Indonesian Adaptation of Academic Procrastination - Short Form (APS-S): Validity and Reliability

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Abstract. Academic procrastination is defined as the behavior of delaying assignments related to the academic context. Academic procrastination commonly occurs at various levels of education, especially with undergraduate students. Previous studies reported that undergraduate students who indulged in procrastination show poor academic performance and trigger a decrease in psychological functioning. The availability of good instruments can help portray this phenomenon, especially since there have been no reports regarding instruments that measure academic procrastination in Indonesia. The aim of this study was to examine the construct validity and reliability of Academic Procrastination Scale-Short Form (APS-S) in Indonesian context. 452 undergraduate students were recruited as participants of this study. The sampling technique used is a non-probability sampling technique. A Confirmatory Factor Analysis (CFA) and reliability analysis were performed to examine the structural validity and internal consistency of the instrument, respectively. Results indicated that all 5 items of APS-S were unidimensional and had satisfactory construct validity and internal consistency. Thus, The APS-S is valid and can be used by future researchers as a concise instrument for measuring academic procrastination in the Indonesian context.

Keywords: academic procrastination; confirmatory factor analysis; undergraduate student

Academic procrastination is a behavior that refers to a deliberate delay in completing an academic task even when the person is aware of the results and negative consequences (Steel, 2007). Academic procrastination occurs in individuals from various levels of education (McCloskey, 2011). Previous studies showed that academic procrastination has indicated urgency to be studied, especially in college students who, compared to middle school students, have more autonomy over their time (see Wang, 2021; Rahimi & Vallerand, 2021). Students who procrastinate but need their assignments to be completed immediately will practice cramming and most of them eventually have poor academic performance (Seo, 2012; Goroshit & Hen, 2021). They also tend to experience negative impacts on their psychological functioning (Sirois et al, 2003; Reinecke et al., 2018). According to researchers, there has been no studies that examine   the adaptation scale of academic procrastination specifically in Indonesia. Previous studies have only adapted the instrument for measuring academic procrastination in general (Prayitno et al., 2013; Purwanto & Natalya, 2019). Thus,

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the availability of valid and reliable measuring instruments to measure academic procrastination is important, especially for research in the Indonesian context.

There are several measuring tools that are often used to measure academic procrastination, that is the Procrastination Assessment Scale–Students (PASS; Solomon & Rothblum, 1984), the Tuckman Procrastination Scale (Tuckman, 1991), and the General Procrastination Scale (GP; Lay, 1986). In addition to PASS, Tuckman Procrastination Scale, and GP. is The Academic Procrastination Scale (APS; McCloskey, 2011) which is also a measuring tool that is still being developed to measure academic procrastination. The APS was developed to measure general academic procrastination. However, APS has several drawbacks, namely the scale being quite long and some of the items being very similar to one another. Thus, McCloskey (2011) proposed a concise version of the APS with five items known as the Academic Procrastination Short Form (APS-S).

Study by Yockey (2016) tested the validity of the APS-S on 282 students. The results of the study showed that APS-S is unidimensional and valid to measure the construct of academic procrastination. Furthermore, another finding also explains that APS-S has good internal consistency. APS-S also shows a fairly good convergent validity as APS-S is known to be significantly correlated with PASS and Tuckman Procrastination Scale. Based on these findings, it can be concluded that the APS-S is a valid instrument and has good internal consistency in measuring academic procrastination.

However, we have not found a study that examines the validity and reliability of the APS-S instrument in the context of the Indonesian population. Measurements of the validity and reliability tests have been carried out only to measure procrastination in general, including Aitken Procrastination Inventory (API; Adeli, 2012), Steel Procrastination Scale (SPS; Endy, 2012), Irrational Procrastination Scale (IPS; Prayitno, 2013), PASS (Romli, 2012), DPQ (Ling, 2012), and Temporal Motivation Test (TMt; Putra, 2011). Based on these measurement tools, no one has measured procrastination specifically for academic contexts. Thus, when conducting research in an academic context, it is possible for participants to make mistakes in giving answers. This is among the many advantages of APS-S compared to other procrastination measurement tools, in terms of context specifications. In addition, APS-S is more concise in the number of items, making it easier for participants to interpret the instrument efficiently.

Therefore, a study about the validity and reliability of the APS-S instrument in the Indonesian population is needed. This study aims to test the reliability and construct validity of the APS-S items adapted into the Indonesian population. With the availability of a valid measuring tool, it will be easier for us to handle or prevent academic procrastination problems, especially for the student population in Indonesia.

Method

This study uses a quantitative method to examine the construct validity and reliability of the academic procrastination instrument. Data were collected through an online questionnaire starting from the third week of September 2021 to the second week of October 2021. Sampling in this study used a non-probability sampling technique. The participants in this study were undergraduate students and the equivalent who were recruited online. After agreeing to written informed consent, participants were asked to answer several questionnaires.

Procedures

The measuring instrument used in this study is the Academic Procrastination Scale-Short Form (APS-S; McCloskey, 2011, Yockey, 2016). The APS-S consists of 5 items that measure the unidimensional construct of academic procrastination (Yockey, 2016). APS-S uses a Likert model scale with a range of answer choices between 1 (disagree) to 5 (agree). The range of total scores that can be obtained from this instrument ranges from 5 - 25. The total APS-S score will describe the individual's tendency to procrastinate. The APS-S has good reliability with 0.87 (Cronbach's a) and has good estimates of convergent validity, with significant correlations both the PASS ($r(96) =.54$, $p < .001$) and Tuckman Scale ($r(69) = .79$, $p < .001$) (Yockey, 2016).

The adaptation of the APS-S meter was carried out following the guidelines prepared by Beaton et al. (2000). Based on these guidelines, the researcher carried out the following adaptation steps: 1) instrument translation from the original language (English) to the destination language (Indonesia), translation was carried out by 2 independent translators, Translator 1 was someone who was familiar with the measurable construct (T1) and 1 other translator was not familiar with scalable constructs (T2). 2) Furthermore, the translation results of the two translators are discussed to be synthesized into a draft translation (T-12). 3) The translation of the results of the synthesis (T-12) then goes through a back-translation process to ensure perceptions and understanding between the results of the translation and the original language of the used measuring instrument. 4) Afterwards, a readability test was carried out on several participants ($n = 30$) to ensure the understanding of the target group of participants regarding the points in the Indonesian language adaptation of the APS-S version.

After the readability test was carried out, the researchers then recruited undergraduate student participants online through various social media. Participants were then asked to fill out a series of questionnaires in a Google Form consisting of an informed consent, demographic data, and research instruments. Data collection was carried out for 3 weeks, starting from the third week of September 2021 to the second week of October 2021. This study was a part of a larger study about online behavior in COVID-19 pandemic.

After the data was obtained, the data were analyzed by confirmatory factor analysis (CFA) using JASP 0.16. Confirmatory Factor Analysis (CFA) was carried out to test the validity of the constructs and Cronbach's Alpha reliability test was also carried out to test the internal consistency of the APS-S instrument. CFA was used to test the construct validity of the APS-S instrument. Hu and Bentler's (1999) fit model criteria were used to evaluate the measurement model in this study, that is Root Mean Square Error of Approximation (RMSEA) < .06, Comparative Fit Index (CFI) > .95, and Standard Root Mean Residual (SRMR) < .08. In addition, the Cronbach's Alpha reliability test was also carried out to estimate the internal consistency of each APS-S instrument item.

Result

The participants in this study were 452 undergraduate students, with the majority of participants being 351 women and 101 male participants (Mage = 20.33, *SD* = 1.57). The APS-S instrument in this study consisted of 5 items that were unidimensional, meaning that they only measured one factor which is the academic procrastination construct. After going through several stages of adaptation such as T1, T2, T1 & T2, and Back Translation, the final instrument is obtained as below.

Table 1.
Blueprint APS-S Indonesian Adaptation

No	English	Indonesian
1	I put off projects until the last minute.	*Saya menunda tugas hingga detik-detik terakhir*
2	I know I should work on schoolwork, but I just don't do it	*Saya tahu bahwa saya harus mengerjakan tugas kuliah, namun saya tidak melakukannya*
3	I get distracted by other, more fun, things when I am supposed to work on schoolwork	*Saya tergoda untuk melakukan kegiatan lain yang lebih menyenangkan ketika seharusnya mengerjakan tugas kuliah*
4	When given an assignment, I usually put it away and forget about it until it is almost due	*Ketika diberi tugas, saya biasanya membiarkan dan tidak mengerjakannya hingga mendekati waktu pengumpulan tugas.*
5	I frequently find myself putting important deadlines off	*Saya sering menunda deadline pengerjaan tugas yang penting*

Note: This table is a blueprint of the adaptation of the APS-S scale in Indonesian. "How much do you, your self agree to the following statements?" *Seberapa setuju Anda dengan pernyataan-pernyataan di bawah ini*?).

In this study, several words were still translated according to the original language such as "deadline" which means "tenggat waktu". These words were not translated into Indonesian (see Table 1.), because the word "deadline" was used more often so it was predicted that it would be easier for students to understand than "tenggat waktu". This was also supported by the results of the readability test conducted by researchers to several respondents.

Based on the results of CFA on the APS-S unidimensional model, it is known that the model does not match the Chi-Square value = 23,28, df = 5 (p < .001); $RMSEA$ = .09 (90% CI .06, .13), CFI = .98, and $SRMR$ = .03. For this reason, researchers modified the model by comparing measurement errors on several items. After the modified model was carried out, the fit model was obtained with a Chi-Square value = 9.31, df = 4 (p > .05); $RMSEA$ = .05 (90% CI .00, .10), CFI = .99, and $SRMR$ = .01. These results indicate that the unidimensional model fits the data according to the criteria of Hu and Bentler (1999). This ultimately shows that the APS-S unidimensional model is acceptable, and that all items in the instrument only measure one factor, the academic procrastination.

In addition, all of the standard loading factors were significant which ranged from .66 - .80. According to Hair et al (2019), the standardized factor loading for items is .50 and ideally above .70. Thus, based on the standardized value of factor loading, it can be seen that all items can describe the construct of academic procrastination well. In this measurement model, there is only one measurement error correlation, item number 2 and item number 3. Because all items are significant, have good standardized loading factors, and the number of measurement error correlations is minimal, there is no item that needs to be eliminated.

The APS-S adaptation also has a Cronbach's Alpha value of .86 and a Corrected Item-Total Correlation (CITC) value that ranges from .64 - .72. This shows that this instrument has good internal consistency. The standardized factor loading values, Cronbach's Alpha, and CITC can be seen in Table 2, and the path diagram can be seen in Figure 1.

Figure 1.
Path Diagram of APS-S
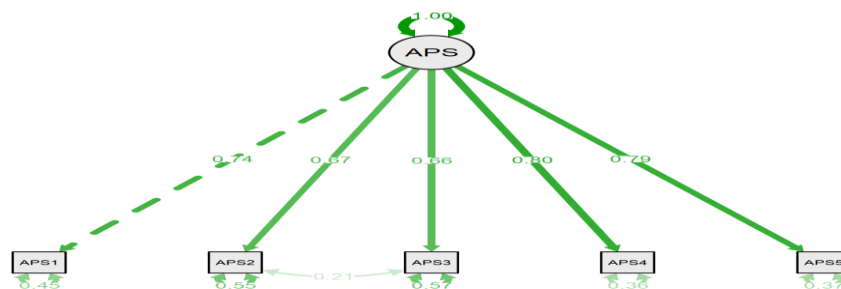
Table 2.

Psychometric Properties Indonesian Adaptation of APS-S

Construct	Item	*p*-value	Standardized Factor Loading	CITC	Cronbach's Alpha
Academic Procrastination	APS-S 1	< .001	.74	.66	.86
	APS-S 2	< .001	.67	.65	
	APS-S 3	< .001	.66	.65	
	APS-S 4	< .001	.80	.71	
	APS-S 5	< .001	.79	.72	

Discussion

Academic procrastination is a common problem that occurs in the general student population. Several previous studies have examined good measuring tools for measuring academic procrastination such as the PASS, the Tuckman Procrastination Scale, GP, and APS. However, with the use of a lot of items, this has the potential to affect the validity of the contents of the measuring instrument due to the fact that the participants who fill the questionnaires may not be serious. This will eventually cause existing measuring instruments to not measure the constructs they want to measure. Morgado et al. (2016) explained that to improve the quality of practical research, one of the most important things is related to the use of measurement items (all items must be simple, clear, specific, etc.). Having the APS-S as a practical and reliable measurement tool can improve the research practice of future researchers who wish to measure academic procrastination.

This study aims to test the psychometric properties of the APS-S items adapted in Indonesian. The instrument was tested on a number of students to find out whether the APS-S is valid and reliable in measuring academic procrastination. The results showed that the Indonesian APS-S adaptation items were unidimensional, and had good psychometric properties (validity and reliability). This shows that the Indonesian adaptation of the APS-S can be considered as an efficient compact instrument for measuring academic procrastination in general to the Indonesian student population.

Regarding the reliability of the measuring instrument, it is evident that the Indonesian adaptation of APS-S has very good reliability (α= .86). Item analysis carried out by looking at the corrected item-total correlation (CITC) value showed that there was good consistency in each item score and total score (CITC range = .64 - .72). These results are in line with the results obtained in studies in the United States (Yockey, 2016) and Spain (Brando-Garrido et al., 2020). This indicated that the APS-S is consistent in measuring academic procrastination in general in various research populations with different linguistic and cultural backgrounds.

The Indonesian adaptation of APS-S also has good construct validity. The goodness of fit index showed satisfactory results, with RMSEA values < .06, CFI > .95, and SRMR < .08 (Hu & Bentler, 1999). In addition, the APS-S items generally have a significant standardized factor loading, are positively charged, and have minimal measurement error correlation (standardized factor loading range = .66 - .80). Thus, the items in the APS-S can describe the construct of academic procrastination well and can be used to measure academic procrastination in the Indonesian context.

Nevertheless, this study also has limitations. The sample in this study is still limited to undergraduate students or equivalent. Future researchers are expected to carry out further research on samples with other educational levels, for example at the secondary or postgraduate level in order to find out how the psychometric properties of APS-S are in samples other than undergraduate students. In addition, this study only tested construct validity and internal consistency. It is recommended that further research can also test the convergent validity or test-retest reliability on the APS-S instrument.

Conclusion

Despite these findings, our research is not without limitations. Our sample for this study is still limited to undergraduate students or equivalent. However, the Indonesian adaptation of APS-S is unidimensional and has good psychometric properties (validity and reliability). This instrument is expected to be used by researchers and students to measure academic procrastination in general in the target population.

Recommendation

Further research on the APS-S instrument is needed, given that the APS-S can be a good choice for future researchers who are going to research academic procrastination and want to use a compact academic procrastination measurement tool. Future research is expected to be able to test convergent validity, test-retest reliability on the APS-S instrument.

Declaration

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