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Research Article

Validation of the Smartphone Addiction Scale-Short Version (SAS-SV) for Measuring Problematic Smartphone Use in Indonesian Adolescents

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Abstract.
In recent years, research has highlighted that excessive smartphone use in adolescents can potentially lead to problematic smartphone use (PSU) and negatively impact their daily lives. Hence, more precise measurement methods are necessary, particularly in the Indonesian context. The purpose of this study was to validate the Smartphone Addiction Scale-Short Version (SAS-SV) among Indonesian adolescents. This study included 410 adolescents aged 12 to 18 from Medan, with a mean age M=15.39; SD=1.396 including 245 females and 165 males. The data analysis approach used first-order confirmatory factor analysis (CFA) with correlation factors. The results demonstrate an acceptable model fit for a single-factor structure, with the index criteria value $X2 = 151.500\ df = 35, p <$ 0,001, the Standardized Root Mean Square Residual (SRMR)=0.052, Root Mean Squared Error of Approximation (RMSEA)=0.090, Goodness of Fit Index (GFI)=0.986, Tucker-Lewis index (TLI)=0.862, and Comparative Fit Index (CFI)=0.893. Then, the internal consistency reliability coefficient shows good reliability with coefficient values Cronbach's Alpha of 0.820 and McDonald's Omega of 0.811, and a composite reliability of 0.824. It shows that using the SAS-SV is feasible and has a reliable scale to measure problematic smartphone use in Indonesian adolescents. Future research should explore the dynamics of problematic smartphone use across diverse regions in Indonesia to gain better understanding of the phenomenon within distinct cultural contexts.

Keywords: adolescent students, problematic smartphone use, smartphone addiction scale, validation

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1. Introduction

Based on data collected throughout Indonesia by the Indonesian Internet Service Providers Association (APJII) in 2024, it was found that internet users in Indonesia have reached 221 million people. This number of internet users is equivalent to 79.5% of Indonesia's total population of 278 million people. This survey was conducted in 38 provinces in Indonesia with a total of 8,720 respondents aged 13-55 years and above, where North Sumatra ranked first highest in Sumatra Island at 77.34%. When viewed based on favorite devices, the most internet usage is through smartphone devices, reaching 99.51%, and the highest penetration reaching 90.25% is among teenagers aged 13-18 years [1].

With the increasing use of smartphones, problematic smartphone use (PSU) has emerged as a growing phenomenon and a major concern for researchers [2]. A systematic review of the prevalence of problematic smartphone use shows rates of 14.0% to 31.2% among children and young people in various countries [3]. Among Chinese adolescents, the prevalence of problematic smartphone use is 27.6% to 29.8% (Chen et al., 2017; Jiang & Shi, 2016; Tao et al., 2017 in [4]). A study involving 5,049 adolescents in Taiwan found that 10.54% experienced problematic smartphone use. In Indian adolescents, smartphone addiction was reported to have a percentage of 39% to 44% [5]. This is also in line with data in Indonesia, including based on research conducted by Fathya et al. [6] in Banda Aceh, which found that 48.6% of subjects were at a high level of smartphone addiction, and in Medan, the proportion of smartphone addiction in males was 76.1% and in females 75.1% [7]. More importantly, previous research results show that problematic smartphone use can be associated with a range of adverse consequences, such as mental health problems, physical health issues, and problematic behaviors (Han, Geng, Zhou, Gao, & Yang, 2017; Lemola et al., 2015; Lepp et al., 2014; Wang et al., 2019 in Geng et al. [4]).

Studies show that excessive smartphone use can lead to problematic smartphone use (PSU), such as difficulty concentrating while studying or working, forgetting to do planned work, feeling happy and able to relieve stress when using a smartphone, and feeling empty without a smartphone [8]. This is evident from an initial survey conducted by researchers on 154 adolescents in Medan, where 66% of adolescents using smartphones for more than 5 hours per day showed indications of problematic smartphone use that impacted physical, social relationships, and psychological well-being. Complaints that arise include starting to feel pain/aches in the wrist or back of

the neck when using a smartphone (59%), feeling unable to live without a smartphone (46%), feeling impatient and restless when not holding a smartphone (48%), constantly checking their smartphone to avoid missing chats, statuses, or other people's posts on social media (63%), and using smartphones longer than intended (73%) [9].

In psychological studies, several researchers have developed various tools to quantitatively assess PSU, including: Problematic Mobile Phone Use Questionnaire (PMPUQ-R) developed by Billieux et al. [10]; Smart Mobile Phone Addiction Scale (MPAS) by Hong et al, 2012 in Yu & Sussman [11]; The Smartphone Addiction Scale-Short Version (SAS-SV) by Kwon et al. [8] , Smartphone Addiction Proneness Scale (SAPS) developed by Kim et al, 2014 in Yu & Sussman [11]; and Mobile Phone Problem Use Scale (MPPUS-10) by Foerster et al, 2015 in Yu & Sussman [11]. These measurement tools mark significant progress in how psychological research methodologically measures problematic smartphone use (PSU).

From the literature review conducted by researchers [12], it was found that the SAS scale by Kwon et al. [8] has been widely used to measure problematic smartphone use (PSU) in adolescents, based on several reasons: First, based on the literature review results by Yu & Sussman [11] and Busch & McCarthy [13], it was revealed that several studies related to PSU use SAS-SV to evaluate the risk level of PSU or smartphone addiction. There were 24 countries represented in this review, where 90 studies (83%) came from South Asia, Southeast Asia, and East Asia (including: South Korea, China, Turkey, Taiwan, India, Saudi Arabia, Lebanon, Bangladesh, Hong Kong, Indonesia, Iran, Iraq, and Malaysia). Second, the samples used in studies using this measurement tool were conducted on adolescent populations, such as in the studies by Geng et al. [4] and Wang et al. [14] in China, as well as Sarfika et al. [15] in West Sumatra and Mulyaningrum et al. [16] in Java, Indonesia. Third, this measurement tool has satisfactory reliability and validity. This is evidenced in previous studies such as the PSU study of adolescents in China by Wang et al. [14], which obtained a Cronbach's alpha value for problematic smartphone use of 0.93, and Geng et al. [4] obtained excellent fit results with a Cronbach's alpha value for problematic smartphone use of 0.91. Similarly, research results in Indonesia, such as studies by Arthy et al. [7], Mulyaningrum et al. [16], and Sarfika et al. [15], also showed good validity and reliability. The following is a summary of these four previous studies.

TABLE 1: Research on the Use of SAS-SV to Measure Problematic Smartphone Use.

Title of Research, Research Name, Year	Reseacrh Context(Location, Participants, Study / Sampling)			Psychometric Properties		
The influence of perceived parental phubbing on adolescents' problematic smartphone use: A two-wave multiple mediation model [4]	Location	:	China	Reliability	:	α = 0.91
	Participants	:	1447 adolescents aged 10-19 (572 boys; 875 females)	Construct Validity / CFA	:	χ2/df = 4.55, p < 0,001, RMSEA = 0.05, SRMR = 0.03, GFI = 0.99, AGFI = 0.97, NFI = 0.99, RFI = 0.98, IFI = 0.99, TLI = 0.98, CFI = 0.99
	Study /sampling	:	Longitudinal study			
Parental phubbing, problematic smartphone use, and adolescents' learning burnout: A cross-lagged panel analysis [14]	Location	:	China	Reliability	:	Studi 1, α = 0.93 Studi 2, α = 0.93
	Participants	:	• Study 1^{st} (1921 adolescents, aged 11-16) • Studi 2^{nd} (1755 adolescents, aged 11-16)	Construct Validity / CFA	:	Not reported
	Study /sampling	:	Longitudinal study			
Parental phubbing and smartphone addiction among adolescents [16]	Location	:	Java (spesific location not mentioned)	Reliability	:	α = 0.775
	Participants	:	292 adolescents aged 12-21 (76 males; 216 females)	Construct Validity / CFA	:	Not reported
	Study /sampling	:	Convenience sampling			
Smartphone addiction and adolescent mental health: a cross-sectional study in West Sumatra province [15]	Location	:	West Sumatera spesific location not mentioned)	Reliability and validity good (details not reported)		
	Participants	:	283 adolescents aged 15-17 (76 males; 216 females)			

Table 1: Continued.

Title of Research, Research Name, Year	Reseacrh Context(Location, Participants, Study / Sampling)			Psychometric Properties		
	Study /sampling	:	Cross-sectional design random			
Parental phubbing and smartphone addiction among adolescents [7]	Location	:	Medan	Reliability	:	α = 0.740
	Participants	:	300 adolescents aged 12-15 (151 males; 149 females)	Concurrent Validity of SAS-SV and NMP-Q	:	r = 0.558 p < 0.001
	Study /sampling	:	Purposive sampling			

The development of a more accurate measurement tool to assess Problematic Smartphone Use (PSU) in the Indonesian context is crucial. Arthy et al. [7] have made efforts to adapt and validate the SAS-SV scale specifically tailored for Indonesia. Their investigation targeted a sample of 300 adolescents aged 12-15 years in Medan, using concurrent validity analysis to establish validity, while internal consistency reliability and Receiver Operating Characteristic (ROC) analysis were conducted to ensure the reliability of the measurement tool. The results concluded that the Indonesian version of the adapted SAS-SV provided acceptable validity and reliability for measuring smartphone addiction in Indonesia.

However, the study has limitations, including demographic factors and subject characteristics that do not represent the entire adolescent age range. Additionally, factor analysis (exploratory factor analysis/EFA or confirmatory factor analysis/CFA) has not yet been conducted. Therefore, in our research, we will include not only adolescents aged 12-15 years but also those aged 15-18 years, considering that the highest internet usage penetration is among adolescents aged 12-18 years (according to the APJII survey in 2024). Furthermore, we will proceed with construct validity analysis using CFA on the Indonesian version of the SAS-SV tool to obtain more satisfactory results and to effectively measure Problematic Smartphone Use (PSU) in the adolescent context in Indonesia.

2. Method

2.1. Sampling Design and Procedure

This research was a quantitative cross-sectional survey design, using a convenience sampling of adolescents from several high schools in Medan. We conducted CFA assess the overall fit of the internal structure, calculated composite reliability to determine internal consistency and examined convergent validity. This research has been approved by the Research Ethics Committee of the University of Surabaya and were certified with Ethical Clearance number 371/KE/V/2024. We provided informed consent to ensure that participants willingly agreed to take part in this research. Informed consent encompassed a detailed explanation of the research's objectives, participants' rights, and data privacy before participants were asked to complete an online questionnaire.

2.2. Participants

We recruited 410 adolescents aged 12-18 years (mean = 15.39, SD = 1.396), consisting of 245 females (60%) and the remaining 165 (40%) males junior high school and senior high school students in Medan, using smartphones, living with their parents (father/mother). A total of 95 participants (23%) were 7th and 8th-grade junior high school students, while the remaining 315 (77%) were 10th and 11th-grade high school students. There was no representation from 9th and 12th-grade students as participants because data collection took place during the quiet period before final exams. This sample size was chosen based on the criteria recommended by Kline [17], namely the minimum sample size was determined as 20 times the number of items for CFA. The Smartphone Addiction Scale-Short Version (SAS-SV) consists of 10 items, so the minimum required sample size was 200. With 410 participants in this study, the sample size was adequate, exceeding the minimum sample size requirement.

2.3. Instrument

The data collection technique used by distributing questionnaires directly in two formats: printed or paper scales and through Google Forms, where the researcher met participants in person and provided the online survey link. This approach was taken because some participants did not have mobile phones or were not allowed to bring them to

school. The scale used to measure problematic smartphone use is the Smartphone Addiction Scale - Short Version (SAS-SV) in Indonesian version, which was adapted by Arthy et al. [7] based on the SAS-SV by Kwon et al. [8]. This scale consists of 10 items and is unidimensional. Research on the Smartphone Addiction Scale (SAS) developed by Kwon et al. [8] is divided into two versions: the multidimensional version, consisting of six dimensions (daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationship, overuse, and tolerance) with 33 items used for university students and adults; and the unidimensional version, which consists of 10 items intended for adolescents. Responses are made using a 6-point Likert scale, ranging from 1 (strongly disagree), 2 (disagree), 3 (somewhat disagree), 4 (somewhat agree), 5 (agree), and 6 (strongly agree).

The development of the Smartphone Addiction Scale (SAS) into the Smartphone Addiction Scale - Short Version (SAS-SV) was conducted by Kwon et al. in the same year (2013), with a sample of 540 middle school students (343 males and 197 females) to evaluate addiction levels in adolescents based on gender. The previous scale was used, and usage characteristics were also examined in the respondents. The research findings revealed that this measurement tool has good internal consistency, with a Cronbach's alpha value of 0.911. The SAS-SV also significantly correlated with the SAS, SAPS, and KS-scale, with reliability values of 0.967, 0.880, and 0.909, respectively. Kwon et al. [8] recommended gender-based cut-off scores, with higher scores indicating a higher risk of PSU or smartphone addiction. ROC analysis results showed an area under the curve (AUC) value of 0.963 (0.888-1.000), a cut-off value of 31, a sensitivity of 0.867, and a specificity of 0.893 for boys, while for girls, the AUC was 0.947 (0.887–1.000), the cut-off value was 33, sensitivity was 0.875, and specificity was 0.886.

Arthy et al. [7] adapted this measurement tool into the Indonesian version of the SAS-SV, with a Cronbach's alpha value of 0.740. The ROC analysis showed an AUC value of 0.997 (0.990-1.000), a cut-off value of ≥32, a sensitivity of 0.91, and a specificity of 0.973 for boys, while for girls, the AUC was 0.996 (0.998–1.000), the cut-off value was ≥34, sensitivity was 0.91, and specificity was 0.974. The blueprint of the problematic smartphone use scale is shown in Table 2 below.

Table 2: Blueprint of Problematic Smartphone Use Scale (SAS-SV Indonesian Version).

Scale	Item Number	Amount
Problematic Smartphone Use	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10
Amount		10

2.4. Statistical Analysis

Internal structure validity determines how well a scale's actual structure is consistent with the hypothesized structure of the construct it measures. The SAS-SV was developed as a single-factor structure scale [8]. The internal structure validity of SAS-SV consists of 10 items tested using CFA first order robust maximum likelihood (ML) estimation. Confirmatory factor analysis is psychometric evaluation method that enables the systematic evaluation of an alternative factor structure defined in advance through systematic fit assessment procedures and calculates the associations between latent constructs, accounting for measurement errors [17]. The investigation rigorously explores the construct by implementing confirmatory factor analysis (CFA), which analyses were processed using program software Jeffrey's Amazing Statistics Program JASP 0.18.3 [18].

To evaluate model fit, we used three measures of absolute fit indices: the *Standardized Root Mean Square Residual* (SRMR), *Root Mean Square Error of Approximation* (RMSEA), and *Goodness-of-Fit Index* (GFI). Furthermore, we employed two measures of incremental / comparative / relative fit indices: the *Comparative Fit Index* (CFI) and the *Tucker–Lewis Index* (TLI). A satisfactory model fit is indicated when the coefficient of $SRMR \leq 0.08$, $RMSEA \leq 0.08$, $GFI \geq 0.90$, $CFI \geq 0.95$, $TLI \geq 0.95$. *SRMR/RMSEA* values below 0.08 indicated an acceptable fit and values less than 0.05 suggested a good fit. GFI/CFI/TLI values higher than 0.90 indicated an acceptable fit, and values higher than 0.95 represented a good fit [19]. *Chi-square* was not used in this study as a model fit index because it tends to be sensitive to the sample size [20].

Once the model met the fit criteria, the researcher assessed convergent validity by ensuring the standardized factor loadings (SFL) for each item that made up the SAS-SV construct met the minimum threshold. Several modifications were then made to achieve a well-fitting model. The factor loadings of each item were evaluated based on criteria where a range of ± 0.3 to ± 0.4 is the minimum SFL value, ± 0.5 can be considered significant, and ± 0.7 indicates that the indicator defines the structure well. The minimum value is acceptable when the sample size is large, with ± 0.35 being the minimum SFL value for 250 samples and ± 0.30 for 350 samples [21]. Based on the trial results, this study also tested reliability by measuring Construct Reliability or Composite Reliability (CR) and Average Variance Extracted (AVE). For CR, the minimum value required to indicate that the construct is acceptable is 0.7. The recommended minimum AVE value

is 0.5 [22]. However, Fornell and Larcker (as cited in) Huang et al. [23] argue that if CR > 0.6 and AVE is below 0.5, convergent validity remains adequate.

Internal consistency reliability is considered satisfactory when Cronbach's alpha is ≥ 0.70 and McDonald's Omega (ω) ≥ 0.70 [24]. As suggested by some scholars, McDonald's Omega (ω) provides a more unbiased estimate of the reliability [25]. Hence, in this study, we employed McDonald's Omega (ω) to evaluate the internal reliability of the adapted SAS-SV. A reliability coefficient of $\omega < 0.50$ indicates unacceptable internal consistency, 0.51-0.59 poor consistency, 0.60-0.69 questionable consistency, 0.70-0.79 acceptable consistency, 0.80-0.89 good consistency, and > 0.90 excellent consistsency [26].

3. Result and Discussion

3.1. Results

Before analyzing the SAS-SV psychometric properties in the Indonesian version, we checked item adherence to basic statistical assumptions, including normal distribution. The descriptive data for skewness, and kurtosis of the items are presented in Table 3.

TABLE 3: Skewness and kurtosis of the SAS-SV Indonesian Version.

Indonesian Version	Skewness	Kurtosis
1. Melewatkan pekerjaan (tugas) yang sudah direncanakan disebabkan oleh penggunaan *smartphone*	-0.403	-0.814
2. Sulit berkonsentrasi di kelas, saat mengerjakan tugas atau saat bekerja karena penggunaan *smartphone*	-0.243	-0.826
3. Merasa nyeri di pergelangan tangan atau leher bagian belakang saat menggunakan *smartphone*	-0.495	-0.756
4. Tidak akan tahan jika tidak memiliki *smartphone*	-0.502	-0.295
5. Merasa tidak sabar dan gelisah saat saya tidak memegang *smartphone* saya	-0.201	-0.616
6. Terus memikirkan *smartphone* saya, bahkan ketika saya tidak menggunakannya	0.069	-0.859
7. Saya tidak akan berhenti menggunakan *smartphone* saya, meskipun kehidupan sehari-hari saya sudah sangat terpengaruh olehnya	-0.045	-0.689
8. Selalu mengecek *smartphone* saya agar tidak ketinggalan percakapan (notifikasi) di Twitter (X) atau Facebook dan sejenisnya misal Instagram / Whatsapp	-0.486	-0.627
9. Menggunakan *smartphone* lebih lama dari yang saya inginkan atau rencanakan	-0.479	-0.504
10. Orang-orang disekitar saya mengatakan bahwa saya menggunakan *smartphone* terlalu sering	-0.231	-0.952

Table 3, study reveals values of skewness ranging from -0.502 (item 4) to 0.069 (item 6). For kurtosis, values varied between -0.952 (item 10) to -0.295 (item 4). Curran et al. [27] pointed out that issues related to non normality occur when skewness surpasses 2.0 and kurtosis exceeds 7.0. In our dataset, all absolute values of skewness and kurtosis remain within these specified thresholds. Next step is to test whether the model is fit or not by referring to several fit indices criteria. The results of a single-factor structure first-order SAS-SV model are presented in Figure 1 below:

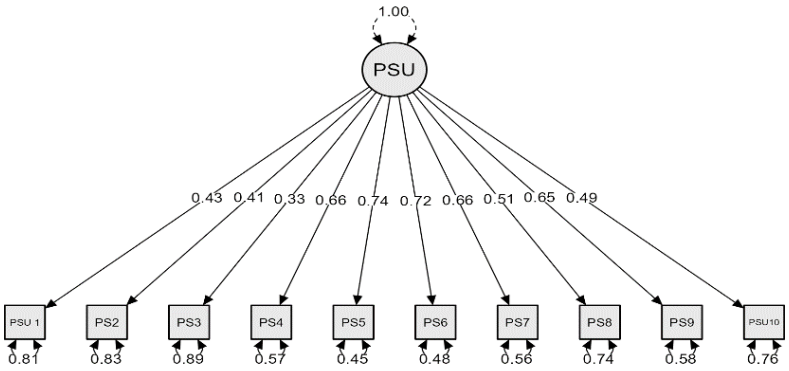

Figure 1: Path Diagram of CFA SAS-SV Indonesian Version.

The indicators of model fit for the Problematic Smartphone Use Scale are: $\chi^2 = 151.500$, df = 35, $p < 0.001$; SRMR= 0.052 (good fit), RMSEA = 0.090 (marginal fit); GFI = 0.986 (good fit); CFI = 0.893 (marginal fit); TLI = 0.862 (marginal fit). After establishing model fit, the researcher examined the factor loading of each item comprising the SAS-SV construct. The results of the first-order CFA on the 10 items showed factor loadings ranging from 0.329 to 0.744. There are 4 items with factor loadings below 0.5: item 1 (0.431), item 2 (0.413), item 3 (0.329), and item 10 (0.493). In this instrument, all items are defined significantly, except for the 4 items (items 1, 2, 3, and 10), which still meet the minimal criteria and are therefore retained. The loading factors of each item are considered against criteria such as: a range of ±0.3 to ±0.4 represents the minimum SFL value [21]. Based on the analysis results, it can be concluded that the 10 items representing the observed variables have good validity concerning their latent variable in the SAS-SV construct (See Table 4).

After obtaining evidence supporting validity through factor loading, the researcher conducted a reliability test. The CR coefficient emphasizes the extent to which the measurement indicators reflect the latent factor being constructed. The greater the indicators reflect their latent factor, the higher the reliability of the measurement. Additionally, reliability testing was also conducted using AVE values. AVE indicates the

Table 4: Descriptive statistics of participant's average answers.

Item	Mean	Std Dev	Loading Factor
PSU 1	3.590	1.466	0.431
PSU 2	3.549	1.393	0.413
PSU 3	3.822	1.418	0.329
PSU 4	4.102	1.338	0.659
PSU 5	3.624	1.331	0.744
PSU 6	3.268	1.381	0.721
PSU 7	3.224	1.287	0.660
PSU 8	4.037	1.387	0.506
PSU 9	3.849	1.318	0.648
PSU 10	3.656	1.420	0.493

total variance of a construct that can be explained by the measurements performed. A construct can be accepted if it has a minimum value of 0.7 for CR and 0.5 for AVE. The results of the CR and AVE tests can be seen in Table 5.

Table 5: Results of Cronbach Alpha, McDonald's Omega CR and AVE.

Cronbach Alpha (α)	McDonald's Omega (ω)	Composite Reliability (CR)	Average Variance Extracted (AVE)	Conclusion
0.820	0.811	0.824	0.324	Reliability is acceptable

3.2. Discussion

The results of the model fit test for the SAS-SV indicate an acceptable model fit for a single-factor structure of the Indonesian version of the SAS scale. This finding aligns with the validation of the Smartphone Addiction Scale-Short Version (SAS-SV) in its Indonesian version, adapted by Arthy et al. [7] on a sample of Indonesian adolescents, referencing the SAS-SV by Kwon et al. [8], where both were confirmed as a unidimensional single-factor model. Similarly, the CFA analysis results in Geng et al. [4] in China showed that fit indices were met: χ^2/df = 4.55, $p < 0.001$, RMSEA = 0.05, SRMR = 0.03, GFI = 0.99, AGFI = 0.97, NFI = 0.99, RFI = 0.98, IFI = 0.99, TLI = 0.98, CFI = 0.99.

All items on the Problematic Smartphone Use Scale have factor loadings greater than 0.3, with the results of the first-order CFA on the 10 items showing factor loadings ranging from 0.329 to 0.744 so that it can still be maintained. The loading factors of each item are considered against criteria such as: a range of ±0.3 to ±0.4 represents

the minimum SFL, indicates that all items in the Indonesian Version of SAS-SV are correlated with the construct measured by the SAS-SV model. The minimum value can be accepted if the sample size is large; for 250 samples, the minimum SFL is ±0.35, whereas for 350 samples, the minimum SFL is ±0.30 [21].

Furthermore, the calculation of the internal consistency reliability coefficient shows CR = 0.824; AVE = 0.324; ω = 0,811; α = 0.820, thereby meeting the requirements for convergent validity. It can be concluded that all CR and AVE values meet their minimum thresholds, in accordance with the guidelines of Fornell and Larcker (as cited in Huang et al. [23]) , which state that if CR > 0.6 and AVE is below 0.5, convergent validity remains adequate. This indicates that the level of reliability of the SAS-SV construct is sufficient, and the indicators are consistent in measuring their construct. These results are consistent with previous research showing Cronbach's Alpha values starting from α = 0.91 by Geng et al. [4] and α = 0.93 by Wang et al. [14] in China, as well as α = 0.775 by Mulyaningrum et al. [16] and α = 0.740 by Arthy et al. [7] in Indonesia.

4. Conclusion

The results of this study indicate that the Smartphone Addiction Scale-Short Version (SAS-SV) in its Indonesian version, adapted by Arthy et al. [7], is a valid and reliable instrument for measuring Problematic Smartphone Use among adolescents in Indonesia. This is indicate an acceptable model fit for a single-factor structure of the Indonesian version of the SAS scale through confirmatory factor analysis (CFA), which met the fit indices parameters. As a self-report measure, this scale can assist in identifying Problematic Smartphone Use among adolescents in Indonesia. Subsequently, adolescents can take action by seeking specific strategies to reduce their Problematic Smartphone Use. It is important to note that this scale is only applicable to a sample aged 12-18 years, so further studies are necessary for its use outside this age range. Additionally, the scale was only tested on a sample of adolescents in the city of Medan, making further research in other locations highly recommended if the scale is to be expanded for broader use.

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