2020 shows a total of 68,603 individuals were incarcerated for various offences. This figure is equivalent to 212 prison population rate per 100,000 of the national population (prisonstudies.org, 2020). From the former figure, 15,818 were remand prisoners. About 3,247 from the total prisoner population were female (prisonstudies.org, 2020), while 1,509 individuals were juveniles/minors/young prisoners. Out of 68,603 individuals, 14,053 of them were foreigners (prisonstudies.org, 2020). Since 2019, there are total of 52 establishments or institutions for prisons with the official capacity of prisoners around 52,000 individuals. This shows that the occupancy level of prisoners in the institutions is around 131.9% as of August 2020 (prisonstudies.org, 2020).

2.4 Relationships between the Criminal Justice Agencies in Malaysia

According to Zulkifli (2001), the administration of criminal justice in Malaysia is enforced and administrated by three different agencies, that is the Police (Investigation & Prosecution), the Judiciary (Criminal Justice Process) and the Prisons (Correctional Center for Offenders). These agencies are separated in the administration and jurisdiction tasks, but they are related in their functions (Zulkifli, 2001). This relationship can be seen whenever there are reported crimes; it becomes the responsibility of the police. When a person is sentenced, additional decisions determine whether that sentence will be served in prison or a rehabilitation center. Decisions are also made about what kind of treatments the convicted person should undergo. In the case of a person sentenced to prison important initial decision concerns the kind of institution to which he will be sent to. The principal distinction is among minimum, medium and maximum-security prisons (Zulkifli, 2001). Generally, the higher degree of security, the less comfortable the accommodation and the more limited the freedom enjoyed by inmates (Zulkifli, 2001).

2.5 Prevalence in Foreign Prison Populations

It is now well established that prisoners suffer from higher levels of psychiatric disorders compared to the general population of a similar age and gender (George and Hatta, 1997; Ruzanna and Hatta, 2000; Azizul, 2001; Fazel and Danesh, 2002; Sirdifiel et al, 2008; Aida, 2009; Azlin et. al, 2010; and Suhaila, 2011). There are several studies done in other countries to look for the prevalence of mental illness among prisoners.

Table 1: Prevalence of Mental Disorders among Prisoners in Foreign Countries

Author/ Year	Study location	Description about the study	Assessment tool	Results
Enric et al, 2011	Spain	A cross-sectional study composed of sentenced male prisoners drawn from five prisons in each of three Spanish regions (Catalonia, Madrid and Aragon). The sample size was 700 prisoners.	Mental disorders were assessed with the clinical version of the Structured Clinical Interview for DSM-IV (SCID), personality disorders were assessed through the Spanish version of International Personality Disorders Examination.	The prevalence of any mental disorder was 41.2%. Anxiety disorder was the most prevalent (23.3%) followed by substance use disorder (17.5%), mood disorder (14.9%) and psychotic disorder (4.2%).
Pondé et al, 2011	Brazil	A cross-sectional study was carried out in a sample of male prisoners in two prisons in the city of Salvador, Bahia, Brazil. The sample size was 497 prisoners.	Brazilian Portuguese version of the Mini International Neuropsychiatric Interview (MINI)	The prevalence rates found in the closed and semi-open prison systems, respectively, were as follows: depression 17.6% and 18.8%; bipolar mood disorder 5.2% and 10.1%; anxiety disorders 6.9% and 14.4%; borderline personality disorder 19.7% and 34.8%; antisocial personality disorder 26.9% and 24.2%; alcohol addiction 26.6% and 35.3%; drug addiction 27.9% and 32.4%; psychosis 1.4% and 12.6%; attention deficit ⁄ hyperactivity disorder (ADHD) in childhood 10.3% and 22.2%; and ADHD in adulthood 4.1% and 5.3%.
Gemeda, 2014	Ethiopia	A cross-sectional study to examine the prevalence rate of psychopathological symptoms among prison populations. The	CORE-OM psychopathological questionnaire.	It was found that 48% (95% CI = -0.08, 0.05) of inmates experienced psychopathological symptoms, which were not significantly different (α=0.05, p=0.65).

		sample size was 420 prisoners in Dilla Correction Center, Ethiopia.		
Fazel et al, 2016	All European countries	Systematic review on 85, 892 prisoners mental health between 2003 and 2015, supplemented by data from large primary studies on individual psychiatric disorders, rates and risk factors for adverse outcomes and interventions for mental health problems.	MINI	It was found that male and female prisoners showed 4% prevalence of psychotic illness. Female prisoners showed higher prevalence of major depression (14%) compared to male prisoners (10%). Male prisoners showed higher prevalence of alcohol misuse (30%) compared to female prisoners (24%), female prisoners showed higher prevalence of drug misuse (60%) compared to male prisoners (48%).
Lovett et al, 2019	Africa	Systematic review and meta-analysis of mental health of people detained within the justice system in Africa. 80 studies met the inclusion criteria.	Search engines such as PubMed, PsycINFO, Embase, Web of Science, and Africa Index Medicus for studies dating from the inception of the database to 16 November 2017, and published in English or French, major research languages on the African continent.	67% were prevalence studies and meta-analysis of these studies revealed pooled prevalence as follows: substance use 38% (95% CI 26–50%), mood disorders 22% (95% CI 16–28%), and psychotic disorders 33% (95% CI 28–37%).
Gabrysch et al, 2019	USA	A longitudinal study to assess mental disorders and symptoms 3 years after baseline evaluation at imprisonment in South America prison.	MINI and the Symptoms-Check-List 90 Revised (SCL-90-R) questionnaires.	73 (94%) out of 78 prisoners participated. The prevalence of major mental illnesses was lower at follow-up: 47 (64%) at intake vs. 23 (32%) at follow-up had major depression ($p<0.001$); 22 (30%) at intake vs. 10 (14%) at follow-up had psychosis ($p=0.008$).

2.6 Prevalence of Mental Disorders among Malaysian Prisoners

There are limited data from Malaysia that looked into the prevalence of mental disorders in prison populations. Available studies mostly looked into specific group of prisoners in one individual prison with smaller sample size (Johari, 2020). One study which focused on 80 convicted female offenders, found the lifetime prevalence of any type of mental disorder was 33.8% but higher for six-month prevalence (62.5%) (Ruzanna & Hatta, 2002). Half of the female offenders have lifetime substance use disorder and almost half have antisocial personality disorder (Ruzanna & Hatta, 2002).

Another study which focused on young male adult prisoners showed that prevalence of any mental disorders was 60% (Azlin, et al, 2010). The prevalence of substance related disorder including alcohol was the highest (50.2%), followed by major depressive disorder and dysthymia (16.9%) (Azlin et al, 2010). Another one third has antisocial personality disorder (Azlin et al, 2010). A study was done among remand prisoners; found that prevalence of mental disorder was 75.4% if substance related disorder was included (Suhaila, 2011). The prevalence reduced to 33.6% when substance related disorder was excluded (Suhaila, 2011). The most common disorder was substance related disorder (65.4%), followed by anxiety disorder (25.6%) and mood disorders (12.5%) (Suhaila, 2011).

Table 2: Prevalence of Mental Disorders among Prisoners in Malaysia

Study in Malaysia	Respondents	Instrument used for assessment of psychiatric disorder	Findings
George and Hatta (1997)	Males sentenced prisoners, serving long-term sentences	MINI The Structured Clinical Instrument for DSM-IV (SCID).	• 81.2% lifetime psychiatric disorders
Ruzanna and Hatta (2000)	Sentenced female prisoners	MINI	• 62.5% psychiatric disorders
Azizul (2001)	Male sentenced prisoners	MINI	• 82% Axis I psychiatric disorders
Norliza (2004)	Sexual offenders vs. non sexual offenders	MINI	• 34.6% psychiatric disorders excluding substance related disorders in sexual offenders • 30% psychiatric disorders in non-sexual offenders
Aida (2009)	Juvenile sentenced offenders Age: <18 years	MINI	• 93% met psychiatric diagnosis mostly childhood psychiatric disorders

Azlin et al (2010)	Young adult offenders Age: 18-21 years	MINI	• 60% psychiatric disorders • 20% psychiatric disorders without substance related disorders
Suhaila (2011)	Adult male remand prisoners	MINI	• 75.4% general psychiatric disorders • 33.6% if excluding substance related disorders

2.7 Mental Disorders and Offence

Apart from established higher rates of psychiatric morbidity in prisoner populations, it was also found that mentally ill patients are prone for any criminal offences (Brown et al, 2000). Several studies (Linden, 2004; Ventura et al, 1998; Thompson et al, 2003) have found that there were mixed results regarding the association between mental disorders and criminal offences (Thompson, 2003). One of it is recidivism. According to Brown (2000), recidivism can be defined as a return to criminal behaviour which focuses on the individual, or it can be defined as a return to custody which is a more systemic measure. Another definition for recidivism according to Baillergeon (2009) is a relapse into previous criminal behaviour, and it is operationally defined as a repeat arrest or incarceration.

Based on the update on prisoner recidivism (2018), five in six (83%) state prisoners released in 2005 across 30 states of USA were arrested at least once during the 9 years following their release (Alpher, 2018). This report examines the post-release offending patterns of former prisoners and their involvement in criminal activity both within and outside of the state where they were imprisoned. The Bureau of Justice Statistics (BJS) (2018) analysed the offending patterns of 67,966 prisoners were randomly sampled to represent the 401,288 state prisoners released in 2005 in 30 states. In 2005, these 30 states were responsible for 77% of all persons released from state prisons nationwide (Alpher, 2018). The findings are based on prisoner records obtained from the state departments of corrections through BJS's National Corrections Reporting Program and criminal history records obtained through requests to the FBI's Interstate Identification Index and state repositories via the International Justice and Public Safety Networks (Alpher, 2018).

A study conducted by Azlin et al (2010) on young prisoners in Malaysia found a significant association between recidivism and the presence of psychiatric disorders (OR = 3.15; 95%CI: 1.431-6.930). The results showed that the offenders who have a history of recidivism were three times more likely to have psychiatric disorders compared to those without any history of recidivism.

Another study was conducted by Suhaila (2011) on male remand prisoners in Malaysia also found a significant association between the presence of psychiatric disorders and recidivism (OR = 3.982; p value < 0.05). The results showed that the prisoners who had a previous history of imprisonment were four times more likely to have psychiatric disorders than those without any history of past convictions. However this study did not show any significant association between the numbers of previous offence committed and the presence of psychiatric disorders (Suhaila, 2011).

Mental disorders are also linked to violence offences. A Swedish study by Grann et al (2008) had shown to associate both mental disorders and violence offences and it found that substance related disorder and antisocial personality disorder had been consistently reported to be associated with violence (Grann et al, 2008). Grann et al (2008) also looked into the association between psychiatric diagnosis and violent reoffending in adult offenders and found that 31.3% of the sample offended violently during follow-up (mean 4.8 years). Substance use disorder (hazard ratio 1.97, 95% CI, 1.40 – 2.77) and personality disorders (hazard ratio 1.71, 1.20 – 2.44) were significantly associated with an increased risk of violent offending.

Psychosis is also related to increased risk of violence. A study found that inmates with psychotic disorders showed a statistically higher percentage of violent offences than the 'no psychiatric disorder' group (Baillargeon, 2009). However a Malaysian study showed a statistically non-significant between violent offences and the presence of psychiatric disorders (ρ value = 0.630) (Suhaila, 2011).

2.8 Mental Health Screening for Correctional Facilities

There are valid reasons for screening prisoners for mental illness, but unfortunately initial processing area in many prisons is only carried out mandatorily in cases of sexual offenders as per parliamentary decision in April 2006. An assessment of the physical and mental health care needs of prisoners on first processing into prison is a statutory requirement according to Prison Service Standard 24: Health Services for Prisoners (Her Majesty Prison Service, 2000). According to Birmingham (2000), prisoners with mental health problems continue to pose major problems for the prison service and prison health care centres are crowded with people with mental illness who are often more disturbed than those in secure psychiatric hospitals.

Birmingham (2000) also stated that screening for mental illness in prisons should be properly coordinated and form part of an integrated health service for mentally disordered offenders. Screenings create an opportunity to identify, engage and treat especially acute mental disorder in this group of populations (Birmingham, 2000). Hayes et al (2014) stated that the prisoners require a more specific module of care and clear care pathways as a result of the screening outcome, as many did not receive proper referral and care when needed. Steadmann et al (2005) suggested that the screening process should be brief and easy to administer in a short time because the prison staffs have only a limited amount of time to

spend with any one inmate during admission. Importantly, the tool used also must be effective in detecting mental health conditions that need urgent attention and able to exclude those who do not require services. Johari (2020) recommended that the screening will elicit better findings if administered by trained healthcare worker.

A systematic review was conducted regarding mental health screening tools in Canadian correctional institutions in year 2013. There were 22 screening tools identified, however only six tools have replication studies: the Brief Jail Mental Health Screen (BJMHS), the Correctional Mental Health Screen for Men (CMHS-M), the Correctional Mental Health Screen for Women (CMHS-W), the England Mental Health Screen (EMHS), the Jail Screening Assessment Tool (JSAT) and the Referral Decision Scale (RDS) (Martin et al, 2013).

2.8.1 Brief Jail Mental Health Screen

The Brief Jail Mental Health Screen (BJMHS) was developed in 2005 as a screening tool following the recommendation given by APA in 2000. BJMHS is an eight item yes-no answer screening designed as an improvement over the Referral Decision Scale (Steadman et al, 2005). The first six questions of the BJMHS deal with symptoms that may be indicative of depression, bipolar disorder, schizophrenia or other delusional disorders. If the prisoner answers “Yes” to at least two of these six questions, further evaluation is recommended. Questions seven to eight deal with current medication for mental health problems and past hospitalization due to mental health problems. If the prisoner answers “Yes” to either of these two questions, further evaluation is recommended regardless of question 1-6. The BJMHS takes an average 2.5 minutes to administer which answers the fact that a standard screen would need to be brief, because the corrections classification staffs have only a limited

amount of time to spend with any one inmate which indicates that this screening tool can be used for non-medical personnel in the prison facility (Steadman et al, 2005).

Table 3: Studies That Used the BJMHS as Part of Research Instrument

Author/Year	Description of the study	Instrument used	Outcomes
Steadman et al, 2005	A pioneer study in validating the BJMHS that can be utilized by correctional classification staff to identify adult inmates during the booking phase that may require a more detailed mental health assessment. Data were collected in 4 jails (2 in Maryland and 2 in New York) from 10, 330 inmates at booking. A subset of 357 detainees was selected [125 Referrals (positives on screen; 74 males and 51 females) and 232 Non-Referrals (negatives on screen; 137 males and 95 females].	The Structured Clinical Instrument for DSM-IV (SCID).	It correctly classified **73.5%** of males, but only **61.6%** of females. With suggested cut-off scores, the BJMHS identifies **11%** of screened detainees for further mental health assessment. Women showed high false negative rate of **34.7%** compared to men at **14.7%**.
Steadman et al, 2007	This research sought to add four additional items to the eight item screening tool targeting depression and trauma to improve its performance amongst women. Data were collected in 4 jails (2 in Maryland and 2 in New York) from 10, 258 detainees. A subset of 464 was selected [175 Referrals (positive on screen; 68 males and 107 females) and 289 Non-Referrals (negatives on screen; 138 males and 151 females].	Clinical Instrument for DSM-IV (SCID).	It correctly classified **80.5%** of males and **71.9%** of females. Overall, it identifies **15.6%** of screened detainees for further mental health assessment. While the false negative rate for both males and females were lower in the new validation study, the overall accuracy of the BJMHS-R was hampered by a much higher false positive rate: **67.6%** for men and **61.7%** for women. The study concluded that the original eight item version is a more practical and efficient tool for jail correction officer intake screening for male and female detainees.
Evans et al, 2010	A validation study of brief screening tools for mental disorders among New Zealand prisoners. A prospective survey of	The BJMHS and the EMHS were used for validation, with MINI as	**51%** of the participants met MINI criteria for one of five targeted major mental disorders. The BJMHS performed with lower sensitivity (**34%**), higher specificity (**86%**), a