Nguyen, T.T.B., Gan, W.Y., Huang, Y-T., Tung, S.E.H., Poon, E.W.C., Siaw, Y.L., Tham, W.S., Griffiths, M.D., Amir H. Pakpour, A.H., Lin, C-Y. & Huang, P-C. (2026). Psychometric properties and measurement invariance of the Malay version of the YouTube Addiction Scale among university students. *Evaluation and the Health Professions,* in press.

Abstract

The primary objectives of the present cross-sectional study were to translate and culturally adapt the YouTube Addiction Scale (YAS) into Malay and to evaluate its reliability, factorial validity, concurrent validity, and measurement invariance across gender and ethnicity among Malaysian university students. A total of 690 students participated (mean age = 21.29 years [SD ± 2.42]; 74% female). Confirmatory factor analysis supported a unidimensional YAS structure with good fit (CFI = 0.98, TLI = 0.97, SRMR = 0.06, RMSEA = 0.07). The scale exhibited strong reliability (α = 0.83, ω = 0.84) and measurement invariance across gender and ethnicity. YAS scores showed correlation with Smartphone Application-Based Addiction Scale score ($r = 0.17$, $p < 0.001$) and Bergen Social Media Addiction Scale score ($r = 0.23$, $p < 0.001$), a weak correlation with time spent on social media ($r = 0.09$, $p = 0.02$), and no significant relationship with time spent on online gaming ($r = 0.03$, $p = 0.47$). The Malay YAS is a reliable and valid instrument for assessing YouTube addiction among Malaysian university students. Its unidimensional structure, strong reliability, robust measurement invariance across gender and ethnicity, and satisfactory concurrent validity support its application in research, screening, and intervention programs.

Keywords: Concurrent validity, confirmatory factor analysis, measurement invariance, psychometrics, YouTube Addiction Scale

Psychometric Properties and Measurement Invariance of the Malay Version of the YouTube Addiction Scale among University Students

Introduction

As of July 2025, there were 5.41 billion social media users worldwide, representing 65.7% of the global population (Datareportal, 2025). Social media has become deeply integrated into daily life, with users engaging with an average of 6.84 platforms each month and spending nearly 19 hours per week consuming digital content (Datareportal, 2025). While social media offers opportunities for communication, entertainment, learning, and information sharing, its highly interactive design and persuasive technological features have raised concerns about problematic use. Problematic social media use, sometimes conceptualized in its most extreme forms as 'social media addiction', is characterized by excessive, compulsive, and disruptive engagement that interferes with daily functioning (Ruckwongpatr et al., 2022). Such problematic involvement has been associated with impaired academic performance, reduced social interaction, and increased psychological distress, including symptoms of depression, anxiety, and stress (Chen et al., 2025; Dinç et al., 2025; Mitropoulou, 2024; Müller et al., 2022; Munira & Herman, 2025; Wolgast et al., 2025).

Problematic use can occur on any type of social media, including video-sharing, image-based, messaging, and microblogging platforms. Among these, YouTube represents a unique form of social media due to its user-generated video content, recommendation algorithms, and hybrid functions encompassing entertainment, learning, information seeking, and social engagement (Balakrishnan & Griffiths, 2017; Fedele et al., 2021; Khan, 2017). While these features enhance user engagement, they may also increase the risk of problematic or potentially addictive use. Consistent with the components model of addiction (Griffiths, 2005), problematic YouTube use involves core features such as salience, mood modification,

tolerance, withdrawal, conflict, and relapse (Pakpour et al., 2025). Empirical studies have shown that excessive YouTube consumption is associated with reduced academic productivity, sleep disturbance, decreased physical activity, and poorer psychological well-being (Kwok et al., 2021; Mahendran et al., 2025).

Given these potential harms, there is a need for valid and culturally appropriate tools to assess problematic YouTube use. The YouTube Addiction Scale (YAS) was developed specifically for this purpose, based on the components model of addiction (Griffiths, 2005). Initial validation in Iranian samples supported a strong unidimensional structure, robust internal consistency, and satisfactory factorial and concurrent validity, with no evidence of differential item functioning (Pakpour et al., 2025). Since then, the YAS has been translated and validated in several countries, including Türkiye, Indonesia, Taiwan, and Hong Kong, and an adapted version (the Video Clip Addiction Scale [VCAS]) has been developed for populations in mainland China where YouTube is inaccessible. These studies consistently report sound psychometric properties, including good reliability and factorial validity among young adults (Dinç et al., 2025; Huang et al., 2025; Ruckwongpatr et al., 2025). Furthermore, YAS scores have been shown to correlate with indicators of psychological distress (e.g., depression, anxiety, and stress), reinforcing the utility of the scale in identifying problematic YouTube use across diverse cultural contexts (Dinç et al., 2025; Pakpour et al., 2025).

However, despite its growing international use, the YAS has not yet been psychometrically tested in Malaysia. This gap is noteworthy given Malaysia's unique sociocultural landscape, characterized by pronounced ethnic, linguistic, and cultural diversity, particularly among Malay and Chinese populations. Unlike many countries where previous YAS validations were conducted, Malaysia represents a multilingual and multicultural society in which cultural norms, media consumption practices, and interpretations of behavioral

symptoms may differ substantially across groups. These contextual factors may influence how problematic YouTube use is experienced, expressed, and reported, underscoring the importance of local validation rather than assuming cross-cultural equivalence.

YouTube is widely used in Malaysia, with 25.1 million users in early 2025, representing 70.2% of the total population and 71.8% of the country's internet users, highlighting its central role in the daily life of Malaysian youth and young adults (Datareportal, 2025). Prior local studies indicate that YouTube plays a prominent role in higher education, entertainment, language learning, health communication, and consumer behavior, with a substantial proportion of users exhibiting potentially addictive patterns of engagement (Jaffery et al., 2020; Moghavvemi et al., 2017; Mohamad Yusof et al., 2023). However, the lack of a validated Malay-language instrument has limited systematic assessment and comparison across subgroups within Malaysia.

Importantly, while previous YAS studies have demonstrated sound psychometric properties across different countries, few have explicitly examined measurement equivalence across demographic subgroups within a single multicultural society. Establishing measurement invariance across gender and major ethnic groups in Malaysia is critical to ensure that observed differences in problematic YouTube use reflect actual behavioral variation rather than measurement bias. From a theoretical perspective, gender differences in media use patterns, motivations, and psychological correlates have been consistently reported (Reich, 2021), with males and females differing in content preferences, time spent on digital platforms, and susceptibility to specific addictive components (Varchetta et al., 2024). Conversely, some studies suggest that the underlying addictive processes may be comparable across genders despite differences in use patterns (Ellithorpe et al., 2023; Mari et al., 2023). Therefore, testing gender-based measurement invariance is essential to determine whether the

YAS assesses the same latent construct equivalently for male and female students. By addressing this gap, the present study extends existing validation work by evaluating not only the reliability and factorial validity of the Malay YAS but also its cross-group comparability within a culturally diverse population.

Additionally, establishing concurrent validity is a critical component of scale validation, as problematic YouTube use is theoretically embedded within a broader pattern of maladaptive digital media engagement. Prior research has consistently demonstrated strong associations between problematic video-streaming behaviors and related constructs such as smartphone addiction and social media addiction, reflecting shared underlying mechanisms including compulsive use, loss of control, and mood regulation through digital media (Marino et al., 2021). Moreover, excessive time spent on online gaming and social media has been associated with similar behavioral addiction components, such as salience, tolerance, and functional impairment (Zendle, 2020). Therefore, smartphone addiction, social media addiction, and self-reported daily time spent online gaming and using social media were selected as theoretically and empirically relevant criteria to evaluate the concurrent validity of the YAS.

Therefore, the present study aimed to translate and culturally adapt the YAS into Malay and to evaluate its psychometric properties among Malaysian university students. Specifically, the study assessed factorial validity using confirmatory factor analysis (CFA), internal consistency using Cronbach's alpha (α) and McDonald's omega (ω), measurement invariance across gender (male vs. female) and ethnicity (Malay vs. Chinese), and concurrent validity with related constructs, including smartphone addiction, social media addiction, and self-reported daily time spent online gaming and using social media.

Methods

Study Design, Participants, Setting, and Ethical Considerations

A cross-sectional survey study was conducted among university students in Malaysia between March and August 2024. Participants were recruited through convenience and snowball sampling methods, using an online survey hosted on Google Forms. The survey link was distributed via email and WhatsApp. To be eligible, participants were required to: (i) be Malaysian citizens, (ii) be 19 years of age or older, which aligns with the typical age of full-time undergraduate students in Malaysia and ensures that participants are legal adults capable of providing informed consent, (iii) be currently enrolled in a Malaysian university, (iv) have internet access, and (v) be able to read and understand Malay. Individuals with self-reported cognitive impairments that could interfere with completing the survey were excluded.

The first page of the online survey included a detailed participant information sheet and an informed consent form. Students who agreed to participate provided consent by clicking the *"I agree to participate in the study"* button, which granted access to the full survey. Participation was entirely voluntary, and all individuals were informed of their right to withdraw at any point without any consequences. To encourage participation, those who completed the survey were provided with a modest remuneration of RM15 (approximately USD 3.18).

The present study adhered to the ethical principles outlined in the Declaration of Helsinki, and ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects of Universiti Putra Malaysia (JKEUPM; reference number: JKEUPM-2023-1324). To ensure confidentiality and protect participants' privacy, several measures were implemented: (i) no personally identifiable information (e.g., name, student

ID, email) was collected, (ii) survey responses were stored on a secure, password-protected *Google Forms* account accessible only to the research team, (iii) data were anonymized before analysis, and individual responses could not be traced back to any participant, and (iv) all data were reported in aggregate form.

Measures

YouTube Addiction Scale (YAS)

Problematic YouTube use was assessed using the YAS, a six-item instrument originally developed in Iran (Pakpour et al., 2025). The YAS was based on the components model of behavioral addiction proposed by Griffiths (2005), which conceptualizes addiction through six core components: salience, mood modification, tolerance, withdrawal, conflict, and relapse. The YAS consists of six items (e.g., *"Do you think that watching YouTube videos has overtaken your daily life activities?"*), each rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*), yielding a total score between 6 and 30, with higher scores indicating more severe patterns of use. Previous studies have consistently supported its unidimensional structure, good internal consistency (Cronbach's $\alpha = 0.74–0.91$; McDonald's $\omega = 0.76–0.84$), satisfactory item properties, and concurrent validity with other addiction-related measures, such as the Bergen Social Media Addiction Scale (BSMAS) and the Smartphone Application-Based Addiction Scale (SABAS) (Dinç et al., 2025; Pakpour et al., 2025). Measurement invariance across gender has also been demonstrated, confirming its applicability among diverse young adult populations (Pakpour et al., 2025). Details of the Malay version are provided in Supplementary S1.

Smartphone Application-Based Addiction Scale (SABAS)

The SABAS (Csibi et al., 2018) was used to assess smartphone application-based addiction. The SABAS is a unidimensional scale consisting of six items (e.g., *"My*

smartphone is the most important thing in my life") rated on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), with higher scores indicating greater severity of smartphone addiction. The scale has demonstrated robust psychometric properties across multiple adolescent populations, including good internal consistency (Cronbach's α = 0.89) (Soraci et al., 2021), unidimensional factor structure, concurrent validity with daily smartphone use, mental health indicators, and quality of life (Peng et al., 2023; Song & Zhao, 2025; Vujić et al., 2024), as well as measurement invariance across time (Chen et al., 2020). These findings support SABAS as a reliable and valid tool for screening the risk of problematic smartphone use among young adult populations. In the present study, the internal consistency of the SABAS was very good (Cronbach's α = 0.873).

Bergen Social Media Addiction Scale (BSMAS)

The BSMAS (Andreassen et al., 2016) was used to assess problematic social media use. It comprises six items (e.g., *"How often during the last year have you used social media to forget about personal problems?"*) rated on a five-point Likert scale ranging from 1 (*very rarely*) to 5 (*very often*), producing a total score between 6 and 30, with higher scores indicating greater addiction severity. The BSMAS has been validated across different cultural contexts, supporting a unidimensional factor structure (Shin, 2022; Yue et al., 2022). It has demonstrated strong psychometric properties, including good internal consistency (α = 0.86) and acceptable test–retest reliability over three weeks (r = 0.75) (Shin, 2022). Moreover, the scale demonstrates measurement invariance across genders (Yue et al., 2022) and time (Chen et al., 2020), indicating its robustness. A recent meta-analysis further confirmed the unidimensional structure and strong psychometric properties of the BSMAS, reporting a pooled Cronbach's alpha of 0.83 and supporting its construct validity through consistent associations with anxiety, depression, stress, and internet gaming disorder (Bottaro et al.,

2025). In the present study, the BSMAS demonstrated good internal consistency (Cronbach's $\alpha = 0.865$).

Sociodemographic Characteristics and Self-Reported Screen Time

Sociodemographic characteristics were assessed using a questionnaire that included age, gender, ethnicity, study program, type of university, year of study, type of living arrangement, marital status, and household income. Additionally, participants self-reported their daily screen time, including the average number of hours spent on online gaming and using social media.

Translation and Validation Process

The YAS was translated into Malay language, which is the national language of Malaysia. The translation employed a rigorous, multistage procedure consistent with established international guidelines for cross-cultural scale adaptation (Beaton et al., 2000; Borsa et al., 2012; Phongphanngam & Lach, 2019). This process comprised several key steps: initial forward translation, reconciliation of translations, back translation, and a comprehensive final review to ensure semantic and conceptual equivalence with the original instrument.

Initially, two independent translators separately translated the YAS from English to Malay. These two forward translations were then reviewed and reconciled through discussion with the second author to produce a consensus Malay version. Subsequently, this initial Malay version was back-translated into English by the other two translators who had not seen the original YAS. An expert panel comprising psychologists, psychometricians, language experts, and researchers familiar with behavioral addictions reviewed the original English YAS, the two forward-translated Malay versions, the reconciled Malay version, and the two back-translated English versions. The panel evaluated semantic equivalence, cultural

relevance, and conceptual clarity. No major difficulties were encountered during the translation process because the items were generally clear and straightforward. Minor modifications were made to ensure that the language was culturally appropriate and easily comprehensible within the Malaysian context. A prefinal Malay version of the YAS was then developed and pilot-tested with a sample of university students, who confirmed that the scale was clear, readable, and culturally relevant. This finalized Malay YAS was suitable for subsequent psychometric validation.

Data Analysis

Descriptive statistics were used to summarize the data, with categorical variables expressed as percentages and continuous variables presented as means and standard deviations (SDs). Item–total correlations were calculated to evaluate the contribution of each item to the overall scale, with values ≥ 0.30 regarded as satisfactory (Gerbing & Anderson, 1988). Factor loadings were reported to examine the strength of association between items and the latent construct, with values ≥ 0.50 considered acceptable (Kim et al., 2016). A confirmatory factor analysis (CFA) with the diagonally weighted least squares (DWLS) estimator was performed to validate the identified factor structure (Byrne, 2010). Model fit was assessed using the following criteria: comparative fit-index (CFI ≥ 0.90), Tucker–Lewis index (TLI ≥ 0.90) (Huang et al., 2017), standardized root mean square residual (SRMR ≤ 0.08), and root mean square error of approximation (RMSEA ≤ 0.08) (Byrne, 2013). The internal consistency of YAS was assessed using Cronbach's α and McDonald's ω coefficients, with a minimum acceptable threshold of 0.70, while a value above 0.80 was considered indicative of good internal consistency (Pallant, 2020). Concurrent validity was evaluated using Pearson's correlation coefficients between YAS scores and related constructs, including the SABAS, BSMAS, as well as daily time spent online gaming and using social media.

Measurement invariance testing across gender (male vs. female) and ethnicity (Malay vs. Chinese) was conducted using multi-group CFA to examine three nested models containing a sequence of increasingly restrictive models: configural (M1; no constraints), metric (M2; with factor loadings constrained), and scalar invariance (M3; with factor loadings and item intercept constrained). Differences (Δ) in χ^2, CFI, RMSEA, and SRMR between models were examined to determine invariance, with $\Delta CFI \leq 0.01$, $\Delta RMSEA \leq 0.015$, and $\Delta SRMR \leq 0.01$ indicating invariance (Chen, 2007). Ethnicity-based invariance testing was limited to Malay and Chinese students because these groups represented the largest ethnic subgroups in the sample and provided sufficient sample sizes for reliable multi-group CFA, whereas other ethnic groups were underrepresented. JASP version 0.18.3 was used for all statistical analyses. The significance level was set at $p<0.05$.

Results

Participant Characteristics

Table 1 shows the sociodemographic and screen use characteristics of the participants. A total of 690 participants (mean age = 21.29 years [SD±2.42]) were included in the analysis. Most participants were female (n = 511, 73.95%) and of Chinese ethnicity (n = 378, 54.70%). The majority were undergraduate students (n = 626, 90.59%) and enrolled mainly in public universities (n = 405, 58.61%). More than one-third were first-year students (n = 245, 35.46%), and nearly half reported living off campus (n = 339, 49.06%). Almost all participants were single (n = 685, 99.13%). In terms of screen use characteristics, participants reported spending an average of 1.65 hours per day on online gaming (SD±1.99) and 4.98 hours per day on social media (SD±2.85).

(Insert Table 1)

Item Properties

Table 2 presents the item-level properties of the YAS. Mean item scores ranged from 0.63 to 2.19, reflecting variability in response patterns across items. Factor loadings ranged from 0.59 to 0.84, indicating that all items contributed meaningfully to the underlying construct. Item–total correlations ranged from 0.48 to 0.68, supporting the internal homogeneity of the scale.

(Insert Table 2)

Confirmatory Factor Analysis, Reliability, and Validity

Supplementary S2 summarizes the CFA results and the internal consistency of the YAS. The one-factor model of the YAS showed a good fit to the data (CFI = 0.98; TLI = 0.97; SRMR = 0.06; RMSEA = 0.07). Internal consistency of the YAS is good in both coefficients: Cronbach's $\alpha = 0.83$ and McDonald's $\omega = 0.84$. These findings indicated that the YAS is a reliable and valid instrument for assessing YouTube addiction among university students in Malaysia.

Moreover, the YAS scores were positively correlated with SABAS scores ($r = 0.17$, $p < 0.001$) and BSMAS scores ($r = 0.23$, $p < 0.001$), supporting concurrent validity. The correlation with daily time spent using social media was significant but weak ($r = 0.09$, $p = 0.02$), whereas the correlation between YAS scores and daily time spent online gaming was non-significant ($r = 0.03$, $p = 0.47$), supporting discriminant validity. These results indicated that YAS scores are associated with social media use but not with online gaming, further supporting the scale's validity.

Measurement Invariance

Table 3 presents the measurement invariance results across gender and ethnicity. The configural, metric, and scalar invariance across gender and ethnicity indicated that the factor structure, loadings, and intercepts of the YAS were comparable between males and females, as well as between Malay and Chinese participants. The changes in fit indices across models were within recommended thresholds, supporting the conclusion that the scale functioned equivalently across gender and ethnic groups.

(Insert Table 3)

Discussion

The present study evaluated the psychometric properties of the Malay version of the YAS among Malaysian university students. The findings provided evidence supporting the reliability and validity of the scale for assessing YouTube addiction among this population. More specifically, results supported a unidimensional factor structure, satisfactory internal consistency, partial concurrent validity, and measurement invariance across gender and ethnicity. These findings highlight the utility of the Malay YAS for both research and screening purposes.

Reliability

The YAS demonstrated satisfactory internal consistency, indicating that the items were homogenous and assessed a coherent, underlying construct. High reliability is essential in behavioral addiction research because it ensures that individual differences in scores reflect genuine variations in addictive tendencies rather than measurement error (Rumpf et al., 2019). Reliable assessment tools are also important for identifying individuals at risk and for informing the development of appropriate prevention and intervention strategies (Singh et al.,

2018). Previous studies have likewise reported good internal consistency for the YAS, with Cronbach's α ranging from 0.74 to 0.91 and McDonald's ω ranging from 0.76 to 0.84 (Dinç et al., 2025; Pakpour et al., 2025). These consistent findings across studies strengthen the evidence that the YAS is a reliable tool for assessing addictive YouTube tendencies.

Validity

The CFA supported a unidimensional model, with all items loading on a single latent construct. This result is consistent with the original YAS and prior validation studies conducted in Taiwan, Hong Kong, Indonesia, and Türkiye (Dinç et al., 2025; Huang et al., 2025; Pakpour et al., 2025; Ruckwongpatr et al., 2025). The consistent emergence of a single-factor structure across diverse cultural contexts suggests strong cross-cultural robustness of the YAS. From the perspective of the Interaction of Person-Affect-Cognition-Execution (I-PACE) model of addictive behaviors (Brand et al., 2019), this unidimensional structure may represent the integrated interplay of cognitive preoccupation, affective reinforcement, and diminished self-control that characterize problematic YouTube use.

Measurement invariance testing demonstrated configural, metric, and scalar invariance across gender (male vs. female) and ethnicity (Malay vs. Chinese), indicating that the YAS assessed YouTube addiction equivalently across these groups. This is particularly relevant in a multicultural society such as Malaysia (Ibrahim, 2007), where cultural norms and media consumption patterns may differ. Establishing invariance ensures that observed score differences reflect true variations in addiction severity rather than artifacts of measurement bias (Lubke et al., 2003), therefore enhancing the scale's suitability for equity-focused research and cross-group comparisons.

Partial support for concurrent validity was observed because YAS scores were positively associated with smartphone addiction and social media addiction, although the

correlations were modest. These associations are consistent with theoretical and empirical literature suggesting a conceptual overlap among behavioral addictions, which often share underlying psychological mechanisms and reinforcing design features such as algorithmic recommendations, variable-ratio reinforcement, and social engagement affordances (Ahorsu, 2024; Clark & Zack, 2023; Zhang et al., 2025). Digital platforms such as YouTube exploit these mechanisms and encourage compulsive use, engaging dopaminergic reward systems through unpredictable feedback, goal-gradient effects, and social validation (Clark & Zack, 2023; Eikelboom, 2017; Tan, 2023). Moreover, behavioral and substance addictions share neurobiological mechanisms and treatment responses, particularly during adolescence and young adulthood (Vidal & Sussman, 2023), further supporting the partial conceptual overlap observed in the present findings.

YAS scores showed a weak correlation with daily time spent using social media and no significant association with daily time online gaming. These findings align with prior research suggesting that time spent on a platform is not a direct or sufficient indicator of addiction. A previous study showed that users' perceptions of a platform significantly moderated the relationship between time spent and well-being, with adverse outcomes occurring primarily when users perceived the experience negatively (Ernala et al., 2022). Similarly, daily smartphone use time has also been shown to be a poor predictor of addiction, highlighting the need to distinguish usage types and examine underlying motivations (Nadolu & Nadolu, 2020). Screen time has been criticized as an inadequate criterion for videogame addiction diagnosis, with physiological measures and contextualized understanding recommended instead (Jhee et al., 2019).

These insights reinforce the notion that problematic use is better defined by psychological dependence, loss of control, and functional impairment rather than by mere

frequency or duration of use. YAS developed according to the addiction components model (Griffiths, 2005), is characterized not by use duration alone, but by features such as salience, mood modification, tolerance, withdrawal, conflict, and relapse (Pakpour et al., 2025). The I-PACE model similarly posits that addictive behaviors arise from interactions between personal predispositions (e.g., impulsivity), affective and cognitive responses (e.g., craving, attentional bias), and executive control deficits (Brand et al., 2019). These mechanisms are not necessarily reflected in raw time spent engaging in an activity. Therefore, the weaker association with social media duration underscores an important distinction between quantity of use and quality of engagement. While heavy use may occur without pathological features, addiction involves the compulsive and dysfunctional nature of engagement. These results suggest that the Malay YAS effectively captures the psychological and behavioral mechanisms of problematic YouTube use rather than merely recording screen exposure.

Limitations and Implications

Several limitations should be acknowledged. The cross-sectional design precluded assessment of test–retest reliability and limited the ability to infer causal or temporal relationships. Reliance on self-report measures may introduce recall bias or social desirability bias, potentially affecting the accuracy of responses. Additionally, the study sample comprised exclusively university students (and predominantly female), limiting the generalizability of the findings to other demographic groups, such as adolescents, working adults, or older adults. Moreover, although Malaysia is a multiethnic society, measurement invariance was examined only across Malay and Chinese ethnic groups because other ethnic groups were underrepresented in the sample, precluding reliable multi-group analyses. Therefore, the equivalence of the YAS across all Malaysian ethnic groups could not be fully

established and should be addressed in future studies with more diverse and balanced ethnic samples.

Despite these limitations, the validated Malay YAS offers a psychometrically sound tool for identifying Malaysian university students at risk of problematic YouTube use. This enables early detection and intervention, which is particularly important given the potential academic, psychological, and social consequences of excessive engagement with online platforms. The demonstrated measurement invariance across gender and the two major ethnic groups supports the use of the Malay YAS in diverse university settings in Malaysia. Institutions can use the Malay YAS to examine subgroup differences and design culturally sensitive interventions without undue concern for measurement bias. Moreover, the YAS serves as a valuable tool in counselling centers, mental health screenings, and digital well-being programs, where accurate and comprehensive assessment of problematic media use is essential. Given the increasing prevalence of digital media use, the YAS may also inform institutional policies and awareness programs that promote healthy and balanced engagement with platforms such as YouTube.

Conclusion

The Malay version of the YAS provides a reliable and valid measure of YouTube addiction among university students, with a unidimensional structure, strong internal consistency, and measurement invariance across gender and ethnicity. Beyond its psychometric strengths, the scale is valuable for identifying students at risk of problematic YouTube use and guiding early interventions. By capturing the psychological and behavioral dimensions of addiction rather than usage time alone, the YAS can support both research and targeted programs aimed at mitigating the negative consequences of excessive YouTube engagement among university populations.

References

Ahorsu, D. K. (2024). Pathways to social media addiction: Examining its prevalence, and predictive factors among Ghanaian youths. *Journal of Social Media Research*, *1*(1), 47-59. https://doi.org/10.29329/jsomer.9

Andreassen, C., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252-262. https://doi.org/10.1037/adb0000160

Balakrishnan, J., & Griffiths, M. D. (2017). Social media addiction: What is the role of content in YouTube? *Journal of Behavioral Addictions*, *6*(3), 364-377. https://doi.org/10.1556/2006.6.2017.058

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, *25*(24), 3186-3191. https://doi.org/10.1097/00007632-200012150-00014

Borsa, J. C., Damásio, B. F., & Bandeira, D. R. (2012). Cross-cultural adaptation and validation of psychological instruments: Some considerations. *Paidéia (Ribeirão Preto)*, *22*, 423-432. https://doi.org/10.1590/S0103-863X2012000300014

Bottaro, R., Griffiths, M. D., & Faraci, P. (2025). Meta-analysis of reliability and validity of the Bergen Social Media Addiction Scale (BSMAS). *International Journal of Mental Health and Addiction*, 1-28. https://doi.org/10.1007/s11469-025-01461-x

Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2019). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors.

Neuroscience & Biobehavioral Reviews, *104*, 1-10. https://doi.org/10.1016/j.neubiorev.2019.06.032

Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd ed.) Routledge.

Byrne, B. M. (2013). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. Routledge.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464-504. https://doi.org/10.1080/10705510701301834

Chen, I. H., Strong, C., Lin, Y. C., Tsai, M. C., Leung, H., Lin, C. Y., Pakpour, A. H., & Griffiths, M. D. (2020). Time invariance of three ultra-brief internet-related instruments: Smartphone Application-Based Addiction Scale (SABAS), Bergen Social Media Addiction Scale (BSMAS), and the nine-item Internet Gaming Disorder Scale-Short Form (IGDS-SF9) (Study Part B). *Addictive Behaviors*, *101*, 105960. https://doi.org/10.1016/j.addbeh.2019.04.018

Chen, Y.-C., Chen, P.-Y., Chiang, C.-M., Sung, P.-C., Chen, P.-Y., Hsieh, J.-H., Tsai, W.-C., Ho, C.-H., Chow, J. C., & Chang, T.-H. (2025). Adolescent and Young Adult Suicide and Self-harm: Exploring Changes in Risk Factors from 2016 to 2023. *Asian Journal of Social Health Behavior*, *8*(3), 133-140. https://doi.org/10.4103/shb.shb_368_24

Clark, L., & Zack, M. (2023). Engineered highs: Reward variability and frequency as potential prerequisites of behavioural addiction. *Addictive Behaviors*, *140*, 107626. https://doi.org/10.1016/j.addbeh.2023.107626

Csibi, S., Griffiths, M. D., Cook, B., Demetrovics, Z., & Szabo, A. (2018). The psychometric properties of the Smartphone Application-Based Addiction Scale (SABAS).

International Journal of Mental Health and Addiction, *16*(2), 393-403. https://doi.org/10.1007/s11469-017-9787-2

Datareportal (2025). Global social media statistics. Retrieved December 23, 2025, from*:* https://datareportal.com/social-media-users

Dinç, E., Ruckwongpatr, K., Karaduman, A., Chen, I.-H., Karaduman, A., & Wang, X. L. (2025). YouTube Addiction Scale (YAS): Adaptation to Turkish culture, validity and reliability study. *Jouranl of Social Media Research*, *2*(1), 13-23. https://doi.org/10.29329/jsomer.20

Eikelboom, R. (2017). *Irresistible: The rise of addictive technology and the business of keeping us hooked*. Perspectives on Science and Christian Faith, 69(4), 253-256.

Ellithorpe, M. E., Tham, S. M., & Meshi, D. (2023). Problematic media use: Comparisons by media type and with other addictive behavior and substance use domains. *Technology, Mind, and Behavior, 4*(4), 335-351. https://doi.org/10.1037/tmb0000116

Ernala, S. K., Burke, M., Leavitt, A., & Ellison, N. B. (2022). Mindsets matter: How beliefs about Facebook moderate the association between time spent and well-being. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*

Fedele, M., Aran-Ramspott, S., & Suau, J. (2021). YouTube preferences and practices of preadolescents: Findings from a study carried out in Catalonia. *Comunicación y Sociedad, 39*, 145-166. https://doi.org/10.17231/comsoc.39(2021).2714

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research*, *25*(2), 186-192. https://doi.org/10.2307/3172650

Griffiths, M. (2005). A ‘components’ model of addiction within a biopsychosocial framework. *Journal of Substance Use*, *10*(4), 191-197. https://doi.org/10.1080/14659890500114359

Huang, P. C., Chen, C. Y., Chen, I. H., Chen, J. K., Pramukti, I., Yu, R. L., Chen, J. S., Huang, C. H., Wan, X. L., Pakpour, A. H., Potenza, M. N., & Lin, C. Y. (2025). Psychometric properties and measurement invariance of video addiction scales: The Chinese YouTube Addiction Scale for Taiwan and Hong Kong. *Cyberpsychology, Behavior, and Social Networjing, 28*(10), 672-679. https://doi.org/10.1177/21522715251378312

Huang, P. H., Chen, H., & Weng, L. J. (2017). A penalized likelihood method for structural equation modeling. *Psychometrika*, *82*(2), 329-354. https://doi.org/10.1007/s11336-017-9566-9

Ibrahim, R. (2007). Multiculturalism and education in Malaysia. *Culture and Religion*, *8*(2), 155-167. https://doi.org/10.1080/14755610701424024

Jaffery, N. S. N., Annuar, S. S., & Raj, J. A. T. (2020). The influence of YouTube advertising on the attitude towards fruits and vegetable consumption among university students in Malaysia. *Jurnal Komunikasi*, *36*(3), 353-372. https://doi.org/10.17576/JKMJC-2020-3603-22

Jhee, J. H., Lye, Q. T., & Woo, K. (2019). Not yet game over: A reappraisal of video game addiction. *Loading*, *12*(19). https://doi.org/10.7202/1058317ar

Khan, M. L. (2017). Social media engagement: What motivates user participation and consumption on YouTube? *Computers in Human Behavior*, *66*, 236-247. https://doi.org/10.1016/j.chb.2016.09.024

Kim, E. S., Dedrick, R. F., Cao, C., & Ferron, J. M. (2016). Multilevel factor analysis: Reporting guidelines and a review of reporting practices. *Multivariate Behavioral Research*, *51*(6), 881-898. https://doi.org/10.1080/00273171.2016.1228042

Kwok, C., Leung, P. Y., Poon, K. Y., & Fung, X. C. C. (2021). The effects of internet gaming and social media use on physical activity, sleep, quality of life, and academic

performance among university students in Hong Kong: A preliminary study. *Asian Journal of Social Health and Behavior*, *4*(1). https://doi.org/10.4103/shb.shb_81_20

Lubke, G. H., Dolan, C. V., Kelderman, H., & Mellenbergh, G. J. (2003). Weak measurement invariance with respect to unmeasured variables: An implication of strict factorial invariance. *British Journal of Mathematical and Statistical Psychology*, *56*(2), 231-248. https://doi.org/10.1348/000711003770480020

Mahendran, R., Subramoniam, A., & Subbaraj, A. (2025). Addiction-like behavior associated with YouTube among adolescent boys and girls in South India. *Journal of the Scientific Society, 52*(2), 163-167. https://doi.org/10.4103/jss.jss_287_24

Mari, E., Biondi, S., Varchetta, M., Cricenti, C., Fraschetti, A., Pizzo, A., Barchielli, B., Roma, P., Vilar, M. M. i., Sala, F. G., Giannini, A. M., & Quaglieri, A. (2023). Gender differences in internet addiction: A study on variables related to its possible development. *Computers in Human Behavior Reports, 9*, 100247. https://doi.org/10.1016/j.chbr.2022.100247

Marino, C., Canale, N., Melodia, F., Spada, M. M., & Vieno, A. (2021). The overlap between problematic smartphone use and problematic social media use: A systematic review. *Current Addiction Reports*, *8*(4), 469-480. https://doi.org/10.1007/s40429-021-00398-0

Mitropoulou, E. (2024). Exploration of the association between social media addiction, self-esteem, self-compassion and loneliness. *Journal of Social Media Research*, *1*(1), 25-37. https://doi.org/10.29329/jsomer.2

Moghavvemi, S., Sulaiman, A. B., Jaafar, N. I. B., & Kasem, N. (2017). Facebook and YouTube addiction: The usage pattern of Malaysian students. In *2017 International Conference on Research and Innovation in Information Systems (ICRIIS)*

Mohamad Yusof, N., Tani Benet, B., & Jamioon, J. A. K. (2023). The use of YouTube in developing speaking skills among undergraduates in Malaysia. *International Journal of Modern Language and Applied Linguistics*, *7*(3), 1-14. https://doi.org/10.24191/ijmal.v7i3.7471

Müller, S. M., Wegmann, E., Oelker, A., Stark, R., Müller, A., Montag, C., Wölfling, K., Rumpf, H. J., & Brand, M. (2022). Assessment of Criteria for Specific Internet-use Disorders (ACSID-11): Introduction of a new screening instrument capturing ICD-11 criteria for gaming disorder and other potential Internet-use disorders. *Journal of Behavioral Addictions*, *11*(2), 427-450. https://doi.org/10.1556/2006.2022.00013

Munira, L., & Herman, B. (2025). Factors associated with loneliness among adolescents in Thailand, Indonesia, Brunei Darussalam, and the Philippines. *Asian Journal of Social Health and Behavior*, *8*(3), 152-159. https://doi.org/10.4103/shb.shb_370_24

Nadolu, B., & Nadolu, D. (2020). Homo interneticus—The sociological reality of mobile online being. *Sustainability*, *12*(5), 1800. https://doi.org/10.3390/su12051800

Pakpour, A. H., Jafari, E., Zanjanchi, F., Potenza, M. N., & Lin, C.-Y. (2025). The YouTube Addiction Scale: Psychometric evidence for a new instrument developed based on the component model of addiction. *International Journal of Mental Health and Addiction*, *23*(3), 2052-2069. https://doi.org/10.1007/s11469-023-01216-6

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.

Peng, P., Chen, Z., Ren, S., Liu, Y., He, R., Liang, Y., Tan, Y., Tang, J., Chen, X., & Liao, Y. (2023). Determination of the cutoff point for Smartphone Application-Based Addiction Scale for adolescents: A latent profile analysis. *BMC Psychiatry*, *23*(1), 675. https://doi.org/10.1186/s12888-023-05170-4

Phongphanngam, S., & Lach, H. W. (2019). Cross-cultural instrument translation and adaptation: Challenges and strategies. *Pacific Rim International Journal of Nursing Research*, *23*(2), 170-179.

Reich, S. (2021). A systematic gender perspective on entertainment theory. *The Oxford Handbook of Entertainment Theory*. https://doi.org/10.1093/oxfordhb/9780190072216.013.6

Ruckwongpatr, K., Chirawat, P., Ghavifekr, S., Gan, W. Y., Tung, S. E., Nurmala, I., Nadhiroh, S. R., Pramukti, I., & Lin, C.-Y. (2022). Problematic internet use (PIU) in youth: A brief literature review of selected topics. *Current Opinion in Behavioral Sciences*, *46*, 101150. https://doi.org/10.1016/j.cobeha.2022.101150

Ruckwongpatr, K., Nurmala, I., Muthmainnah, M., Salim, L. A., Nadia, A., Devi, Y. P., Hsieh, G. J., Lin, Y. C., Pramukti, I., Chen, C. Y., Pakpour, A. H., Griffiths, M. D., & Lin, C. Y. (2025). Indonesian validation of the YouTube Addiction Scale among young adults. *Psychiatry Investigation, 22*(10), 1121-1130. https://doi.org/10.30773/pi.2025.0081

Rumpf, H.-J., Brandt, D., Demetrovics, Z., Billieux, J., Carragher, N., Brand, M., Bowden-Jones, H., Rahimi-Movaghar, A., Assanangkornchai, S., & Glavak-Tkalic, R. (2019). Epidemiological challenges in the study of behavioral addictions: A call for high standard methodologies. *Current Addiction Reports*, *6*(3), 331-337. https://doi.org/10.1007/s40429-019-00262-2

Shin, N. Y. (2022). Psychometric properties of the Bergen Social Media Addiction Scale in Korean young adults. *Psychiatry Investigation*, *19*(5), 356-361. https://doi.org/10.30773/pi.2021.0294

Singh, J. P., Kroner, D. G., Wormith, J. S., Desmarais, S. L., & Hamilton, Z. (2018). *Handbook of recidivism risk/needs assessment tools*. John Wiley & Sons.

Song, T. J., & Zhao, H. (2025). Psychometric properties and measurement invariance across gender of the Chinese version of the Smartphone Application-Based Addiction Scale (SABAS) among Chinese college students. *PLoS One*, *20*(5), e0323215. https://doi.org/10.1371/journal.pone.0323215

Soraci, P., Ferrari, A., Antonino, U., & Griffiths, M. D. (2021). Psychometric properties of the Italian version of the Smartphone Application-Based Addiction Scale (SABAS). *International Journal of Mental Health and Addiction*, *19*(4), 1261-1273. https://doi.org/10.1007/s11469-020-00222-2

Tan, C. N.-L. (2023). Toward an integrated framework for examining the addictive use of smartphones among young adults. *Asian Journal of Social Health and Behavior*, *6*(3), 119-125. https://doi.org/10.4103/shb.shb_206_23

Varchetta, M., Tagliaferri, G., Mari, E., Quaglieri, A., Cricenti, C., Giannini, A. M., & Martí-Vilar, M. (2024). Exploring gender differences in internet addiction and psychological factors: A study in a Spanish sample. *Brain Sciences*, *14*(10), 1037. https://doi.org/10.3390/brainsci14101037

Vidal, C., & Sussman, C. (2023). Overlap between behavioral addictions and substance use and potential interventions in pediatric populations. *Journal of the American Academy of Child and Adolescent Psychiatry*, *62*(10), S94-S95. https://doi.org/10.1016/j.jaac.2023.07.443

Vujić, A., Volarov, M., Latas, M., Griffiths, M. D., & Szabo, A. (2024). Psychometric properties of the Serbian Smartphone Application-Based Addiction Scale (SABAS) and validation of the English Version among non-native English speakers. *International Journal of Mental Health and Addiction*, *22*(5), 2682-2705. https://doi.org/10.1007/s11469-023-01013-1

Wolgast, M., Adler, H., & Wolgast, S. N. (2025). Motives for social media use in adults: Associations with platform-specific use, psychological distress, and problematic engagement. *Journal of Social Media Research*, *2*(3), 179-194. https://doi.org/10.29329/jsomer.45

Yue, H., Zhang, X., Cheng, X., Liu, B., & Bao, H. (2022). Measurement invariance of the Bergen Social Media Addiction Scale across genders. *Frontiers in Psychology*, *13*, 879259. https://doi.org/10.3389/fpsyg.2022.879259

Zendle, D. (2020). Too much of a good thing? Excessive use across behaviours and associations with mental health. *OSF Preprints.* https://doi.org/10.31234/osf.io/pnx2e

Zhang, J., Zhang, E., Cui, S., Zhang, L., Ren, B., Jin, Q., Li, H., Chen, M., Li, R., & Xu, Y. (2025). Association of internet addiction severity with anxiety, depression, and suicidal ideation among civil aircrew members: A nationwide cross-sectional survey. *Asian Journal of Social Health and Behavior*, *8*(3), 116-124. https://doi.org/10.4103/shb.shb_302_24

Table 1

Sociodemographic and Screen Use Characteristics of the Participants (n = 690)

Variable	Mean (SD) or n (%)
Age (in years)	21.29 (2.42)
Sex	
Male	180 (26.05)
Female	511 (73.95)
Ethnicity	
Malay	216 (31.26)
Chinese	378 (54.70)
Indian	53 (7.67)
Sabahan	14 (2.03)
Sarawakian	21 (3.04)
Other	9 (1.30)
Study Program	
Undergraduate	626 (90.59)
Postgraduate	65 (9.41)
Type of University	
Public	405 (58.61)
Private	286 (41.39)

Variable	Mean (SD) or n (%)
Year of study	
Year 1	245 (35.46)
Year 2	213 (30.82)
Year 3	154 (22.29)
Year 4	53 (7.67)
Year 5	11 (1.59)
Other	15 (2.17)
Type of Living	
College hostel (on campus)	276 (39.94)
College hostel (outside campus)	76 (11.00)
Outside of campus	339 (49.06)
Marital status	
Single	685 (99.13)
Married	6 (0.87)
Household income	
Less than RM5,250	389 (56.30)
RM5,251 to RM11,819	225 (32.56)
RM11,820 or more	77 (11.14)
Time spent on online gaming (hours per day)	1.65 (1.99)
Time spent on social media (hours per day)	4.98 (2.85)

Table 2

Item-Level Psychometric Properties of the YouTube Addiction Scale (YAS)

Item(s)	Mean (SD)	Factor Loadings	Item-total correlation	Skewness	Kurtosis
YAS1	1.76 (1.08)	0.81	0.66	0.23	-0.44
YAS2	2.07 (1.03)	0.76	0.65	0.12	-0.63
YAS3	2.19 (1.14)	0.60	0.48	-0.10	-0.77
YAS4	1.41 (1.12)	0.84	0.68	0.42	-0.55
YAS5	1.01 (1.08)	0.71	0.61	0.92	0.11
YAS6	0.63 (0.97)	0.59	0.56	1.56	1.83

Note. YAS = YouTube Addiction Scale.

Table 3

Measurement Invariance of the YAS Across Gender (N=690) and Ethnicity (n=594)

	M1 (df = 18)	M2 (df = 23)	M3 (df = 28)	M2-M1 (Δdf = 5)	M3-M2 (Δdf = 5)
	across gender				
χ^2 or $\Delta\chi^2$	47.793	52.047	55.896	4.254	3.849
p-value	＜0.001	＜0.001	＜0.001	0.513	0.571
CFI or ΔCFI	0.983	0.984	0.984	0.001	0
RMSEA or ΔRMSEA	0.069	0.061	0.054	-0.008	-0.007
SRMR or ΔSRMR	0.060	0.063	0.064	0.003	-0.001
	across ethnicity (Malay [n=216] and Chinese [n=378])				
χ^2 or $\Delta\chi^2$	39.726	51.258	60.025	11.532	8.767
p-value	0.002	＜0.001	＜0.001	0.042	0.119
CFI or ΔCFI	0.986	0.981	0.979	-0.005	-0.002
RMSEA or ΔRMSEA	0.064	0.064	0.062	0	-0.002
SRMR or ΔSRMR	0.068	0.075	0.070	0.007	-0.005

Note. CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; M1 = configural model; M2 = metric model; M3 = scalar model.

Supplementary S1

Arahan: Soalan-Soalan ini Berkaitan Dengan Penggunaan YouTube anda Sepanjang Tahun Yang Lalu (Iaitu, 12 Bulan)

	Tidak pernah	**Jarang**	**Kadang kala**	**Kerap**	**Sangat kerap**
1. Adakah anda rasa menonton video YouTube telah mengambil alih aktiviti harian anda?					
2. Berapakah tempoh masa anda luangkan untuk menonton video atau saluran di YouTube yang anda tidak rancang untuk tonton?					
3. Adakah anda menonton video atau saluran di YouTube apabila anda ingin mengurangkan perasaan cemas, kemurungan, tekanan atau rasa bersalah pada diri anda?					
4. Pernahkah anda cuba untuk mengurangkan masa menonton video di YouTube, tetapi anda tidak berjaya?					
5. Adakah anda berasa gelisah atau bimbang jika anda tidak dapat mengakses video YouTube atas sebarang sebab?					
6. Pernahkah anda menghadapi masalah dengan kerja, sekolah, universiti, rakan dan keluarga disebabkan oleh menonton video di YouTube?					

Supplementary S2

Confirmatory Factor Analysis and Internal Consistency of the YouTube Addiction Scale (YAS)

Fit measures	YAS
Cronbach's α	0.83
McDonald's ω	0.84
χ^2(df)	39.14(9)
CFI	0.983
TLI	0.971
SRMR	0.064
RMSEA (90%CI)	0.070 (0.048,0.093)

Note. Estimator used is diagonally weighted least squares.

YAS = YouTube Addiction Scale; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CI = confidence interval.