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## A Gender Differences in Psychosocial of Adolescent Behavioral and Substance Addiction: A Comparative Quantitative Study

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# A Gender Differences in Psychosocial of Adolescent Behavioral and Substance Addiction: A Comparative Quantitative Study

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**Abstract:** Adolescent behavioural and substance-related addictive tendencies have become an increasing concern due to their potential impact on mental well-being and academic performance. However, research on the psychosocial contexts associated with these tendencies has been limited, especially from a gender perspective. This study aimed to investigate gender-related differences in self-reported addiction symptoms and related psychosocial triggers among adolescents. A quantitative comparative design was used, involving 92 high school students in East Java. Data were collected using a self-administered screening questionnaire comprising 12 items across four dimensions: psychological stress, family pressure, social pressure, and social media influence. Descriptive statistics and independent samples t-tests were conducted using SPSS Statistics. Descriptively, participants reported the highest mean media influence scores. Female respondents reported slightly higher mean values on several dimensions; however, no statistically significant gender differences were found in overall addiction symptom scores or across psychosocial trigger dimensions. Effect size estimates indicated small differences between groups. These findings suggest that psychosocial addiction triggers are generally comparable across genders within this sample. The results should be interpreted with caution and are intended to offer descriptive insights rather than causal conclusions. Limitations include reliance on self-reported measures, a modest sample size, and a cross-sectional design. Future research should utilise validated instruments and larger samples to further explore the psychosocial mechanisms underlying adolescent addiction-related behaviours.

**Key Words:** Gender differences, Psychosocial, Behavioural addiction; Substance addiction; Adolescent

## INTRODUCTION

Adolescence is a developmental period characterised by heightened vulnerability to maladaptive and compulsive behaviours, including substance-related use and excessive engagement in certain activities such as digital media consumption (Efrati et al., 2022; Sata, 2024; Singh & Nandy, 2024). Rather than conceptualising these behaviours as clinical disorders, the present study adopts a screening-level and subjective perspective, defining *addiction* as self-reported addiction-related or compulsive tendencies that adolescents perceive as difficult to control and potentially disruptive to daily functioning (Antons et al., 2023; Carens & Adan, 2025; Wang et al., 2024). This approach reflects a growing body

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of research emphasising early risk patterns and psychosocial vulnerability rather than diagnostic classification (Adamopoulos & History, 2025; Hossain & Ara, 2025; Vergunst et al., 2023).

Triggers can emanate from multiple domains: intrapersonal (e.g., psychological stress), familial, peer-related, and digital (Gong et al., 2025; Handayani & Utari, 2024; Jin et al., 2025; Lin et al., 2024, 2025; Nurmala et al., 2021). Crucially, the salience of these triggers may vary by gender due to differential gender socialisation. Social Role Theory (Eagly, 1987) and research on coping suggest that males are often socialised to value agency and external reward, potentially making them more responsive to triggers involving social competition and peer status. In contrast, females are often socialised toward communion and relational maintenance, potentially increasing their sensitivity to triggers involving social rejection, family conflict, and appearance-related social media pressure. This theoretical perspective predicts not just differences in the *level* of triggers but in their *configuration*—the specific combination of factors that most strongly associates with addictive behaviours for each gender.

The study is grounded in the biopsychosocial model, which conceptualises addictive behaviours as the product of dynamic interactions between individual psychological states and social environments (Lang et al., 2025; Yasir et al., 2023; Yourell, 2025). Within this framework, *triggers* are defined as proximal psychosocial stressors or situational pressures that adolescents subjectively experience as precipitating or intensifying maladaptive engagement, rather than as distal or biological causes (Karacan, 2024; Perks et al., 2024; Snyder, 2023). This definition aligns with stress–coping perspectives that emphasise adolescents’ everyday contexts and perceived pressures as key mechanisms shaping behavioural responses (Bondarchuk et al., 2024; Ghasemi et al., 2024; Maqsood et al., 2024).

Although neurodevelopmental models such as the dual systems theory help explain adolescents’ general susceptibility to risk-taking due to maturational imbalances between cognitive control and reward systems, these models offer limited insight into the context-specific psychosocial conditions that activate vulnerability in daily life (Marinelli et al., 2023; Rohrbach & Milam, 2006; Schinke & Schwinn, 2005; Vanhulle, 2023). Consequently, the present study focuses on psychosocial rather than neurobiological mechanisms, positioning neurodevelopmental explanations as background context rather than as the primary analytical framework (Faustino, 2025; Loth, 2023; Micheline et al., 2024).

Prior research indicates that psychosocial triggers of addiction-related behaviours may arise from multiple domains, including psychological stress, family pressure, peer-related social pressure, and digital or social media environments (Burrell, 2025; Nagawa, 2022). These domains have been consistently identified as salient contextual stressors associated with maladaptive coping and compulsive engagement among adolescents (Masters et al., 2023; Onu et al., 2026; Suh et al., 2025). Importantly, these triggers are not assumed to operate independently; instead, they may form configurations or clusters that reflect adolescents’ lived experiences of stress and regulation (Pollmann et al., 2025; Shaw et al., 2024; van Lissa, 2021).

Gender represents a potentially important lens through which these psychosocial configurations can be explored (Atwood et al., 2024; Brannon, 2024; Smith et al., 2022). Drawing on Social Role Theory and research on gendered coping socialisation, adolescents may differ not necessarily in the *intensity* of addiction-related tendencies, but in the patterning of psychosocial stressors to which they are most responsive (Archer, 2022; Yudes et al., 2022). Males are often socialised toward agency, competitiveness, and external reward, which may heighten sensitivity to peer-related and performance-based pressures (Martinez Jr et al., 2025; Xie et al., 2024). Females, in contrast, are more frequently socialised toward relational attunement and emotional responsiveness, potentially increasing sensitivity to interpersonal stressors, family expectations, and appearance-related pressures in digital environments. Importantly, this perspective does not assume inherent or universal gender differences, but rather explores how socially patterned experiences may shape subjective trigger configurations (Martin, 2025; Xie et al., 2024).

In the Indonesian context, existing studies on adolescent addiction-related behaviours, particularly in East Java, have predominantly focused on prevalence rates or symptom descriptions of single behaviours, such as internet gaming or substance experimentation (Shay, 2022; Sugara et al., 2025). While these studies provide valuable descriptive insights, fewer have examined multidimensional psychosocial triggers simultaneously, and gender has often been treated as a demographic variable rather than an analytical lens (Shay, 2022; Sugara et al., 2025). Rather than claiming the absence of prior

research, the present study responds to a relative underrepresentation of integrative, trigger-focused analyses within accessible regional literature (Panigrahi & Sharma, 2024).

Accordingly, this study adopts an exploratory quantitative approach to examine psychosocial triggers of adolescent addiction-related tendencies using a 12-item screening instrument encompassing four theoretically derived dimensions: psychological stress, family pressure, social pressure, and social media influence. The emphasis is not on identifying causal predictors or diagnostic outcomes, but on describing and comparing latent trigger structures across gender groups. Therefore, the study has two primary aims: (1) to explore and compare the underlying factor structure of psychosocial addiction triggers among male and female adolescents in East Java, and (2) to examine descriptive patterns of association between these trigger dimensions and self-reported addiction-related symptoms within each gender group. By positioning the findings as exploratory and descriptive, this study seeks to contribute preliminary empirical insights that may inform future hypothesis-driven research, measurement refinement, and contextual understanding of adolescent psychosocial vulnerability.

## METHOD

This study employed a quantitative comparative design to examine whether self-reported addiction-related symptoms and associated psychosocial trigger dimensions differed descriptively or structurally across gender groups. This design was selected because the research objectives required standardized measurement, group-level comparison of mean scores, and exploration of latent trigger patterns among male and female adolescents (Creswell et al., 2003; Levitt et al., 2018; Weyant, 2022). A quantitative approach enabled the use of inferential statistics and exploratory factor analysis to assess similarities and variations in psychosocial trigger configurations, consistent with the study's exploratory aims rather than causal inference.

### Participants

The participants were 90 high school students recruited from public and private secondary schools in East Java, Indonesia. The sample consisted of 50 male and 40 female students, aged 15–18 years. Participation was voluntary, and all respondents provided informed consent prior to data collection. Inclusion criteria were: (1) current enrollment as a high school student, (2) age between 15 and 18 years, and (3) self-reported experience of behavioural or substance-related compulsive tendencies, as indicated by affirmative responses on the screening questionnaire. Exclusion criteria included: (1) incomplete questionnaire responses and (2) failure to provide informed consent.

### Sampling Procedures

A voluntary, non-probability sampling approach was employed. Participants were recruited via school announcements and classroom coordination. Students were eligible if they (1) were active high school students in East Java and (2) exhibited addiction-related or compulsive behaviors at a screening level, based on their responses to the questionnaire. Notably, the study did not rely on self-diagnosis or clinical addiction assessment. Instead, eligibility was determined by self-reported difficulties in controlling certain behaviors or substance use, reflecting the exploratory and non-diagnostic purpose of the study. This approach was selected to explore adolescents' subjective experiences of psychosocial triggers, while acknowledging the limitations inherent in self-report data.

### Measures

Data were collected using a self-administered structured questionnaire developed by the researchers to assess psychosocial triggers associated with addiction-related or compulsive tendencies among adolescents. The instrument was designed as a screening-level, exploratory measure, rather than a diagnostic or clinically validated tool (Levitt et al., 2018). Item development was guided by the biopsychosocial model and prior empirical studies on adolescent addiction-related behaviours and

psychosocial stressors (Jebb et al., 2021). A review of relevant literature informed the identification of four conceptual domains: psychological stress, family pressure, social pressure, and social media influence, adapted from Geri Miller's addiction assessment framework (Miller, 2015). Each domain was represented by three items, resulting in a total of 12 items. To enhance content clarity and relevance, the initial item pool was reviewed by two academic experts in psychology and counseling, who provided feedback on wording, age appropriateness, and conceptual alignment. Minor revisions were made in response to their suggestions. Due to logistical constraints, a separate pilot study was not conducted prior to the main data collection.

All items were rated on a four-point Likert scale ranging from 1 (*very low influence*) to 5 (*very high influence*). Item scores within each dimension were summed and averaged to produce dimension-level scores, with higher scores indicating greater perceived influence of the corresponding psychosocial trigger. No items were reverse-coded. Internal consistency reliability was assessed using Cronbach's alpha coefficients for each dimension and for the overall scale based on the current sample. The results indicated acceptable internal consistency for exploratory research purposes, as shown in Table 1.

**Table 1.** Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.769	12

The questionnaire was administered in paper format during scheduled school hours. Data was collected with the help of trained research assistants who followed standardised instructions regarding ethical procedures, survey administration, and guidance for participants. Facilitators informed participants that: (1) participation was voluntary, (2) responses were anonymous, and (3) there were no right or wrong answers. Completing the questionnaire took approximately 10–15 minutes. No identifying information was collected to maintain confidentiality.

## Procedures

Data collection occurred from March to June 2025 during school hours at high schools in East Java, Indonesia. Permissions were obtained, and participants were briefed on the study's purpose and voluntary participation. On data collection days, participants gathered in classrooms, receiving a brief from trained assistants who emphasized voluntary participation, confidentiality, no right or wrong answers, and optional withdrawal. Written consent was secured before distributing the paper questionnaires, which were completed independently. Assistants clarified procedures but not content. Completing the survey took 10–15 minutes. No personal identifiers were collected. Questionnaires were sealed and stored securely, used only for research.

## Data Analysis

Data were analysed using IBM SPSS Statistics version 27. Prior to analysis, data were checked for missing values and outliers; no cases were excluded. All variables were considered continuous, consistent with previous research using Likert-type scales in adolescent behavioural studies. Descriptive statistics, including means (M) and standard deviations (SD), were calculated to summarise overall levels of psychosocial addiction triggers and addiction symptom scores across the entire sample. Descriptive analyses were also performed separately for male and female participants to explore gender-specific patterns in central tendency and variability. To investigate gender differences in addiction symptom scores and psychosocial trigger dimensions, independent samples t-tests were conducted comparing male and female participants.

Before performing the t-tests, assumptions of normality were checked using skewness and kurtosis values, while homogeneity of variance was assessed with Levene's test. When the assumption of equal variances was violated, adjusted degrees of freedom were used. In addition to testing statistical significance, effect sizes (Cohen's d) were calculated for all gender comparisons to gauge the size of observed differences. Effect sizes were interpreted based on standard thresholds (small = 0.20, medium = 0.50, large = 0.80). This method was employed to offer a more detailed understanding of gender

differences, especially when statistical significance was not found. All statistical tests were performed using a two-tailed significance level of  $\alpha = .05$ .

## RESULTS

This section presents the study's statistical findings through descriptive and comparative analyses. First, descriptive statistics are reported to summarise overall levels of psychosocial addiction triggers across the total sample. Second, descriptive statistics are presented separately for male and female participants to illustrate gender-specific patterns in the distribution of trigger dimensions. Third, independent samples t-tests are used to examine gender differences in overall addiction symptom scores. Finally, effect size estimates (Cohen's *d*) are reported to quantify the magnitude of observed gender differences, independent of statistical significance.

### Psychosocial Triggers of Addiction

This section presents the descriptive statistics of psychosocial addiction triggers among adolescent participants. Mean scores, standard deviations, and score ranges are reported for each trigger dimension to provide an overview of central tendency and variability across psychological, familial, social, and digital domains. These descriptive results are intended to summarise the distributional characteristics of the data and do not imply causal or inferential relationships.

**Table 1.** Descriptive Statistics of Psychosocial Addiction Triggers

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std.Deviation
Psychological	95	1	5	2.67	.916
Familial	95	1	5	2.61	.776
Social	95	1	5	2.74	.775
Digital	95	1	5	3.00	.799
Valid N (listwise)	95	1	5		

Table 1 displays the descriptive statistics for the four psychosocial trigger dimensions. The mean scores, on a five-point Likert scale, ranged from 2.61 to 3.00. Digital triggers received the highest mean score ( $M = 3.00$ ,  $SD = 0.799$ ), followed by social ( $M = 2.74$ ,  $SD = 0.775$ ), psychological ( $M = 2.67$ ,  $SD = 0.916$ ), and familial triggers ( $M = 2.61$ ,  $SD = 0.776$ ). The standard deviation values suggest moderate variability across the dimensions. These results provide an overview of how psychosocial addiction triggers are distributed within the sample.

### Addiction Triggers by Gender

This section presents descriptive statistics of addiction trigger scores by gender. It includes mean values, standard deviations, and score ranges to highlight differences in central tendency and variability between males and females. These results are for descriptive purposes and provide a preliminary comparison before conducting inferential statistical tests.

**Table 2.** Descriptive Statistics of Addiction Triggers by Gender

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std.Deviation
Man	43	6	17	10.42	2.260
Girls	52	3	16	11.31	2.430
Valid N (listwise)	43				

Table 2 shows the descriptive statistics for overall addiction trigger scores by gender. Male participants ( $n = 43$ ) had a mean score of 10.42 ( $SD = 2.26$ ), whereas female participants ( $n = 52$ ) had a slightly higher mean of 11.31 ( $SD = 2.43$ ). The similar standard deviations suggest comparable

variability among both groups. These figures highlight differences in average scores between males and females but do not imply statistical significance.

### Gender Differences in Addiction Trigger Scores

Gender differences in addiction trigger scores were examined using independent samples *t*-tests. Prior to analysis, the assumption of homogeneity of variances was assessed using Levene's test. Mean differences, *t* values, degrees of freedom, *p* values, and 95% confidence intervals are reported to evaluate whether addiction trigger scores differed significantly between male and female participants.

**Table 3.** Gender Differences in Addiction Triggers Scores

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
Addiction Symptom	Equal Variances Assumed	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
	Equal Variances Assumed	.003	.960	-1.832	93	.070	-.8891	.4853	-1.8528	.0746
	Equal Variances Not Assumed			-1.845	91.684	.068	-.8891	.4820	-1.8463	.0682

Table 3 shows that an independent samples *t*-test was performed to investigate gender differences in overall addiction symptom scores. Levene's test confirmed that the assumption of equal variances was satisfied,  $F = 0.003$ ,  $p = .960$ . The results revealed no statistically significant difference between male and female participants,  $t(93) = -1.83$ ,  $p = .070$ , two-tailed. The mean difference between groups was  $-0.89$  ( $SE = 0.49$ ), with a 95% confidence interval from  $-1.85$  to  $0.07$ . These findings suggest that addiction symptom scores were similar across genders in this sample.

### Gender Differences in Psychosocial Triggers

Gender differences in psychosocial addiction triggers—such as psychological, familial, social, and digital—were analyzed with independent samples *t*-tests. Initially, Levene's test checked the assumption of equal variances. The results include group means, *t*-statistics, degrees of freedom, *p*-values, and 95% confidence intervals to identify any significant differences between males and females on each trigger aspect.

### Gender Differences in Psychological Triggers

**Table 4.** Gender Differences in Psychological Triggers

		Independent Samples Test								
		Lave's Test for Equality of Variances		t-test for Equality of Means						
Psychological Triggers	Equal Variances Assumed	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. Error Difference	95% Confidence Interval Of Difference	
									Lower	Upper
	Equal Variances Assumed	.064	.800	-1.779	92	.078	-.335	.188	-.709	.039
	Equal Variances not Assumed			-1.821	91.011	.072	-.335	.184	-.701	.030

Table 4 presents the results of an independent samples *t*-test examining gender differences in psychological triggers of addiction. Levene's test confirmed that the assumption of equal variances was met ( $F = 0.064$ ,  $p = .800$ ). The analysis revealed no significant difference between males and females,

$t(92) = -1.78, p = .078$ , two-tailed. The mean difference was  $-0.34$  ( $SE = 0.19$ ), with a 95% confidence interval from  $-0.71$  to  $0.04$ . Overall, these results suggest that psychological triggers do not differ significantly by gender in this sample.

## Gender Differences in Family Triggers

**Table 5.** Gender Differences in Familial Triggers

Lavene's Test for Equality of Variances		Independent Samples Test								
		F	Sig.	t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean difference	Std. Error Difference	95% Confidence Interval Of Difference	
									Lower	Upper
Family Triggers	Equal Variances Assumed	.001	.974	-1.256	93	.212	-200	.159	-516	.116
	Equal Variances not Assumed			-1.267	91.923	.209	-200	.158	-513	.114

Table 5 displays the results of an independent samples *t*-test analysing gender differences in familial triggers of addiction. Levene's test confirmed equal variances, with  $F = 0.001$  and  $p = .974$ . The test showed no significant difference between males and females,  $t(93) = -1.26, p = .212$ , two-tailed. The mean difference was  $-0.20$  ( $SE = 0.16$ ), with a 95% confidence interval from  $-0.52$  to  $0.12$ . These findings suggest that familial triggers of addiction did not differ significantly between genders in this sample.

## Gender Differences in Social Triggers

**Table 6.** Gender Differences in Social Triggers

Lavene's Test for Equality of Variances		Independent Samples Test								
		F	Sig.	t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean difference	Std. Error Difference	95% Confidence Interval Of Difference	
									Lower	Upper
Social Triggers	Equal Variances Assumed	.053	.818	-1.523	93	.131	-242	.159	-556	.073
	Equal Variances not Assumed			-1.548	92.964	.125	-242	.156	-551	.068

Table 6 shows that an independent samples *t*-test was conducted to examine gender differences in social triggers of addiction. Levene's test confirmed the assumption of equal variances was met, with  $F = 0.053$  and  $p = .818$ . The analysis found no significant difference between males and females,  $t(93) = -1.52, p = .131$ , two-tailed. The mean difference was  $-0.24$  ( $SE = 0.16$ ), and the 95% confidence interval ranged from  $-0.56$  to  $0.07$ . These findings suggest that social triggers of addiction do not differ significantly between genders in this sample.

## Gender Differences in Digital Triggers

Table 7 presents the results of an independent samples *t*-test examining gender differences in digital triggers of addiction. Levene's test confirmed equal variances,  $F = 1.35, p = .248$ . Assuming equal variances, a significant difference was observed between males and females,  $t(93) = -1.99, p = .049$ , two-tailed, with a mean difference of  $-0.32$  ( $SE = 0.16$ ) and a 95% CI from  $-0.64$  to  $-0.001$ .

Without assuming equal variances, the difference was not significant,  $t(78.57) = -1.95$ ,  $p = .055$ . This indicates that the gender difference in digital triggers is marginal and should be interpreted with caution.

**Table 7.** Gender Differences in Digital Triggers

Lavene's Test for Equality of Variances		Independent Samples Test								
		F	Sig.	t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean difference	Std. Error Difference	95% Confidence Interval Of Difference	
									Lower	Upper
Digital Triggers	Equal Variances Assumed	1.354	.248	-1.995	93	.049	-.321	.161	-.640	-.001
	Equal Variances not Assumed			-1.949	78.565	.055	-.321	.165	-.648	.007

## Effect Size Estimates of Gender Differences

In addition to significance testing, effect size estimates were computed to assess the magnitude of gender differences in addiction trigger scores. Cohen's  $d$  served as the primary measure, providing a standardised metric of group differences that remains unaffected by sample size. This approach allows for a more meaningful interpretation of gender-related differences beyond just statistical significance.

**Table 8.** Effect Size Estimates of Gender Differences

		Independent Samples Test effect Sizes			
		Standardizera	Point Estimate	95 % Confidence Interval Lower	95 % Confidence Interval Upper
Addiction Triggers	Cohen's d	2.3545	-.378	-.784	.031
	Hedges' Correction	2.3737	-.375	-.778	.031
	Class's Delta	2.4297	-.366	-.774	.046

Effect sizes were computed to assess the magnitude of gender differences in overall addiction triggers, as shown in Table 8. The standardized mean difference reflected a small effect size, with Cohen's  $d = -0.38$  (95% CI [-0.78, 0.03]). Similar results were found with Hedges' correction ( $g = -0.38$ ) and Glass's delta ( $\Delta = -0.37$ ), demonstrating consistency among different effect size measures.

The negative effect indicates that female students had slightly higher addiction trigger scores than males. Nonetheless, since all confidence intervals for the effect sizes included zero, the difference observed was small and statistically uncertain. Based on standard benchmarks (small = 0.20, medium = 0.50, large = 0.80), the effect size is considered small. Overall, these results imply that gender differences in addiction triggers are minimal, supporting the view that gender has only a minor influence on addiction trigger scores in this sample.

## DISCUSSION

The present study offers a structured analysis of psychosocial addiction triggers across four dimensions: psychological, familial, social, and digital, within an adolescent sample, with particular focus on gender-based comparisons (Aziz et al., 2024; Bora & Karuç, 2025; Khatun & Azad, 2026; Miller, 2015; Tarimo et al., 2025). Overall, the descriptive statistics reveal moderate levels of exposure to psychosocial triggers across all dimensions, with mean scores near the middle of the Likert scale (Francis et al., 2022; Todd & Mcilroy, 2025; Ulke, 2022). This pattern indicates that addiction-related psychosocial pressures exist in multiple areas of adolescents' lives, rather than being limited to a single psychosocial source (Avcı, 2025; Jin & Jiang, 2025; Najafov, 2025; Paul et al., 2024; Shoa Kazemi et al., 2025). Such multidimensional exposure supports ecological and systems-based models of adolescent

development, which highlight the interaction of individual, familial, social, and digital environments in shaping behavioural outcomes (Shahbazi et al., 2025; Stodden et al., 2023; Wilson et al., 1 C.E.; Yu et al., 2025).

Digital triggers showed the highest average score among the four dimensions (Abdallah et al., 2025; Antonietti et al., 2023; Scott et al., 2024; Zheng et al., 2024). Although this does not suggest causality or superiority, it aligns with broader literature indicating that digital environments form a widespread and structurally embedded part of modern adolescent life (Kaurin et al., 2025; X. Li et al., 2025; Sirin et al., 2024; Su et al., 2025). Digital platforms are marked by constant accessibility, algorithmic reinforcement, and frequent engagement cycles, which may heighten the prominence of digital stimuli compared to offline psychosocial contexts (Kaurin et al., 2025; Madhushani et al., 2025; Yaochen & Van Der Blom, 2025). Crucially, the present findings should be viewed as descriptive patterns rather than causal explanations, as the study design does not allow for causal inference or mediation analysis (Ali et al., 2026; Batista-Foguet et al., 2025; Chen et al., 2025; Sun et al., 2025; Varchetta et al., 2024; Zhang et al., 2022).

Across gender groups, descriptive statistics showed slightly higher mean scores among female participants in overall addiction trigger scores (Bottaro et al., 2024; Jang et al., 2025; Y. Li et al., 2025; Marino et al., 2023; Obara-Golebiowska, 2025). However, inferential testing demonstrated that these differences were not statistically significant. The independent samples t-test revealed no reliable gender differences in overall addiction symptoms, psychological triggers, familial triggers, or social triggers (Agrahara & Nowreen, 2024; Cheng et al., 2022; Ge et al., 2025; Guo et al., 2025; Khan et al., 2024). These results indicate that, within this sample, addiction-related psychosocial pressures are largely similar across genders (Agrahara & Nowreen, 2024; Ge et al., 2025). This pattern supports emerging evidence that gender differences in digital and behavioural addiction are often smaller and less robust than commonly assumed, particularly when controlling for variance and measurement error.

The lack of statistically significant gender differences across most trigger dimensions suggests that psychosocial vulnerability to addictive behaviours may act more as a shared developmental risk factor rather than a gender-specific phenomenon. Contemporary models of adolescent behavioural risk increasingly highlight universal developmental processes such as emotional regulation, stress exposure, and cognitive control development over binary gender distinctions (Balmori et al., 2022; Mosto et al., 2026). This view is further supported by the small effect size estimates observed in the present study (Cohen's  $d \approx -0.38$ ), indicating limited practical significance of gender-based differences even where descriptive contrasts are present (Althubaiti, 2023; Gülkesen et al., 2022; Vaske et al., 2024).

Psychological triggers did not differ significantly by gender, implying that internal stressors such as emotional distress, psychological pressure, and coping difficulties may function similarly in male and female adolescents. This finding supports stress-coping models that view psychological vulnerability as a common risk process rather than a gender-specific mechanism (Brannon, 2024; Fenech, 2021; Lyons & Romano, 2019). Emotional regulation challenges, rather than gender identity alone, may thus be a more important pathway in addiction vulnerability (Burgess Moser et al., 2016; Gutierrez & Mullen, 2016).

Familial triggers likewise showed no significant gender differences, reinforcing the interpretation that family-related stressors (e.g., conflict, monitoring, emotional support) exert comparable influence across genders. This pattern is consistent with family systems theory and empirical research showing that family climate and relational dynamics function as general developmental risk factors rather than gender-differentiated predictors (Christiansen et al., 2022; Lin et al., 2025; Marinelli et al., 2023). Similarly, social triggers did not differ significantly by gender, indicating that peer influence, social pressure, and interpersonal dynamics operate broadly across adolescents, regardless of gender. This finding is consistent with cross-cultural research demonstrating that peer environments and social comparison processes affect adolescent well-being across genders, albeit through potentially different social modalities (Fitria & Sari, 2025; Hu et al., 2022). Digital triggers showed a marginal gender difference under the assumption of equal variances, but this difference was not robust when the assumptions were relaxed. This instability indicates that the observed difference lacks statistical reliability and should not be interpreted as a stable gender effect. Methodologically, such marginal findings highlight the importance of assumption testing and robust inference procedures in behavioural

research (Han, 2024; Shah & Krishnan, 2023). Substantively, the result suggests that digital engagement pressures are broadly shared rather than gender-specific, consistent with research emphasising the normalisation of digital immersion across adolescent populations (Flanigan & Babchuk, 2022; Han, 2024).

The effect size analysis further reinforces this interpretation. The small standardised mean differences indicate that even where numerical differences exist, their magnitude is limited and unlikely to be practically meaningful. This supports contemporary methodological standards that prioritise interpretation of effect sizes over reliance on p-values (Gülkesen et al., 2022; Vaske et al., 2024). In practical terms, these findings suggest that intervention strategies should prioritise psychosocial risk processes over gender-targeted assumptions (Han, 2024; Shah & Krishnan, 2023).

Conceptually, the results support integrative models that view adolescent addiction vulnerability as emerging from interacting psychosocial systems rather than isolated demographic categories. Ecological frameworks, stress-coping models, and digital reinforcement theories collectively provide a more coherent explanatory structure than gender-differentiated narratives alone. The present findings, therefore, contribute to a growing body of evidence advocating for structurally grounded, system-level approaches to adolescent addiction prevention and intervention (Han, 2024; Shah & Krishnan, 2023).

In summary, the study demonstrates that psychosocial addiction triggers are distributed across multiple domains and are largely comparable across genders. Where differences appear descriptively, they lack statistical robustness and practical magnitude. These findings emphasise the importance of avoiding gender-essentialist interpretations and instead focusing on shared developmental vulnerabilities embedded within psychological, familial, social, and digital systems.

## CONCLUSIONS

This study examined psychosocial triggers of adolescent behavioural and substance addiction across digital, social, psychological, and familial domains, focusing on gender differences. Data from 95 high school students were analysed using descriptive stats, t-tests, and effect sizes. Results showed moderate trigger levels, with digital triggers scoring highest. No significant gender differences were found overall or within specific domains, except a marginal digital trigger difference that was inconsistent across tests. Effect sizes indicated small gender differences. The findings suggest psychosocial triggers are similar for male and female adolescents, highlighting the need to address multiple risk factors and avoid overinterpreting gender differences in adolescent addiction research.

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