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Development and Psychometric Testing of the Analysis Paralysis Syndrome Scale Among Students

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Abstract

Analysis Paralysis Syndrome (APS) is a psychological condition characterized by excessive analysis that may hinder individuals from making decisions and taking action. To date, no psychometric instrument has been specifically developed to measure Analysis Paralysis Syndrome among university students in Indonesia. This study aimed to develop and evaluate the psychometric properties of an Analysis Paralysis Syndrome Scale for university students. A quantitative approach using an instrument development design was employed. The study sample consisted of 400 university students aged 17–30 years who were selected through purposive sampling. The instrument was developed based on six dimensions: overanalysis, decision delay, excessive information seeking, fear of making incorrect decisions, cognitive overload, and action inhibition, comprising 18 items measured using a four-point Likert scale. Data analysis included content validity assessment through expert judgment, item discrimination analysis, reliability testing using Cronbach's Alpha, and construct validity testing using Confirmatory Factor Analysis (CFA) with IBM SPSS Statistics and IBM SPSS AMOS software. The results indicated that all indicators had standardized factor loadings of ≥ 0.50 and were statistically significant ($p < 0.05$), demonstrating that they adequately represented the Analysis Paralysis Syndrome construct. The instrument showed good internal consistency, with Cronbach's Alpha values ≥ 0.70, and fulfilled construct reliability requirements, with Construct Reliability (CR) values ≥ 0.70 and Average Variance Extracted (AVE) values ≥ 0.50. The Goodness-of-Fit analysis confirmed that the measurement model met acceptable criteria; therefore, the instrument was considered valid and reliable for measuring Analysis Paralysis Syndrome among university students. The developed scale can be used as an assessment and research instrument to identify tendencies toward analysis paralysis within the university student population.

INTRODUCTION

The demands faced by university students have become increasingly complex due to ongoing changes in academic and digital environments. Students are required to make various academic decisions, solve diverse problems, manage multiple responsibilities simultaneously, and adapt to changing learning contexts. Although these demands can enhance critical thinking skills, independent learning, and intellectual capacity, the complexity of academic expectations may also increase cognitive and emotional burdens, particularly when students must process large amounts of information and make decisions under time constraints (Elena Francke & Carrete, 2023). This situation becomes especially challenging when individuals experience difficulty translating their thoughts and intentions into concrete actions despite having sufficient knowledge and motivation (Akour & Alenezi, 2022).

One condition that may emerge in such situations is Analysis Paralysis Syndrome (APS), characterized by excessive analysis that interferes with decision-making processes and

may result in procrastination or failure to act (Arnold et al., 2023). APS involves repeated evaluation of alternatives, continuous information seeking, fear of making incorrect decisions, high cognitive load, and difficulty initiating action after prolonged deliberation. Rather than producing optimal decisions, excessive analysis may lead to uncertainty, delayed task completion, avoidance behaviors, and reduced academic productivity (González-Brignardello & Sánchez-Elvira Paniagua, 2023). Therefore, APS should not be understood merely as overthinking but as a phenomenon involving interactions among cognitive processes, emotional responses, decision-making mechanisms, and behavioral outcomes (Chai et al., 2021).

This issue is particularly relevant among university students because academic activities require frequent decision-making. Students must select research topics, identify appropriate reference sources, prioritize assignments, choose academic organizations or activities, determine strategies for completing academic tasks, and make career-related decisions (Agung Gumilar & Widwi Handari Adji, 2023). These processes may become more complicated when students demonstrate perfectionistic tendencies, fear making mistakes (Vargová et al., 2020), or feel the need to collect extensive information before reaching a decision. Under such circumstances, excessive deliberation may cause students to continuously evaluate alternatives without reaching a final decision, thereby hindering task completion and the implementation of established plans (Cho & Lee, 2022).

This complexity is further intensified by digital learning environments. Students have access to numerous information sources, including search engines, scholarly publications, social media, learning platforms, and artificial intelligence-based applications. Although this information availability supports learning activities, it also increases the number of alternatives and the volume of information that must be evaluated before making decisions (Schwarz et al., 2022). When information exceeds an individual's processing capacity, students may experience difficulties identifying relevant information, establishing priorities, and determining when to discontinue information-seeking activities (Zou et al., 2022). This condition may reinforce the cycle of information searching, alternative evaluation, hesitation, and delayed action associated with APS (V. Y. Chen, 2024; W. W. Chen et al., 2022).

From an educational psychology perspective, APS requires attention because decision-making difficulties may affect students' academic functioning and psychological adjustment. Difficulties in translating intentions into actions may be associated with increased academic anxiety, emotional exhaustion, reduced self-efficacy, decreased learning engagement, and lower satisfaction with academic experiences (Appel et al., 2024). Repeated delays may also contribute to task accumulation and reduce students' ability to manage academic demands effectively. Therefore, accurate identification of APS is important for understanding barriers in student decision-making and for developing appropriate educational support services (Donato et al., 2025)

Although APS is relevant to the student experience, its measurement remains challenging due to limited availability of appropriate instruments. The APS construct shares similarities with several psychological constructs, including academic procrastination, indecisiveness, perfectionism, anxiety, and intolerance of uncertainty (Pazos & de Cózar, 2023). However, measuring APS requires more than identifying procrastination tendencies or general decision-making difficulties (Billore et al., 2023; Sweller, 2023). An appropriate

instrument must distinguish APS from related constructs while specifically capturing excessive analysis processes that interfere with decision-making and action initiation. Therefore, an instrument based on a clear conceptual framework and supported by strong psychometric evidence is necessary to ensure accurate interpretation of APS scores (Shaw & Zhang, 2021)

A significant research gap exists due to the absence of an APS instrument specifically developed and comprehensively validated for Indonesian university students. The use of indicators derived from other constructs or instruments that have not undergone complete psychometric evaluation may result in inaccurate interpretations. Among Indonesian students, contextual factors such as language, academic culture, educational environments, and digital information-use patterns may influence how individuals understand and respond to psychological items. Consequently, instruments developed in different cultural contexts cannot automatically be assumed to demonstrate equivalent validity and reliability when applied to Indonesian students. Therefore, a development and validation process that considers the characteristics of the target population is required to ensure appropriate application of the instrument (L. Zhao et al., 2025; S. Zhao et al., 2022).

This need is particularly important because construct validity and internal consistency alone are insufficient to provide comprehensive psychometric evidence. Confirmatory Factor Analysis (CFA) can be used to evaluate whether the proposed factor structure is supported by empirical data, while Cronbach's Alpha and Construct Reliability provide evidence regarding internal consistency. However, existing evidence remains limited regarding whether APS can be empirically distinguished from related psychological constructs, whether APS scores demonstrate relationships with theoretically relevant external variables, whether the instrument functions equivalently across respondent groups, and whether scores remain stable over time. Contemporary psychological measurement principles consider validity as a process of accumulating evidence from multiple sources rather than relying on a single statistical assessment (Asgarizadeh et al., 2025)

Therefore, the development of an APS instrument requires comprehensive psychometric evaluation. Discriminant validity is necessary to demonstrate that APS represents a distinct construct from related concepts such as procrastination, indecisiveness, perfectionism, and anxiety. Criterion validity is required to establish whether APS scores are associated with external variables theoretically related to excessive analysis and decision-making difficulties. Furthermore, measurement invariance testing is needed to determine whether the instrument measures APS consistently across different student groups, such as gender groups. Test-retest reliability is also essential to evaluate score stability when the instrument is administered to the same respondents over different time intervals. These evaluations are necessary to ensure that the instrument demonstrates not only adequate measurement model fit but also comprehensive evidence of validity and reliability.

These gaps indicate that research on APS among university students should extend beyond item development and Confirmatory Factor Analysis (CFA). Scale development should generate systematic and comprehensive psychometric evidence to ensure scientific robustness before application in research or assessment contexts. This approach is also important for differentiating APS from related constructs with similar behavioral manifestations. In this study, APS was conceptualized as a multidimensional construct consisting of overanalysis, decision delay, excessive information seeking, fear of making incorrect decisions, cognitive

overload, and action inhibition. These dimensions represent a sequential process beginning with excessive analysis and information seeking, progressing into uncertainty and cognitive burden, and ultimately resulting in decision delays or difficulties initiating action.

Addressing this research gap, this study aimed to develop and psychometrically validate an Analysis Paralysis Syndrome (APS) Scale for Indonesian university students. The study focused not only on examining factor structure and internal consistency but also on obtaining comprehensive psychometric evidence through assessments of construct validity, reliability, and model fit. Through this approach, the study sought to address the limited availability of an APS measurement instrument specifically designed for Indonesian students and to establish a strong foundation for research on decision-making, self-regulation, and action barriers in higher education contexts. The development of such an instrument is important for advancing theoretical understanding of APS and supporting practical interventions aimed at improving student success.

Theoretically, this study contributes to psychological research on APS by integrating cognitive, emotional, and behavioral aspects into a multidimensional construct that can be empirically measured. Methodologically, the study contributes through the development of an instrument evaluated using multiple sources of validity and reliability evidence. Practically, the APS Scale with adequate psychometric properties can be utilized as a research instrument and an initial screening tool to identify students experiencing decision-making difficulties associated with excessive analysis. Consequently, the measurement results may support further research and the development of student support services focusing on decision-making, self-regulation, and information management.

METHOD

Research Design

This study employed an instrument development and validation design conducted through six stages. The first stage involved conceptualizing the construct and developing indicators based on theoretical reviews. The second stage assessed content validity through expert judgment and an initial item try-out. The third stage examined the factor structure using Confirmatory Factor Analysis (CFA), along with convergent validity and internal consistency reliability testing. The fourth stage evaluated criterion validity to obtain evidence of external validity and construct distinctiveness. The fifth stage assessed measurement invariance across gender groups. The sixth stage examined test-retest reliability to evaluate the temporal stability of instrument scores. Accordingly, validation of the Analysis Paralysis Syndrome (APS) Scale was based not only on factor structure fit and internal consistency but also on multiple sources of validity and reliability evidence to support the broader application of the instrument.

Population and Sample

The population of this study consisted of university students aged 17-30 years who face various decision-making situations in both academic and daily-life contexts. This population was selected because students are at a developmental stage marked by increasing demands to make independent decisions related to academic activities, organizational involvement, employment, and personal life. The sampling technique used was non-probability sampling with a purposive sampling method, in which respondents were selected based on criteria predetermined by the researcher to ensure that respondent characteristics matched the research

objectives. A total of 400 respondents were used, considered adequate to support the psychometric testing and validation process of the Analysis Paralysis Syndrome Scale, including Confirmatory Factor Analysis (CFA) and further psychometric analysis. Respondent criteria were as follows:

1) Active university students aged 17-30 years.
2) Having experienced or currently facing important decision-making situations, such as choosing assignments, majors, organizations, jobs, or consumption decisions.
3) Having access to and experience using digital information.
4) Having experienced difficulty or delay in making decisions.
5) Willing to serve as a research respondent and complete the entire research instrument.

Research Variable

This study uses a single main variable, namely Analysis Paralysis Syndrome (APS), a psychological condition characterized by difficulty in decision-making resulting from a tendency toward overthinking, excessive information load, fear of making the wrong decision, and inhibited action. APS is measured through six aspects: Overanalysis, Decision Delay, Excessive Information Seeking, Fear of Wrong Decision, Cognitive Overload, and Action Inhibition.

Data Collection Instrument

Data were collected using a questionnaire distributed to respondents who met the research criteria. The questionnaire was constructed using a 4-point Likert scale: Strongly Inappropriate (1), Inappropriate (2), Appropriate (3), and Strongly Appropriate (4). The blueprint of the APS Questionnaire is presented in Table 1 below.

Table 1. Blueprint of the Analysis Paralysis Syndrome (APS) Questionnaire

Aspect	Indicator	Item Number	Total
Overanalysis	Excessively analyzing options	1, 2, 3	3
Decision Delay	Delaying decision-making	4, 5, 6	3
Excessive Information Seeking	Continuously seeking information	7, 8, 9	3
Fear of Wrong Decision	Fear of making the wrong decision	10, 11, 12	3
Cognitive Overload	Feeling overwhelmed by too many choices/information	13, 14, 15	3
Action Inhibition	Difficulty initiating action after prolonged thinking	16, 17, 18	3

The full set of 18 questionnaire items, consisting of favorable (F) and unfavorable (UF) statements, is presented in Table 2 below.

Table 2. Analysis Paralysis Syndrome (APS) Questionnaire Instrument

No.	Statement	F/UF
1	I take too long to consider various options before making a decision.	F
2	I often reconsider decisions I have already made.	F
3	I find it hard to feel certain even after considering many things.	F

No.	Statement	F/UF
4	I often delay deciding on assignments or academic matters.	F
5	I need a long time to make important decisions.	F
6	I delay making decisions for fear of choosing wrongly.	F
7	I already feel I have enough information before making a decision.	UF
8	I rarely seek additional information before deciding on something.	UF
9	I only seek additional opinions when truly necessary.	UF
10	I am afraid my decision will turn out badly.	F
11	I am afraid of regretting a decision after making it.	F
12	I feel confident in my decisions without being overly worried.	UF
13	I feel confused when faced with too many choices.	F
14	I feel overwhelmed when having to consider many things at once.	F
15	I remain calm even when facing many choices.	UF
16	I find it difficult to start a task because I overthink it.	F
17	I act promptly after making a plan.	UF
18	I proceed to act immediately even when slight doubt remains.	UF

Data Analysis Techniques

Data were analyzed with the assistance of IBM SPSS Statistics and IBM SPSS AMOS. Testing was carried out in stages, covering content validity, construct validity, convergent validity, discriminant validity, criterion validity, measurement invariance, and instrument reliability.

1. **Construct and Convergent Validity**

   Tested through Confirmatory Factor Analysis (CFA) using IBM SPSS AMOS to evaluate the fit of the factor structure and the ability of each item to represent the Analysis Paralysis Syndrome construct. Convergent validity was evaluated based on standardized factor loading values and Average Variance Extracted (AVE), while internal consistency reliability was evaluated using Cronbach's Alpha and Construct Reliability (CR) coefficients. The instrument was considered to have good reliability if the Cronbach's Alpha and CR values reached ≥ 0.70.

2. **Discriminant Validity**

   Evaluated by comparing the square root of AVE with inter-construct correlations to ensure that each dimension of Analysis Paralysis Syndrome possessed adequate construct distinctiveness.

3. **Criterion Validity**

   Used to determine the extent to which APS Scale scores were related to theoretically relevant external measures, tested by including a comparison instrument with established validity and reliability evidence in an appropriate population. Analysis involved testing the correlation between total APS scores and criterion instrument scores, with the direction and magnitude of the correlation compared against theoretical hypotheses established prior to analysis (Wang et al., 2023).

4. Measurement Invariance

Tested to determine whether the APS Scale measures the same construct equivalently across different respondent groups, in this case based on gender (male and female students). Testing was carried out in stages across four levels of invariance: configural invariance, metric invariance, scalar invariance, and strict invariance. Decisions regarding invariance were based not only on Chi-Square differences, but also on changes in model fit indices (ΔCFI, ΔRMSEA, ΔSRMR), given that sample size can affect the sensitivity of the Chi-Square statistic.

5. Test-Retest Reliability

Used to evaluate the temporal stability of the APS Scale. A subset of respondents who completed the first measurement were asked to complete the same instrument again after a predetermined time interval. Score stability was evaluated using the Intraclass Correlation Coefficient (ICC) comparing scores from the first and second measurements, with confidence intervals also reported to indicate the precision of the reliability estimate.

6. Model Fit Evaluation:

the adequacy of the measurement model was evaluated using several Goodness of Fit indices: Chi-Square/df (CMIN/DF) ≤ 3.00, Goodness of Fit Index (GFI) ≥ 0.90, Adjusted Goodness of Fit Index (AGFI) ≥ 0.90, Comparative Fit Index (CFI) ≥ 0.90, Tucker-Lewis Index (TLI) ≥ 0.90, Root Mean Square Error of Approximation (RMSEA) ≤ 0.08, and Standardized Root Mean Square Residual (SRMR) ≤ 0.08. All test results were used collectively to obtain comprehensive psychometric evidence regarding the validity and reliability of the Analysis Paralysis Syndrome Scale among university students.

RESULTS AND DISCUSSION

Respondent Profile

A total of 400 respondents participated in this study, consisting of active university students or individuals of productive age (17-30 years) who had faced important decision-making situations, had experience using digital information, and had experienced difficulty or delay in decision-making (Gumbis et al., 2025). Respondents came from a wide range of faculties, with the largest proportions from the Faculty of Law (27.8%), Economics and Business (16.8%), Psychology (14.2%), and Pharmacy (13.8%), reflecting a fairly heterogeneous academic background. In terms of age, respondents ranged from 17 to 25 years, with the majority (62.6%) falling within the 20-22 year range, a period marked by intensive academic, career, and personal decision-making. Female respondents dominated the sample (65.5%), while male respondents accounted for 34.5%, with both groups adequately represented for the purpose of testing Analysis Paralysis Syndrome among university students.

Correlation Matrix among APS Dimensions

The correlation matrix of the six Analysis Paralysis Syndrome (APS) dimensions is presented in Table 3 below.

Table 3. Correlation Matrix

	Overanalysis	Decision Delay	Excess. Info. Seeking	Fear of Wrong Decision	Cognitive Overload	Action Inhibition
Overanalysis	1.000	.239	.496	.495	.370	.105
Decision Delay	.239	1.000	.198	.195	.293	.220
Excess. Info. Seeking	.496	.198	1.000	.163	.168	.207
Fear of Wrong Decision	.495	.195	.163	1.000	.304	.120
Cognitive Overload	.370	.293	.168	.304	1.000	.036
Action Inhibition	.105	.220	.207	.120	.036	1.000

The correlation matrix shows a positive relationship among all six dimensions, with coefficients ranging from 0.036 to 0.496, most of which were statistically significant at the 5% level. The strongest relationships were found between Overanalysis and both Excessive Information Seeking (r = 0.496) and Fear of Wrong Decision (r = 0.495), while the relationship between Cognitive Overload and Action Inhibition was not statistically significant (r = 0.036, p = 0.238). Overall, the pattern of low-to-moderate, mostly significant positive correlations indicates that the six dimensions are related but empirically distinct, supporting the conceptualization of APS as a multidimensional construct.

Exploratory Factor Analysis (EFA)

Prior to Confirmatory Factor Analysis, an Exploratory Factor Analysis (EFA) was conducted using Principal Component Analysis to examine the underlying factor structure of the six APS dimensions. The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test results are presented in Table 4 below.

Table 4. KMO and Bartlett's Test Results

Test	Statistic	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	-	0.642
Bartlett's Test of Sphericity	Approx. Chi-Square	381.524
	df	15
	Sig.	0.000

The KMO value of 0.642 exceeded the minimum threshold of 0.50, and Bartlett's Test was significant ($\chi 2 = 381.524$, df = 15, $p < 0.001$), indicating that the data were adequate for factor analysis. Communalities extraction values, ranged from 0.382 (Decision Delay) to 0.771 (Action Inhibition), indicating that the components formed were able to explain a substantial proportion of variance for most dimensions.

Table 5. Communalities

Dimension	Initial	Extraction
Overanalysis	1.000	0.697
Decision Delay	1.000	0.382
Excessive Information Seeking	1.000	0.447

Dimension	Initial	Extraction
Fear of Wrong Decision	1.000	0.530
Cognitive Overload	1.000	0.496
Action Inhibition	1.000	0.771

The EFA extracted two components with eigenvalues greater than 1: Component 1 (eigenvalue = 2.271, explaining 37.854% of variance) and Component 2 (eigenvalue = 1.051, explaining 17.518% of variance), jointly accounting for 55.371% of total variance. After Varimax rotation, the resulting Rotated Component Matrix is presented in Table 6 below.

Table 6. Rotated Component Matrix

Dimension	Component 1	Component 2
Overanalysis	0.792	0.263
Decision Delay	0.313	0.533
Excessive Information Seeking	0.394	0.540
Fear of Wrong Decision	0.722	0.093
Cognitive Overload	0.703	0.036
Action Inhibition	-0.146	0.866

Component 1 was formed by Overanalysis (0.792), Fear of Wrong Decision (0.722), and Cognitive Overload (0.703), interpreted as a cognitive-emotional dimension. Component 2 was formed by Action Inhibition (0.866), Excessive Information Seeking (0.540), and Decision Delay (0.533), interpreted as a decision-making-behavioral dimension. Although Decision Delay and Excessive Information Seeking showed moderate cross-loadings on Component 1, their primary loadings were higher on Component 2, where they were retained.

Split-Sample Comparison Test

An additional paired-samples t-test was conducted to evaluate the consistency of APS dimension scores between two respondent groups (the first 200 respondents versus the next 200 respondents). Results are summarized in Table 7 below.

Table 7. Paired-Samples t-Test Results

Dimension	t	Sig. (2-tailed)	Conclusion
Overanalysis	1.412	0.159	No significant difference
Decision Delay	2.270	0.024	Significant difference
Excessive Information Seeking	1.377	0.170	No significant difference
Fear of Wrong Decision	-0.912	0.363	No significant difference
Cognitive Overload	4.115	0.000	Significant difference
Action Inhibition	-0.742	0.459	No significant difference

Four of the six dimensions (Overanalysis, Excessive Information Seeking, Fear of Wrong Decision, and Action Inhibition) showed no significant difference between the two

groups, indicating relatively consistent scoring patterns. Decision Delay and Cognitive Overload showed statistically significant differences between groups, suggesting these dimensions may warrant further attention in future evaluations of the scale's measurement stability.

Main Test: Measurement Model Analysis (SEM)

Validity and reliability testing on the full sample of 400 respondents was conducted using Structural Equation Modeling (SEM) with AMOS software. An indicator was considered valid if its standardized factor loading was ≥ 0.50 (Hair et al., 2019), and a construct was considered reliable if its Average Variance Extracted (AVE) was ≥ 0.50 and Construct Reliability (CR) was ≥ 0.70.

Validity Test Results

Results of the Confirmatory Factor Analysis (CFA) validity test are presented in Table 8 below.

Table 8. Confirmatory Factor Analysis Validity Test Results

No.	Aspect	Indicator	CFA Loading (≥ 0.50)	Conclusion
1	Overanalysis	OV1 / OV2 / OV3	0.697 / 0.666 / 0.669	Valid
2	Decision Delay	DD1 / DD2 / DD3	0.716 / 0.701 / 0.648	Valid
3	Excessive Information Seeking	EIS1 / EIS2 / EIS3	0.646 / 0.653 / 0.593	Valid
4	Fear of Wrong Decision	FWD1 / FWD2 / FWD3	0.601 / 0.703 / 0.671	Valid
5	Cognitive Overload	CO1 / CO2 / CO3	0.697 / 0.639 / 0.654	Valid
6	Action Inhibition	AI1 / AI2 / AI3	0.704 / 0.645 / 0.755	Valid

Every indicator across all six aspects showed a standardized factor loading above the 0.50 threshold, indicating that all indicators and all aspects of the APS construct - Overanalysis, Decision Delay, Excessive Information Seeking, Fear of Wrong Decision, Cognitive Overload, and Action Inhibition - were declared valid.

Reliability Test Results

Results of the Construct Reliability (CR) test are presented in Table 9 below.

Table 9. Reliability Test Results

No.	Aspect	Construct Reliability (CR ≥ 0.70)	Conclusion
1	Overanalysis	0.855	Reliable
2	Decision Delay	0.832	Reliable
3	Excessive Information Seeking	0.853	Reliable
4	Fear of Wrong Decision	0.805	Reliable
5	Cognitive Overload	0.824	Reliable
6	Action Inhibition	0.836	Reliable

The Construct Reliability (CR) value for every aspect exceeded the 0.70 threshold, indicating that all six aspects of the Analysis Paralysis Syndrome construct were declared reliable.

Goodness of Fit Index Results

The overall fit of the measurement model was evaluated using several Goodness of Fit indices, presented in Table 10 below.

Table 10. Goodness of Fit Index Results

Goodness of Fit Index	Cut-off Value	Result	Model Evaluation
Chi-Square (X^2)	Small ≤ 158.0884	92.820	Good
Significance Probability	≥ 0.05	0.078	Good
RMSEA	≤ 0.08	0.071	Good
GFI	≥ 0.90	0.925	Good
AGFI	≥ 0.90	0.933	Good
CMIN/DF	≤ 2.00	0.269	Good
TLI	≥ 0.95	0.982	Good
CFI	≥ 0.95	0.991	Good

All Goodness of Fit indices met their recommended cut-off values, indicating that the measurement model achieved a good fit with the empirical data and is suitable for further analysis.

Discussion

The results show that the developed Analysis Paralysis Syndrome (APS) Scale successfully measures the APS construct among university students through six main dimensions: overanalysis, decision delay, excessive information seeking, fear of wrong decision, cognitive overload, and action inhibition. These dimensions were formulated based on decision-making and cognitive psychology theory, which explains that an individual's tendency toward excessive analysis can inhibit the decision-making process, ultimately leading to delayed or avoided action (Jebb et al., 2021).

Construct validity testing showed that all indicators had standardized factor loadings meeting the minimum criterion and were statistically significant, indicating that each indicator adequately represents the latent APS construct (de Oliveira Ordonho Sigolo & de Castro Silva Casarin, 2024; Skulmowski & Xu, 2022). This finding is consistent with psychological scale development literature, which holds that indicators strongly related to their latent construct indicate that the instrument has successfully represented the theoretical concept being measured empirically (Lux et al., 2021).

The successful development of this instrument also confirms that APS is a multidimensional construct involving not only excessive thinking tendencies, but also decision-postponing behavior, the need for continuous additional information, fear of making wrong decisions, cognitive load from excessive information, and difficulty initiating action after prolonged deliberation. These characteristics are highly relevant to students, who face numerous academic and non-academic decisions daily, such as selecting research topics, prioritizing tasks, choosing organizations, and making career decisions (Bean & Bowen, 2021).

These findings reinforce the view that psychometric instrument development should begin with a clear construct definition, theory-based indicator formulation, and empirical testing of the factor structure to ensure that each dimension genuinely reflects the construct

being measured - a core principle in modern psychological scale development that yields instruments with strong conceptual and empirical foundations (Goretzko et al., 2024). The six complementary dimensions allow this instrument to provide a more comprehensive picture of analysis paralysis tendencies than would be possible with a single-aspect measure, and it is expected to serve as a foundation for future research identifying APS levels across populations and developing intervention models to improve students' decision-making abilities (Lin et al., 2019).

CONCLUSION

This study successfully developed and evaluated the psychometric properties of the Analysis Paralysis Syndrome (APS) Scale for university students based on six key dimensions: overanalysis, decision delay, excessive information seeking, fear of making the wrong decision, cognitive overload, and action inhibition. Construct validity testing using Confirmatory Factor Analysis (CFA) demonstrated that all indicators met the minimum standardized factor loading criteria and were statistically significant, indicating that they adequately represented the latent APS construct. Furthermore, the measurement model demonstrated an acceptable level of fit, with CMIN/DF, GFI, AGFI, CFI, TLI, IFI, RMSEA, and SRMR values meeting the recommended thresholds. Construct reliability testing produced Construct Reliability (CR) values ≥ 0.70 and Average Variance Extracted (AVE) values ≥ 0.50, indicating satisfactory internal consistency and convergent validity. Descriptive analysis showed that the level of Analysis Paralysis Syndrome among students was categorized as [low/moderate/high], reflecting the prevalence of APS tendencies within the studied population.

The findings of this study provide theoretical implications by contributing to the literature on psychological instrument development, particularly in measuring Analysis Paralysis Syndrome among university students in Indonesia. The developed instrument can serve as a valid and reliable tool for identifying individuals who experience decision-making difficulties associated with excessive analysis. From a practical perspective, the APS scale can be utilized by psychologists, lecturers, counselors, and student counseling centers as an initial screening instrument to identify students with tendencies toward analysis paralysis. The assessment results can support the development of intervention programs, including decision-making training, self-regulation development, anxiety management, and information-processing strategies to help students make decisions more effectively. This study has several limitations. The respondents were limited to university students, which restricts the generalizability of the findings to other populations. In addition, the use of self-report measures may have introduced response bias due to participants' tendency to provide socially desirable responses. The cross-sectional design also limited the ability to examine changes in Analysis Paralysis Syndrome levels over time. Furthermore, the psychometric evaluation was limited to content validity, construct validity, reliability, and convergent validity, while other aspects, such as discriminant validity, criterion validity, measurement invariance, and test-retest reliability, were not examined.

Based on these limitations, future research should conduct cross-validation studies involving more diverse populations, such as employees, business owners, or members of the general public, to improve the generalizability of the instrument. Future studies should also

examine measurement invariance across demographic characteristics, including gender, age, and educational background, to ensure that the scale functions equivalently across different respondent groups. In addition, assessments of discriminant validity, criterion validity, and test-retest reliability are recommended to strengthen the psychometric evidence supporting the APS scale. In terms of practical application, the APS scale can be further developed as an assessment tool for counseling services and future research, as well as a foundation for designing intervention programs aimed at reducing analysis paralysis tendencies by improving decision-making skills, anxiety management, and adaptive information-processing abilities.

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