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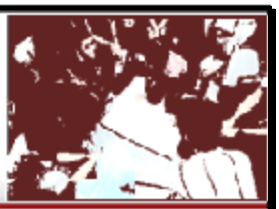

A unidimensional scale for self-control within Malaysian settings

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ABSTRACT

Introduction: Crime is an immoral act capable of tearing the well-being of society and the nation. Various factors have been accredited as potential factors for crime engagement for example natural inclination, nurture or a combination of these factors. Within the domain of natural inclination, lack of self-control is often viewed as the primary cause of crime and delinquency. However, there are no valid and reliable Malay language psychometric instruments to measure the level of self-control among Malaysians. **Objective**: The aim of this study was to validate the Self Control Scale (SCS) for use among Malay speaking populations. Henceforth the Malay language version is identified as SCS-M. **Method**: A cross-sectional study was carried out on 150 inmates incarcerated within two prisons in Peninsular Malaysia in June 2012. Forward and Backward translations of the original SCS were carried out followed by content and face validation processes. Exploratory factor analysis and Cronbach's Alpha reliability analysis were performed. **Result**: Both content and face validation processes showed promising and good outcomes. Preliminary analysis for factor analysis supported factorability of the items. The factor loadings of SCS-M items did not correspond to the original six SCS dimensions. Since SCS is often administered as a unidimensional scale, a forced one factor analysis was performed and items with factor loadings exceeding 0.3 were retained. The result of internal consistency reliability of SCS-M demonstrated a good Cronbach's alpha value of 0.80. **Conclusion**: The findings supported that SCS-M is a valid and reliable unidimensional scale to measure the level of self-control among Malay speaking populations. It is anticipated that the emergence of SCS-M is vital for self-control assessment, treatment, and rehabilitation purposes.

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Introduction

Crime is an act of moral rule breaking and misconducts forbidden by law. Such acts are considered injurious to the community. Although various aspects were identified as the potential factor that triggered criminal behaviour, psychological factors seem to be the major contributors in shaping criminal behaviour within an individual.

In the course of identifying the possible crime-related psychological factors, self-control has become a prominent research focus within the psychological and criminological settings. There are numerous studies associating lack of self-

control with criminal engagement either as a perpetrator or predisposing factor for criminal victimization. Gottfredson and Hirschi (1) had claimed that poor self-control was the primary cause for crime engagement.

Self-control is defined as "the tendency to avoid acts whose long term costs exceed their momentary advantages" (2). It reflects the ability of an individual to refrain from short term gratification. In other words, individuals who lack self-control are less likely to consider the negative outcomes of their actions and are more readily to indulge in behaviours that produce short term pleasures.

From a criminology standpoint, self-control is perceived as an important element in the effort to understand the various types of criminal behaviour and juvenile misconduct. Over the years, associations between self-control and crime have been widely documented. A growing body of literature (1, 3-6) demonstrated low self-control as the potential predictor towards criminal and deviant behaviour. For instance, studies have evidenced poor self-control as a strong predictor of a wide range of imprudent behaviour including drunken driving (7), drinking and truancy among college students (8), self-reported juvenile delinquency (9), and bullying by juveniles (10). Recently, Buker (11) proposed self-control as a fundamental construct in determining the likelihood of an individual's violent behaviour.

The contribution of self-control as a primary cause of criminal behaviour is well explained by the General Theory of Crime (GTC) (1). According to GTC, there are six distinct elements which form self-control. The six elements are impulsivity, simple tasks, self-centeredness, physical activities, risk taking, and temper. Theoretically, it is asserted that low self-control individuals who perceive available opportunities, are expected to engage in crimes and imprudent activities throughout their life course (12).

The Self Control Scale (SCS) which was developed by Grasmick, et al. (13) is viewed as a common measuring device of choice among researchers and scholars since the items in SCS are parallel with elements in GTC. SCS is acknowledged due to its widespread usage in criminological settings. With the alarming rate of crimes and delinquency among Malaysian youth especially students; early screening of self-control level is highly recommended.

Early screening promotes the early intervention of negative behaviours that may hinder future crime involvement. Currently, there are no Malay language psychometric instruments available to measure the level of self-control among the Malay speaking population. It should be noted that, those psychometric instruments which were developed in the English language or any other language for that matter; may not be suitable to be used directly in the Malaysian context due to cultural and language differences.

Thus, it is very important to translate and validate such psychometric instruments for local use. Since the Malay language is the official language in Malaysia, the present study aims to validate the Malay language version of the SCS to assess the self-control level of test takers. This study provides psychometric properties of the Malay version SCS which can be applied to diverse studies in Malaysian settings.

Method

Psychometric instrument

The SCS contains 24 items that seek to measure the self-control level of respondents. This psychometric instrument consists of six dimensions: impulsivity, simple tasks, risk taking, physical activities, self centeredness, and temper. These 24 items are measured with a five-point Likert scale ranging from 1 (not at all like me) to 5 (completely like me).

Previous studies indicate that the SCS is a valid and reliable psychometric for measuring self-control levels. DeLisi, Hochstetler & Murphy (14) reported that the average correlation among all the dimensions of the SCS was r = .72. A study by Kerley et al. (15) yielded a total reliability of 0.91. Recent empirical studies have

demonstrated this self control construct to be predictive of prison misconducts (16) and other criminal justice outcomes such as arrest and conviction (17,18).

Study design and participants

Two forms of permissions were obtained for this current study. Permission to use and translate SCS into the Malay language was granted by the original authors at the beginning of the study. Permission was also obtained from the Malaysian Department of Prisons (MDP) to conduct and gain access to the inmates in prisons.

The present study utilized a cross-sectional study design for data collection. It was conducted in June 2012. The source population for this study was prison inmates on the basis that criminals had low self-control leading to their criminal engagement.

The inmate source population was set by MDP from two prisons located in Peninsular Malaysia. The selection of participants was based on predetermined selection criteria. Inclusion criteria were males aged 19 years and above who have been charged for violent crime offenses and consented to this study. Meanwhile, exclusion criteria were those who were mentally unfit and were unable to read and understand the Malay language.

The calculation of the sample size for factor analysis was performed in accordance to Gorsuch's (19) formula in which the total number of items in SCS was multiplied by 5. As such, 150 respondents were recruited after considering the dropout rate of 25%. The recruitment of the participants in this study was based on the purposive sampling method due to the level of accessibility and dangerousness of the inmates. Therefore, the selection of participants was determined by the MDP authorities.

Validation process

The validation process commenced with the forward and backward translation process. This was followed by content, face, and construct validation processes. Finally, reliability testing using Cronbach's Alpha coefficient method was conducted. The SCS was translated into the Malay language since the participants of this study were local Malaysians. Forward and Backward translations were carried out by a group of bilinguists from Universiti Sains Malaysia. The suffix 'M' indicated Malay version of SCS, hence SCS-M.

The content validity of SCS-M was performed by three experts in the related field of study as it is usually established by a panel of experts. Following content validation, a face validity exercise was performed. For the purpose of face validity, SCS-M was given to 20 adults from the general public in order to consider certain issues pertaining to language, culture, and community acceptance of terms that were used in this psychometric instrument.

Following this, construct validation process was carried out among 150 inmates. Factor analysis was applied to assess construct validity of the SCS-M. Finally, internal consistency of SCS-M was measured.

Data Collection

For the purpose of construct validity, guided self-administered questionnaire which consisted of a sociodemographic section and SCS-M were distributed to 150 inmates. Before distributing the questionnaires, respondents were informed about the voluntary and confidential aspects of their responses. Instructions were given verbally and signed consent was obtained prior to their involvement in the study.

The participants were asked to respond to all the statements and no time limit was imposed. The questionnaires were administered in a group format of 50 men each time and were collected on the same day. The average completion time of the questionnaire was about 20 minutes.

Analysis

Data was analysed using the Statistical Package of Social Science (SPSS) version 20.0 software. Descriptive statistics were used to organise and summarise sociodemographic information of the

inmates. The construct validity of the items was tested using exploratory factor analysis (EFA) by extracting factors using principal component analysis (PCA).

To ensure the sample adequacy for factor analysis (20), the preliminary analysis for factor analysis was assessed using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity. The sample was considered adequate if KMO value was more than 0.5 (21) and Bartlett's test of sphericity was significant if p-value was less than 0.05. Components with eigenvalues of over 1 were retained as components.

Varimax rotation was applied in order to optimize the loading factor of each item on the extracted component. Items with the loading factor of more than plus or minus 0.3 were considered as acceptable loading factor. After several runs of factor analyses and removal of several items, reliability analysis using Cronbach Alpha coefficient (α) method was applied to determine the internal consistency of the remaining items in SCS-M. The purpose of internal consistency was to measure the degree to which items in SCS-M are related to each other.

Result

Sociodemographic information

Sociodemographic information of the participants is presented in the form of descriptive data. Table 1 below provides a summary of respondents' demographic information. The participant's age ranged between 19 and 53 years old with a mean age of 29.18 years (SD = 8.52).

Translation process

In brief, the results of the translation process were good. Only a few amendments were made based on ambiguously worded items and on research participants' language proficiency levels.

Content and face validity

The content validation by experts revealed good content validity as all of them agreed with the content of SCS-M. Minor corrections were made in terms of grammar and language. Overall, it was concluded that SCS-M exhibited a good content validity.

In addition, the SCS-M also showed good face validity as all the respondents were able to understand the items. The language that was used seemed appropriate and few amendments were made based on feedbacks from the respondents.

Construct validity

Factor analysis was carried out to assess the construct validity of items in SCS-M. Factor analysis is the most commonly used statistical analysis to assess the construct validity of any psychometric instrument (22). The factors were extracted using PCA.

Table 1: Summary of sociodemographic information of the male inmates (n = 150)

Demographic information	n	%
Marital status		
Single	112	74.7
Married	29	19.3
Divorcee	4	2.7
Widower	5	3.3
Highest education level		
Never been to school	6	4.0
Primary	6	4.0
Lower secondary (Form 1-Form 3)	48	32.0
Upper secondary (Form 4-Form 5)	75	50.0
Pre-University/ Matriculation	7	4.7
Diploma/ Degree	8	5.3
Occupation		
Unemployed	20	13.3
Self employed	62	41.3
Semiskilled-unskilled	54	36.0
Clerical-skilled	10	6.7
Professionals/Managers	4	2.7
Alcohol-drug abuse history		
No alcohol or drug consumed	24	16
Alcohol consumption only	7	4.7
Drug consumption only	77	51.3
Both alcohol and drug consumption	38	25.3
Intoxicating substance consumption	4	2.7

Prior to performing PCA, preliminary analysis was conducted to test the suitability of data for factor analysis. In general, the result of preliminary analysis of SCS-M was found to be satisfactory. Inspection of the correlation matrix revealed the presence of coefficients of 0.3 and above.

Table 2: The component matrix[a] of SCS-M items

No.	Items	Component
		Factor 1
1	Impulsivity 3	.687
2	Impulsivity 2	.676
3	Risk Taking 2	.593
4	Self centeredness 4	.571
5	Impulsivity 1	.558
6	Temper 2	.557
7	Impulsivity 4	.522
8	Physical activity 1	.463
9	Temper 1	.450
10	Simple task 3	.444
11	Simple task 4	.441
12	Temper 3	.415
13	Risk taking 1	.390
14	Self centeredness 2	.379
15	Self centeredness 3	.378
16	Simple task 1	.370
17	Physical 3	.360
18	Simple task 2	.336

Extraction Method: Principal Component Analysis.
[a] 1 component extracted.

Inspection of the Anti-image correlation matrix was above 0.5 for all the scales. The KMO value was 0.64, exceeding the recommend value of 0.5 (21) and the Bartlett's Test of Sphericity was found to be highly significant with p-value of less than 0.001, supporting the factorability of the correlation matrix. PCA was performed with Varimax rotation in order to aid the interpretation of factor loadings.

The initial PCA revealed the presence of eight factors with eigenvalues exceeding one, explaining a total variance of 66.45 percent. The scree plot suggested eight sub components with eigenvalue above one. However, it was decided to retain six factors which were parallel to the six dimensions of SCS. Based on the rotated component matrix items, it was found that all the items in SCS-M failed to be grouped within the distinct dimensions of self-control.

Although previous studies (1, 23, 24) evidenced the existence of separate dimensions or factors within self-control traits through factor analysis, SCS is often administered as a unidimensional scale to measure self-control (25, 26). The administration of SCS as a unidimensional scale is well evidenced (15, 24, 27-29).
In such a manner, the researchers decided to administer this SCS-M as a unidimensional scale in measuring self-control. Therefore, a forced one factor analysis was performed with factor loadings exceeding 0.3. Based on the factor loadings for one factor, 18 items exhibited factor loading above 0.3. The items with less than 0.3 factor loading were omitted. Table 2 shows the component matrix with factor loadings of SCS-M items.

Reliability

In order to determine whether the SCS-M is reliable for use, this study also involved a reliability testing. The internal consistency reliability of remaining 18 items in SCS-M was analysed and measured by using Cronbach's Alpha coefficient. The internal consistency of 18 items in SCS-M was 0.80 which was considered relatively high.

Discussion

In the first part of this study, two translation processes were carried out. This approach is widely used in cross-cultural research (30). The result of the translation seems to be promising as there were very minor corrections. Furthermore, the translation of SCS did not show any contradictions with the original questionnaire.

Following from the translation process, content and face validity were conducted. Both content and face validity were carried out on a sample of people comprising of the general public. Overall, SCS-M evidences good content and face validity based on the agreements and feedbacks from the reviewers.

The preliminary analysis for sampling adequacy seems to be satisfactory and fulfilled all the requirements for sampling adequacy. However, the initial factor loadings of the SCS-M items did not correspond to the original six SCS dimensions. Since SCS is often used as a unidimensional tool, a forced one factor analysis was performed.

Based on the extraction of one factor, only 18 items were evidenced factor loading above 0.3. These 18 items showed factor loading range from 0.336 to 0.687. Meanwhile 6 items (Risk Taking 3, Risk Taking 4, Physical Activities 2,

Physical Activities 4, Self-centeredness 1, and Temper 4) exhibited very poor factor loadings. Therefore, researchers had decided to omit these 6 items as they evidenced poor relationship to the self-control.

The internal consistency of 18 items in SCS-M was 0.80 which considered relatively high and promising. It was suggested that, a cut-off alpha value above 0.70 is acceptable in the field of social science (31). No further amendments were made to this scale.

In this study, the researchers were aware of the importance of test-retest reliability. However, test-retest could not be performed as the samples in this study were characterised as 'hard to reach' population and permission was not granted by MDP authorities.

The administration of SCS as a unidimensional scale is consistent with the assertions by Gottfredson and Hirschi (1) whereby the elements which make up self-control should form a 'single variable' (28). Hence, it is possible to administer SCS-M as a unidimensional scale to measure self-control levels.

The administration of this SCS-M as a unidimensional scale is important as it helps evaluators to measure the level of self-control among test takers. SCS-M is a viable psychometric instrument for most groups of respondents since self-control is said to be established during early childhood and operate in tandem (1). Most importantly, self-control is persistent over the lifespan and represents a stable coherent construct within an individual (1). Nonetheless, more research needs to be carried out to ensure reliability across varying Malaysian populations.

Conclusion

The results of this study contribute to SCS literature. In conclusion, SCS-M is a valid and reliable unidimensional scale to measure the level of self-control among Malaysians. It is anticipated that the emergence of SCS-M is vital for self-control screening, assessment, or rehabilitation purposes. It can be administered in various settings. Such settings include education, prisons, counselling, social work, sports, and many more. Therefore, it is hoped that many people will benefit by using this newly emerged SCS-M.

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