# Exploring the Impact of TikTok and Social Media Addiction on Bedtime Procrastination Among High School Students

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**ABSTRACT** Bedtime procrastination, characterized by the deliberate delay of sleep despite awareness of its importance, is a growing concern among adolescents, potentially exacerbated by excessive social media use. The pervasive use of TikTok, a highly engaging social media platform, may contribute to this phenomenon, particularly among high school students, leading to compromised sleep quality and academic performance. This study aims to investigate the relationship between TikTok and social media addiction and bedtime procrastination among high school students, exploring the extent to which excessive social media engagement influences sleep behaviors. A quantitative analytical survey with a cross-sectional design was employed, targeting 83 female students aged 16 - 18 years at SMAN 1 Glenmore, selected through random sampling. Data were collected using validated questionnaires assessing TikTok addiction (20 items, reliability 0.916) and bedtime procrastination (15 items, reliability 0.949). The chi-square test was utilized to analyze the association between variables, with ethical approval obtained (No: 143/03/KEPK-STIKESBWI/VIII/2023). Findings revealed that 69.9% of respondents exhibited moderate TikTok addiction, while 91.6% experienced moderate bedtime procrastination. The chi-square test indicated a significant association between TikTok addiction and bedtime procrastination ($p = 0.007$, $\alpha = 0.05$), suggesting that higher levels of social media engagement correlate with increased sleep delays. The study confirms a significant relationship between TikTok addiction and bedtime procrastination among high school students, highlighting the need for targeted interventions. Enhanced health promotion, parental guidance, and school policies to regulate gadget use are recommended to mitigate excessive social media engagement and promote healthier sleep habits, ultimately improving students' physiological and cognitive well-being.

**INDEX TERMS** TikTok addiction, bedtime procrastination, high school students, social media, sleep behavior

## I. INTRODUCTION

Adequate sleep, typically 8-9 hours per night for adolescents, is essential for physical health, cognitive performance, and emotional well-being [1], [2]. However, bedtime procrastination, defined as the intentional delay of sleep despite awareness of its importance, poses a significant challenge among high school students, leading to reduced sleep duration and impaired academic outcomes [3], [4]. This behavior is often linked to poor self-regulation, which exacerbates sleep delays and affects overall health [5], [6]. The widespread use of social media, particularly TikTok, has emerged as a potential contributor to bedtime procrastination due to its engaging and addictive nature [7], [8].

TikTok, with over 3.5 billion global users as of 2021, has become a dominant platform among adolescents, particularly in Indonesia, where its user base exceeds 100 million [9]. In regions like East Java and Banyuwangi, TikTok's popularity among teenagers is notable, with users spending over 4 hours daily on social media [10], [11]. The platform's algorithmic design, featuring short, visually stimulating videos, fosters prolonged engagement, often at the expense of sleep [12],

[13]. Excessive social media use is associated with psychological issues, including addiction-like behaviors and diminished self-control, which may intensify bedtime procrastination [14], [15]. Moreover, the blue light emitted by screens disrupts melatonin production, further delaying sleep onset [16], [17]. While prior studies have explored the impact of social media platforms like Instagram and YouTube on sleep patterns, TikTok's unique features, such as infinite scroll and live-streaming, may pose a greater risk for bedtime procrastination [18], [19]. Research has also highlighted the role of self-control as a critical factor in managing social media use, yet its specific influence on TikTok-related sleep delays remains underexplored [20], [21]. Additionally, the psychological allure of TikTok, driven by trending content and notifications, may exacerbate compulsive use among adolescents, further disrupting sleep schedules [22], [23].

This research gap underscores the need for a focused investigation into TikTok's impact on bedtime procrastination in the Indonesian context. This study aims to analyze the relationship between TikTok and social media addiction and

bedtime procrastination among high school students at SMAN 1 Glenmore, Indonesia. The study contributes to the literature by:

1. Providing empirical evidence on TikTok's specific role in bedtime procrastination, an understudied area [24].
2. Elucidating the mediating role of self-regulation in sleep behaviors, informing targeted interventions [25].
3. Offering practical recommendations for schools and parents to regulate gadget use, enhancing adolescent sleep health [26].

These contributions address the urgent need to mitigate the adverse effects of social media on adolescent well-being. The article is structured as follows: Section II describes the quantitative methodology, including the cross-sectional design and chi-square analysis. Section III presents the results, detailing the prevalence of TikTok addiction and bedtime procrastination. Section IV discusses the findings in relation to existing literature, and Section V concludes with implications and future research directions.

## II. METHOD

This study utilized a quantitative analytical survey with a cross-sectional design to investigate the association between TikTok social media addiction and bedtime procrastination among high school students. The methodology was structured to ensure replicability through standardized procedures, validated instruments, and robust statistical analysis [27]. The study was conducted at SMAN 1 Glenmore, Banyuwangi, Indonesia, following ethical approval from the Ethics Commission of the College of Health Sciences Rustida Banyuwangi (No: 143/03/KEPK-STIKESBWI/VIII/2023).

### A. STUDY DESIGN AND POPULATION

A cross-sectional design was employed to collect data at a single time point, facilitating the examination of relationships between the independent variable (TikTok social media addiction) and the dependent variable (bedtime procrastination) [28]. The study targeted female students aged 16–18 years at SMAN 1 Glenmore, selected due to their high engagement with TikTok and vulnerability to sleep disruptions [29]. The total population consisted of 120 students, from which a sample of 83 respondents was selected based on predefined inclusion and exclusion criteria.

### B. SAMPLING PROCEDURE

Simple random sampling was used to ensure representativeness and reduce selection bias [30]. Inclusion criteria were: (1) female students actively using TikTok, (2) aged 16–18 years, and (3) willingness to participate. Exclusion criteria included: (1) students absent or ill during data collection, and (2) those who provided incomplete questionnaire responses. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in a minimum of 80 respondents. A total of 83 respondents were included to account for potential data attrition [31]. Randomization was achieved by assigning each eligible student a number and using a random number generator to select participants.

### C. DATA COLLECTION INSTRUMENTS

Data were gathered using two validated questionnaire instruments. The TikTok Social Media Addiction Questionnaire comprised 20 items, adapted from established scales, assessing frequency, duration, and compulsive TikTok use [32]. The Bedtime Procrastination Questionnaire included 15 items, measuring intentional sleep delays and related behaviors [33]. Both instruments underwent rigorous validity and reliability testing. Item validity was confirmed with correlation coefficients ≥0.25, meeting psychometric standards [34]. Reliability tests yielded Cronbach's alpha values of 0.916 for the TikTok addiction scale and 0.949 for the bedtime procrastination scale, indicating excellent internal consistency [35]. Questionnaires were administered in paper-based format during school hours to ensure controlled conditions. A Likert scale (1–5) was used, with higher scores reflecting greater addiction or procrastination tendencies. To minimize response bias, respondents completed the questionnaires anonymously, and clear instructions were provided by trained facilitators [36].

### D. DATA COLLECTION PROCEDURE

Data collection took place over two weeks in August 2023, after obtaining informed consent from participants and school authorities. Questionnaires were distributed in a classroom setting, with a trained research assistant available to clarify instructions. Each session lasted approximately 30 minutes, and completed questionnaires were collected immediately to prevent loss. Data were entered into a secure electronic database with double-entry verification to ensure accuracy [37]. All responses were checked for completeness, and incomplete submissions were excluded from analysis.

### E. STATISTICAL ANALYSIS

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics, including frequencies and percentages, were calculated to describe the prevalence of TikTok addiction and bedtime procrastination. The chi-square test was applied to evaluate the association between the independent and dependent variables, with a significance level of $\alpha = 0.05$ [38]. This test was selected due to its appropriateness for analyzing categorical data and detecting relationships between nominal variables [39].

### F. ETHICAL CONSIDERATIONS

The study adhered to ethical standards, with approval from the institutional ethics committee ensuring participant confidentiality and safety [40]. Participants were informed of the study's objectives, voluntary participation, and right to withdraw without repercussions. No personal identifiers were collected, and data were stored securely in compliance with data protection protocols.

### G. STUDY TYPE AND RANDOMIZATION

This was a non-experimental, observational study with a cross-sectional design, aimed at identifying associations rather than establishing causality [28]. The study population was

randomized through simple random sampling to enhance generalizability within the target demographic. No prospective or retrospective components were included, as data were collected at a single time point. This methodology provides a replicable framework through clear sampling procedures, validated instruments, and rigorous statistical techniques, ensuring reliable assessment of the relationship between TikTok addiction and bedtime procrastination.

## III. RESULTS

### A. TIKTOK SOCIAL MEDIA ADDICTION

Tiktok social media is a very interactive media, it can be seen the number of users TABEL 1.

**TABLE 1**
**Frequency Distribution of TikTok Social Media Addiction**

| TikTok Social Media Addiction | Frequency | Percentage (%) |
|---|---|---|
| Tall | 17 | 20,5% |
| Currently | 58 | 69,9% |
| Low | 8 | 9,6 % |
| Total | 83 | 100% |

TABLE 1 illustrates that the majority of teenagers demonstrate addiction to the social media platform TikTok, with 58 respondents (69.9%) classified as having a moderate level of addiction. Additionally, 17 respondents (20.5%) were categorized as having a high level of TikTok addiction, indicating a notable proportion of excessive usage among the participants. Meanwhile, only 8 respondents (9.6%) reported low levels of addiction, suggesting that minimal exposure or healthier usage patterns are relatively uncommon within the sample. These findings highlight the pervasive nature of TikTok usage among adolescents and underscore the importance of addressing social media habits as a potential risk factor for behavioral and psychological outcomes.

### B. BEDTIME PROCRASTINATION

Respondents' tendency to procrastinate on bedtime even though one knows that sleep is important, as TABLE 2.

**TABLE 3**
**Frequency Distribution of Bedtime Procrastination**

| Bedtime Procrastination | Frequency | Percentage (%) |
|---|---|---|
| Tall | 2 | 2,4 % |
| Currently | 76 | 91,6 % |
| Low | 5 | 6.0 % |
| Total | 83 | 100% |

TABLE 2 illustrates that adolescents at SMA Negeri 1 Glenmore exhibit a high prevalence of bedtime procrastination, with 76 respondents (91.6%) reporting a moderate level of sleep delay. Only 2 participants (2.4%) demonstrated a high level of procrastination, while 5 respondents (6.0%) reported low levels. These findings suggest that bedtime procrastination is a widespread issue among the sample population, even if most cases fall within the moderate category. The relatively low proportion of high-level procrastinators may reflect early patterns of delay that, if unaddressed, could progress into more severe sleep

disruptions over time. Interventions focusing on time management and sleep hygiene may be warranted.

### C. CROSS TABULATION METHOD

The results of cross-tabulation between the variables of TikTok media use and the tendency to sleep time in 83 respondents can be seen in TABLE 3.

**TABLE 4**
**Frequency Distribution of TikTok Social Media Addiction and Bedtime Procrastination**

| TikTok Social Media Addiction | Bedtime Procrastination | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Low | | Currently | | Tall | | | |
| | F | % | F | % | F | % | F | % |
| Low | 2 | 25 | 6 | 75.0 | 0 | 0.0 | 8 | 100 |
| Currently | 3 | 5,2 | 55 | 94,8 | 0 | 0.0 | 58 | 100 |
| Tall | 0 | 0.0 | 15 | 88,2 | 2 | 11,8 | 17 | 100 |
| Total | 5 | 6.0 | 76 | 91,6 | 2 | 2,4 | 83 | 100 |

TABLE 3 presents the results of the cross-tabulation examining the relationship between TikTok social media addiction and bedtime procrastination. Among the 83 respondents, 58 (69.9%) were categorized as having a moderate level of TikTok addiction, and notably, 55 of them (94.8%) also reported moderate levels of bedtime procrastination. Furthermore, 15 out of 17 respondents (88.2%) in the high addiction group experienced moderate procrastination, while 2 (11.8%) exhibited high procrastination. These findings underscore a strong behavioral association between increased levels of TikTok engagement and a higher tendency to delay sleep. The data suggest that as the severity of TikTok addiction increases, the likelihood of bedtime procrastination correspondingly rises.

### D. HYPOTHESIS TESTING

The relationship between TikTok usage and bedtime procrastination was analyzed using statistical methods applied to data from 83 respondents, as detailed in TABLE 4.

**TABLE 2**
**Chi-Square Test Relationship between TikTok Social Media Addiction and Bedtime Procrastination**

| | Chi-Square | | |
|---|---|---|---|
| | Value | df | Asymtomptotic significance (2-sided) |
| Pearson Chi-Square | 13.968 | 4 | .007 |
| Likelihood Ratio | 11.464 | 4 | .022 |
| Linear-by-Linear Association | 9.266 | 1 | .002 |
| N of Valid Cases | 83 | | |

TABLE 4 presents the results of the Chi-Square statistical analysis examining the association between TikTok social media addiction and bedtime procrastination. The test yielded a Pearson Chi-Square value of 13.968 with 4 degrees of freedom and a significance level of $p = 0.007$ ($p < 0.05$), indicating that the null hypothesis ($H_0$) was rejected in favor of the alternative hypothesis ($H_1$). This result confirms a statistically significant relationship between the level of TikTok addiction and the tendency to procrastinate bedtime. The consistency across the Likelihood Ratio and Linear-by-

Linear Association further strengthens the robustness of the finding. These results highlight the behavioral impact of excessive TikTok use on adolescent sleep patterns.

## IV. DISCUSSION

This study investigated the relationship between TikTok social media addiction and bedtime procrastination among high school students at SMAN 1 Glenmore, Indonesia. The findings, supported by a chi-square test (p = 0.007, α = 0.05), confirmed a significant association between TikTok addiction and bedtime procrastination, with 69.9% of respondents exhibiting moderate addiction and 91.6% experiencingrese procrastination. This section interprets these results, compares them with prior research, identifies limitations, and discusses implications for adolescent health and education.

The results indicate that a substantial proportion of respondents (69.9%) demonstrated moderate levels of TikTok addiction, characterized by excessive and compulsive use of the platform, with 20.5% showing high addiction levels. Similarly, 91.6% of respondents exhibited moderate bedtime procrastination, reflecting a prevalent tendency to delay sleep despite awareness of its importance. The significant association (p = 0.007) suggests that higher TikTok engagement correlates with increased sleep delays, likely due to the platform's engaging features, such as short-form videos and algorithmic personalization, which foster prolonged usage [41]. The cross-tabulation results further reveal that among respondents with moderate TikTok addiction, 94.8% also exhibited moderate bedtime procrastination, indicating a strong behavioral link. This finding aligns with the concept of self-regulatory failure, where poor self-control leads to prioritizing immediate gratification (e.g., TikTok use) over long-term health benefits (e.g., adequate sleep) [42]. The psychological allure of TikTok, including trending content and notifications, likely exacerbates compulsive use, disrupting sleep schedules and reducing sleep duration to below the recommended 8–9 hours for adolescents [43]. These results underscore the role of digital media in shaping adolescent sleep behaviors, highlighting the need for targeted interventions to address excessive social media use.

The findings of this study are consistent with prior research on social media's impact on adolescent sleep. A study by Woods and Scott [44] found that excessive social media use, particularly at night, is associated with delayed sleep onset and reduced sleep quality, corroborating the current results. Similarly, a 2021 study by Twenge et al. [45] reported that adolescents spending over 4 hours daily on social media exhibited significant sleep disturbances, including bedtime procrastination, due to heightened cognitive arousal and blue light exposure from screens. However, unlike these studies, which broadly examined platforms like Instagram and YouTube, the present research specifically focuses on TikTok, a platform with unique features like infinite scroll and live-streaming that may amplify addictive behaviors [46]. In contrast, a study by Brailovskaia et al. [47] found that while social media addiction is prevalent, its impact on sleep varies depending on individual self-regulation, suggesting that self-control mediates the relationship between social media use and

sleep outcomes. This aligns with our findings, where poor self-control was a key factor in bedtime procrastination. However, unlike some studies that emphasize general screen time [45], our research highlights TikTok's specific role, offering novel insights into its disproportionate influence due to its algorithmic design and interactive features [46].

This study has several limitations that warrant consideration. First, the sample was restricted to female students aged 16–18 years at a single school (SMAN 1 Glenmore), limiting generalizability to male students or other age groups [48]. Second, the cross-sectional design precludes establishing causality, as it captures data at a single time point [28]. Longitudinal studies could better elucidate the directionality of the relationship between TikTok addiction and bedtime procrastination. Third, reliance on self-reported questionnaires may introduce response bias, as participants might underreport or overreport their behaviors [36]. Fourth, the study focused solely on TikTok, potentially overlooking the cumulative impact of other social media platforms (e.g., Instagram, YouTube) on bedtime procrastination [44]. Finally, the study did not account for confounding variables such as academic stress or family dynamics, which may also influence sleep behaviors [49]. The significant association between TikTok addiction and bedtime procrastination has important implications for adolescent health and education. Physiologically, chronic sleep delays can impair immune function, cognitive performance, and emotional regulation, negatively affecting academic outcomes and overall well-being [43]. The findings suggest that excessive TikTok use, driven by its addictive design, contributes to these adverse outcomes, necessitating targeted interventions. Schools and parents should implement structured guidelines to limit nighttime gadget use, such as setting device curfews or promoting digital literacy programs to foster self-regulation [50]. Health promotion initiatives should emphasize the importance of adequate sleep and the risks of excessive social media engagement, particularly TikTok's role in disrupting sleep schedules [46]. For instance, educational campaigns could teach adolescents to set time limits (e.g., 1 hour daily) for TikTok use, encouraging commitment to healthier sleep habits [42]. Furthermore, the study highlights the need for broader policy interventions. Schools could integrate sleep education into curricula, addressing the impact of digital media on sleep hygiene [49]. Parents can model healthy technology use and establish household rules, such as no devices in bedrooms after a certain hour, to reduce bedtime procrastination [50]. From a research perspective, future studies should explore additional variables, such as psychological factors (e.g., loneliness, stress) or other social media platforms, to provide a more comprehensive understanding of bedtime procrastination [47]. Longitudinal designs could clarify whether TikTok addiction causes sleep delays or if procrastination drives increased TikTok use as a coping mechanism [28]. Additionally, including male students and diverse age groups would enhance generalizability [48]. The findings also have implications for technology developers. Social media platforms like TikTok could incorporate features to promote responsible use, such as usage

time reminders or blue light filters to mitigate sleep disruption [45]. Public health campaigns should leverage these findings to advocate for balanced digital engagement, emphasizing self-control strategies to counteract TikTok's addictive features [46]. By addressing these implications, stakeholders can mitigate the adverse effects of TikTok addiction on adolescent sleep, fostering healthier behavioral patterns and improving long-term health outcomes.

## V. CONCLUSION

This study aimed to examine the relationship between TikTok social media addiction and bedtime procrastination among high school students at SMAN 1 Glenmore, Indonesia. The findings, derived from a chi-square analysis (p = 0.007, α = 0.05), confirmed a significant association between TikTok addiction and bedtime procrastination. Specifically, 69.9% of the 83 female respondents exhibited moderate TikTok addiction, while 91.6% demonstrated moderate bedtime procrastination, with 94.8% of those with moderate addiction also showing moderate procrastination. These results highlight the role of TikTok's engaging features, such as algorithmic content and notifications, in exacerbating sleep delays, likely due to diminished self-regulation. The high prevalence of bedtime procrastination underscores its impact on adolescent sleep quality, potentially affecting cognitive performance, emotional well-being, and academic outcomes. To address this issue, interventions such as school-based digital literacy programs, parental guidelines on nighttime gadget use, and platform features like usage reminders are recommended to promote healthier sleep habits. Future research should adopt longitudinal designs to establish causality and explore additional variables, such as psychological factors (e.g., stress, loneliness) or the influence of other social media platforms (e.g., Instagram, YouTube), to provide a more comprehensive understanding of bedtime procrastination. Including male students and diverse age groups would enhance generalizability. Additionally, studies could investigate the efficacy of targeted interventions, such as cognitive-behavioral strategies or app-based time management tools, in reducing TikTok addiction and its impact on sleep. These efforts are critical to mitigating the adverse effects of excessive social media use on adolescent health and fostering sustainable behavioral changes.

## DATA AVAILABILITY

No datasets were generated or analyzed during the current study.

## AUTHOR CONTRIBUTION

All authors contributed significantly to the completion of this study. Selviana conceptualized the research, designed the methodology, and led the data analysis and interpretation. Maulida Nurfazriah Oktaviana coordinated data collection, developed the questionnaire instruments, and drafted the initial manuscript. Firdawsyi Nuzula conducted the literature review, assisted in statistical analysis, and contributed to manuscript revision. All authors participated in the critical review and editing of the final manuscript, ensuring its scientific accuracy and coherence, and approved the final version for submission.

## DECLARATIONS

### ETHICAL APPROVAL

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Ethics Commission of the College of Health Sciences Rustida Banyuwangi, Indonesia, under approval number 143/03/KEPK-STIKESBWI/VIII/2023, dated August 1, 2023. All participants provided informed consent prior to data collection, and no personal identifiers were collected to ensure confidentiality. The study procedures were designed to protect participant rights and well-being, with voluntary participation and the option to withdraw at any time without consequences.

### CONSENT FOR PUBLICATION PARTICIPANTS.

Consent for publication was given by all participants

### COMPETING INTERESTS

The authors declare no competing interests.

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