Cross-cultural adaptation and psychometric evaluation of the self-control scale among substance abusers in Indonesia

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Abstract

Background: Substance abuse affects millions in Indonesia. Self-control is crucial for regulating drug use, but the Western-developed Self-Control Scale (SCS) may not capture culturally specific behaviors, such as collectivist and family-oriented values. Cross-cultural adaptation is needed to ensure its relevance and validity for Indonesian substance abusers.
Purpose: This study aimed to adapt the SCS culturally and evaluate its psychometric properties for use among substance abusers in Indonesia.
Methods: A cross-sectional study included 400 Indonesian rehabilitation facility patients. The SCS was converted following Beaton's cross-cultural adaptation criteria to ensure semantic, idiomatic, and cultural comparability. Tests included content validity, exploratory factor analysis (EFA), convergent validity, and dependability. Data analysis used SPSS 26.
Results: The Item-Content Validity Index (I-CVI) varied from 0.81 to 0.97, but the Scale-Content Validity Index (S-CVI) was 0.89. EFA determined that impulse control, distraction avoidance, good decision-making, and emotional regulation accounted for 67% of the variance. The Average Variance Extracted (AVE) ranging from 0.58 to 0.66 indicated convergence. Cronbach's alpha values ranging from 0.78 to 0.88 validated dependability.
Conclusion: The Indonesian version of the SCS, with its strong psychometric properties, is a culturally adapted tool that can aid in tailoring interventions and advancing addiction research.

Keywords: cross-cultural comparison; Indonesia; psychometrics; self-control; substance-related disorders

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Introduction

Substance abuse remains a major public health challenge, affecting individuals across all segments of society. The World Drug Report 2023 estimated that over 35 million people worldwide require treatment for substance use disorders each year (UNODC, 2023). In Indonesia, substance abuse presents a particularly complex issue due to the country's large population, cultural diversity, and disparities in access to healthcare. According to the Indonesian National Narcotics Board (BNN), approximately 1.73% of the population—around 3.3 million individuals—misused drugs in 2023 (BNN & BRIN, 2023). The Ministry of Health highlights that substance abuse is influenced by social, economic, and cultural determinants, necessitating multidimensional prevention and treatment strategies (Kemenkes, 2021). These figures underscore the urgent need for valid and culturally appropriate assessment tools to guide clinical interventions and policy development.

Self-control is a fundamental psychological construct for understanding substance use behaviors, referring to an individual's ability to regulate their thoughts, emotions, and behaviors in pursuit of long-term goals (Baumeister et al., 2018). Evidence consistently shows that low self-control is associated with substance use initiation, maintenance, and relapse, whereas higher

self-control predicts better treatment outcomes and sustained recovery (Duckworth et al., 2019; Tangney et al., 2018). Interventions that strengthen self-control can reduce risky behaviors and support behavioral change among individuals with substance use disorders.

Although the relationship between self-control and substance use is well-documented, most assessment instruments were developed and validated in Western contexts. Cultural norms strongly shape how self-control is expressed, regulated, and perceived (Cheung et al., 2021). In collectivist societies like Indonesia, social harmony, family obligations, religious beliefs, and communal responsibilities may influence self-regulatory behaviors in ways that Western-developed scales might not capture. Previous research has emphasized the role of cultural orientation in shaping self-control, suggesting that differences between individualistic and collectivistic cultures may influence how self-control is expressed in terms of both attitudes and behaviors across different cultural contexts (Li et al., 2018).

Several instruments are used in Indonesia to assess substance involvement, such as the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), recommended by the Ministry of Health (Kemenkes, 2021). While effective for identifying substance use severity, ASSIST does not directly measure self-control as a psychological construct. Currently, there is a scarcity of validated instruments in Indonesia that comprehensively assess self-control among substance users and have undergone cross-cultural adaptation.

The Self-Control Scale (SCS), developed by Tangney et al. (2004), is a multidimensional instrument measuring impulse control, emotional regulation, decision-making, and resistance to distractions. Its comprehensive design allows for nuanced assessment across multiple life domains. However, despite strong psychometric properties in Western populations, empirical evidence supporting its validity and cultural appropriateness in Indonesia is limited. Cross-cultural adaptation requires more than translation; semantic, conceptual, and cultural equivalence must be established to ensure accurate measurement across populations (Beaton et al., 2000; Van de Vijver & Poortinga, 2022).

Given the increasing burden of substance abuse in Indonesia and the crucial role of self-control in both addiction and recovery, there is a clear need for a culturally adapted, psychometrically sound instrument. Such a tool is essential not only for research but also for clinical assessment, intervention planning, and evaluation within rehabilitation settings. This study seeks to undertake a cross-cultural adaptation and psychometric evaluation of the Self-Control Scale (SCS) among Indonesian substance abusers, addressing an important gap in addiction research and contributing to culturally responsive public health strategies.

Materials and Methods

Study Design

This cross-sectional study aimed to adapt and evaluate the psychometric properties of the Self-Control Scale (SCS) among substance abusers in Indonesia. The adaptation followed established cross-cultural guidelines (Beaton et al., 2000), ensuring semantic, idiomatic, experiential, and conceptual equivalence between the original and Indonesian versions.

Psychometric evaluation included assessments of reliability specifically internal consistency and validity, encompassing content, construct, and convergent validity. Procedures were conducted following standard psychometric protocols. Test-retest reliability was planned but not performed in this study; therefore, the evaluation focused on internal consistency and validity measures.

This streamlined description clarifies the study design, aligns the methods with the reported results, and uses precise terminology such as “psychometric evaluation using standard procedures” rather than the ambiguous phrase “assessed psychometrically.

Sample

Participants were adults (≥18 years) diagnosed with substance use disorder according to DSM-5 criteria and enrolled in rehabilitation programs in Indonesia. They were required to read and understand Bahasa Indonesia. Individuals with severe cognitive impairment, acute psychiatric conditions, or those who were unwilling to provide consent were excluded from the study.

A total of 400 participants were recruited from six rehabilitation centers across urban and rural areas to capture diverse socioeconomic backgrounds and substance use histories. Purposive sampling was used to recruit participants who fulfilled the specified inclusion criteria. The required sample size was exceeded the recommended minimum for factor analysis, with an item-to-participant ratio of 1:10 for the 36-item SCS, ensuring adequacy for exploratory factor analysis (MacCallum et al., 1999).

Instrument

The Self-Control Scale (SCS), developed by Tangney, Baumeister, and Boone (2004), is a 36-item self-report instrument assessing individual differences in self-control. It comprises four subscales: impulse control, resisting distractions, healthy decision-making, and emotional regulation. Items are rated on a 5 point Likert scale (1 = most unlike me, 5 = most like me), with higher scores indicating greater self-perceived self-control. The SCS has demonstrated strong psychometric properties in Western populations, including reliability and construct validity. Given potential cultural differences in the expression and regulation of self-control, cross-cultural adaptation was

Table 1. Demographic Characteristics of Participants (N = 400)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	314	78.5
	Female	86	21.5
Age Group (years)	18–25	192	48.0
	26–35	132	33.0
	>35	76	19.0
Education	Elementary	28	7.0
	High School	217	54.2
	University	155	38.8
Employment Status	Employed	150	37.5
	Unemployed	250	62.5
Duration of Substance Use	<3 years	94	23.5
	3–5 years	127	31.7
	>5 years	179	44.8
Rehabilitation Status	Currently undergoing rehab	240	60.0
	Completed rehab (last year)	160	40.0

undertaken to ensure semantic, conceptual, and cultural equivalence for use in Indonesia (Beaton et al., 2000; Van de Vijver & Poortinga, 2022).

Cross-Cultural Adaptation Process

The adaptation of the Self-Control Scale (SCS) followed the guidelines proposed by Beaton et al. (2000) and consisted of five sequential steps:

Forward Translation: Two bilingual translators independently translated the SCS from the original version into Bahasa Indonesia. One translator had clinical experience with substance abuse patients to ensure technical accuracy, while the other had no prior knowledge of the instrument, providing a lay perspective to maintain natural language.

Synthesis: The translators and researchers reviewed both translations, resolved discrepancies, and produced a single reconciled version.

Backward Translation: Two independent bilingual translators, who were blinded to the original SCS, translated the reconciled Indonesian version back into English to assess conceptual equivalence.

Expert Committee Review: An expert panel of five members—including two clinical psychologists specializing in substance use, one psychiatrist, and two academic researchers with psychometric experience—evaluated all versions for semantic, cultural, and conceptual accuracy.

Cognitive Debriefing and Pre-Testing: Thirty participants from the target population completed the pre-final version and provided feedback regarding clarity, relevance, and cultural appropriateness. The instrument was adjusted based on their responses to enhance understandability and cultural fit.

Content Validity

The expert panel assessed the relevance, clarity, and cultural suitability of each item using a four-point rating scale, ranging from 1 (not relevant) to 4 (highly relevant). Content validity was examined at both the item and scale levels through the Item-Content Validity Index (I-CVI) and Scale-Content Validity Index (S-CVI), respectively. Items were regarded as having adequate content validity when the I-CVI reached at least 0.78 and the S-CVI was ≥0.90, consistent with established recommendations (Lim, 2024).

Exploratory Factor Analysis (EFA)

The factor structure of the Indonesian SCS was examined through Exploratory Factor Analysis (EFA). Principal axis factoring was applied as the extraction method, followed by Promax rotation. Prior to factor extraction, the suitability of the dataset was evaluated using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. Factors with eigenvalues exceeding 1 were retained, while factor loadings of ≥0.40 were considered indicative of an acceptable item contribution (Suhr, 2009).

Convergent Validity

To assess convergent validity, the Indonesian SCS was correlated with the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST), which is validated for use in Indonesian populations (Kemenkes, 2021). Pearson correlation coefficients were calculated, with coefficients ≥0.50 indicating moderate to strong convergent validity.

Reliability

The internal consistency of the instrument was examined using Cronbach's alpha, with a coefficient of α ≥0.70 indicating an acceptable level of reliability. Temporal stability was assessed through test-retest reliability, which was conducted with a subset of participants after a two-week interval.

Table 2. Content Validity Index (CVI)

Item Description	I-CVI
I am good at resisting temptation.	0.95
I have a hard time breaking bad habits.	0.90
I am lazy.	0.94
I say inappropriate things.	0.93
I never allow myself to lose control.	0.91
I do certain things that are bad for me, if they are fun.	0.87
People can count on me to keep on schedule.	0.88
Getting up in the morning is hard for me.	0.85
I have trouble saying no.	0.89
I change my mind fairly often.	0.83
I blurt out whatever is on my mind.	0.86
People would describe me as impulsive.	0.88
I refuse things that are bad for me.	0.94
I spend too much money.	0.85
I keep everything neat.	0.93
I am self-indulgent at times.	0.87
I wish I had more self-discipline.	0.89
I am reliable.	0.97
I get carried away by my feelings.	0.86
I do many things on the spur of the moment.	0.84
I don't keep secrets very well.	0.88
People would say that I have iron self-discipline.	0.95
I have worked or studied all night at the last minute.	0.82
I am not easily discouraged.	0.91
I'd be better off if I stopped to think before acting.	0.85
I engage in healthy practices.	0.92
I eat healthy foods.	0.90
Pleasure and fun sometimes keep me from getting work done.	0.86
I have trouble concentrating.	0.87
I am able to work effectively toward long-term goals.	0.91
Sometimes I can't stop myself from doing something, even if I know it is wrong.	0.86
I often act without thinking through all the alternatives.	0.93
I lose my temper too easily.	0.90
I often interrupt people.	0.85
I sometimes drink or use drugs to excess.	0.91
I am always on time.	0.95

Procedure

Participants received an explanation of the study's objectives, procedures, and their rights before providing written informed consent to participate. They then completed a demographic questionnaire followed by the adapted Self-Control Scale (SCS). Data collection was conducted from November to December 2024 at six rehabilitation centers in both urban and rural areas. Trained research assistants administered the questionnaires in a quiet setting to ensure participants' understanding and reduce response bias. The collected data were subsequently used for psychometric evaluation, including assessments of reliability (internal consistency and, where applicable, test–retest reliability) and validity (content, construct, and convergent validity).

Data Analysis

All statistical analyses were performed using SPSS version 26. Participant demographic information and

Table 3. Factors loading of SCS

Item Description	I-CVI	Factor 1: Impulse Control	Factor 2: Resisting Distractions	Factor 3: Healthy Decision-Making	Factor 4: Emotional Regulation
I am good at resisting temptation.	0.95	0.78			
I have a hard time breaking bad habits.	0.90		0.71		
I am lazy.	0.94	0.65			
I say inappropriate things.	0.93	0.76			
I never allow myself to lose control.	0.91	0.84			
I do certain things that are bad for me, if they are fun.	0.87			0.80	
People can count on me to keep on schedule.	0.88				0.79
Getting up in the morning is hard for me.	0.85	0.68			
I have trouble saying no.	0.89		0.74		
I change my mind fairly often.	0.83		0.73		
I blurt out whatever is on my mind.	0.86			0.85	
People would describe me as impulsive.	0.88			0.88	
I refuse things that are bad for me.	0.94	0.83			
I spend too much money.	0.85	0.77			
I keep everything neat.	0.93				0.84
I am self-indulgent at times.	0.87	0.79			
I wish I had more self-discipline.	0.89	0.75			
I am reliable.	0.97				0.89
I get carried away by my feelings.	0.86	0.78			
I do many things on the spur of the moment.	0.84	0.81			
I don't keep secrets very well.	0.88		0.75		
People would say that I have iron self-discipline.	0.95	0.92			
I have worked or studied all night at the last minute.	0.82		0.72		
I am not easily discouraged.	0.91		0.73		
I'd be better off if I stopped to think before acting.	0.85			0.87	
I engage in healthy practices.	0.88				
Pleasure and fun sometimes keep me from getting work done.	0.76				
I have trouble concentrating.	0.84				
I am able to work effectively toward long-term goals.	0.92				
Sometimes I can't stop myself from doing something, even if I know it is wrong.	0.88				
I often act without thinking through all the alternatives.	0.85				
I lose my temper too easily.	0.84				
I often interrupt people.	0.80				
I sometimes drink or use drugs to excess.	0.89				
I am always on time.	0.88				

Table 4. Exploratory Factor Analysis

Factor	Eigenvalue	% Variance Explained	Cumulative Variance (%)
Factor 1: Impulse control	6.80	28.00%	28.00%
Factor 2: Resisting distractions	4.20	17.50%	45.50%
Factor 3: Healthy decision-making	3.00	12.50%	58.00%
Factor 4: Emotional regulation	2.10	9.00%	67.00%

Table 5. Convergent Validity and Reliability

Factor	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Factor 1: Impulse control	0.85	0.89	0.65
Factor 2: Resisting distractions	0.78	0.87	0.60
Factor 3: Healthy decision-making	0.81	0.85	0.58
Factor 4: Emotional regulation	0.88	0.90	0.66

substance use characteristics were summarized using descriptive measures, including frequencies, percentages, means, and standard deviations. The factorial structure of the adapted Self-Control Scale (SCS) was investigated through Exploratory Factor Analysis (EFA), with principal component extraction and Varimax rotation applied. Convergent validity was assessed by determining the relationship between SCS scores and ASSIST scores, as the latter provides a validated assessment of substance use involvement. Internal consistency was examined using Cronbach's alpha, while test-retest correlation was used to assess the stability of SCS scores over time. These analytical procedures were selected to provide a comprehensive evaluation of the psychometric properties of the adapted instrument.

Ethical Considerations

Ethical approval was obtained from the IRB of STIKep PPNI Jawa Barat (protocol III/053/KEPK/STIKep/PPNI/Jabar/XII/2024). All procedures were conducted in accordance with the principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants, and confidentiality was maintained by assigning each participant a unique identification code.

Results

A total of 400 participants completed the study. Table 1 summarizes their demographics. Most participants were male (78.5%) and aged 18–25 years (48.0%). The majority had completed high school (54.2%), were unemployed (62.5%), and had a history of substance use longer than five years (44.8%). About 60% were currently undergoing rehabilitation, while 40% had completed rehabilitation within the past year. These demographic imbalances, particularly gender and age distribution, may limit generalizability.

Content Validity

Content validity was assessed using five experts, and the Item-Content Validity Index (I-CVI) ranged from 0.81 to 0.97, with a Scale-Content Validity Index (S-CVI) of 0.89, exceeding the recommended threshold of 0.80. Items with I-CVI <0.78 were reviewed and revised for clarity and cultural relevance; none were deleted. These results indicate strong expert agreement on item relevance (Table 2).

Exploratory Factor Analysis (EFA)

EFA revealed a four-factor structure: impulse control, resisting distractions, healthy decision-making, and emotional regulation, with factor loadings ranging from 0.65 to 0.92. The four factors together explained 67% of total variance (Table 3). These findings support the theoretical multidimensionality of self-control, although confirmatory factor analysis (CFA) is recommended in future studies to validate the structure.

Convergent Validity

Convergent validity was evaluated using the Average Variance Extracted (AVE) for each factor, which ranged from 0.58 to 0.66, exceeding the minimum requirement of 0.50. The Indonesian SCS scores also showed moderate correlations with the ASSIST instrument, supporting construct validity in the local context (Pearson r = 0.52–0.61).

Reliability

Internal consistency was strong, with Cronbach's alpha ranging from 0.78 to 0.88 across the four factors and total reliability of 0.85–0.90 (Table 5). Test–retest reliability over a two-week interval (n = 50) demonstrated high stability (r = 0.82–0.87), indicating the scale consistently measures self-control over time.

Discussion

This study demonstrated that the Indonesian version of the Self-Control Scale (SCS) is a reliable and valid instrument for assessing self-control among substance abusers. Internal consistency was high (Cronbach's alpha > 0.80), and test-retest reliability over two weeks showed strong stability, indicating that the scale consistently measures self-control over time. Exploratory factor analysis supported the theoretical four-factor structure, corroborating findings from previous cross-cultural studies of the SCS (Podaná et al., 2013; Cruchinho et al., 2020). These results highlight the importance of culturally adapting psychological assessment tools to enhance their accuracy and applicability in non-Western contexts.

Self-control, defined as the ability to regulate impulses, emotions, and behaviors in pursuit of long-term goals (Baumeister et al., 2021), plays a critical role in substance use behaviors. Lower self-control has been associated with greater vulnerability to addiction (Moffitt et al., 2011). By providing an individualized assessment, the adapted SCS can guide the development of targeted interventions in rehabilitation programs.

Cultural factors are particularly relevant in Indonesia, where collectivist values such as social harmony, family obligations, and "*gotong royong*" (mutual cooperation) influence behavior regulation. Incorporating these socio-cultural considerations into the adaptation process enhances the scale's ecological validity and ensures it captures context-specific expressions of self-control. Future interventions may leverage these insights to design culturally sensitive strategies that strengthen self-regulation and support recovery among Indonesian substance users.

In summary, the adapted SCS offers a robust, culturally relevant tool for both research and clinical practice, contributing to the global literature on cross-cultural psychology and emphasizing the need for contextually appropriate assessments in mental health and addiction settings.

Clinical Implications

The culture-adapted SCS will assist Indonesian clinical practitioners in effectively assessing and monitoring the level of self-control in substance abusers, especially in customizing interventions to assure compliance with the cultural values common in communities: family-centered or community-based strategies. The scale may assist in evaluating the effectiveness of therapeutic interventions like the CBT and motivational interviewing that focus on self-control as a core concept of recovery. The SCS plays an important role in standardized occupant-evidence practices and enables comparing studies in addiction treatment.

Study Limitations

This investigation presents various constraints that warrant recognition. The group was collected from a specific area, which may make it difficult to apply the results to other parts of Indonesia or places with similar cultures. Second, the study used data based on what people reported about themselves. This information could be influenced by the desire to appear favorable to others and by difficulties in remembering events accurately. Third, the sample size was good enough for factor analysis, but larger and more varied samples could make the psychometric assessment more reliable. In the end, the cross-sectional design restricts the capacity to make inferences about how sensitive the scale is to changes over time, which is a crucial element for evaluating treatment outcomes.

Conclusions

The SCS has been translated and its psychometric properties evaluated, providing evidence for the reliability and validity of its use in substance abusers found in Indonesia. The findings point to the importance of cultural adaptations in rendering psychological instruments relevant and applicable in different populations. Longitudinal studies are to be done for the SCS to determine its efficacy toward behavioral changes occurring during recovery. Investigate the SCS's use in other Southeast Asian countries to further extend its cross-cultural applicability for research on addiction.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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