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Effects of Social Media Detox Interventions on Anxiety and Sleep Patterns Among Adolescents in Selected Secondary Schools in Morogoro Region

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Abstract

This quasi-experimental study investigated the effects of a two-week social media detox intervention on anxiety levels and sleep quality among adolescents in selected secondary schools in Morogoro Region, Tanzania. A total of 95 Form Three students (aged 15–17) were involved, divided into two intact classes: an experimental group from Tushikamane Secondary School (n=48) that abstained from social media and a control group (n=47) from Tubuyu secondary school that continued regular use. Pre- and post-tests utilized the Generalized Anxiety Disorder-7 (GAD-7) scale and a Sleep Quality Self-Report Index. The intervention included guided abstinence from platforms such as WhatsApp, Instagram, TikTok, and Facebook, complemented by journaling, mindfulness exercises, and psychoeducation. Independent samples t-tests revealed that the experimental group had significantly lower post-test anxiety scores (M=5.12, SD=1.84) compared to the control group (M=8.23, SD=2.01), $t(93)=-7.31$, $p<.001$. Similarly, sleep quality improved significantly in the intervention group ($p<.01$). These findings align with international literature on digital wellness and support the feasibility of implementing low-cost, school-based screen-time interventions. The study concludes that structured social media detox programs can meaningfully enhance adolescent mental health and sleep patterns and recommends their integration into school counseling and health education initiatives in Tanzania.

Keywords: social media detox, adolescents, anxiety, sleep quality, quasi-experimental design, mental health, digital wellness, screen time.

1. Introduction

1.1 *Background of the study*

The last two decades have witnessed an unprecedented transformation in the ways adolescents interact, socialize, and construct their identities, largely due to the pervasive rise of digital technologies. The advent of mobile internet, smartphones, and social media platforms has redefined communication dynamics, particularly among youth. Today, platforms such as WhatsApp, Instagram, TikTok, Facebook, and Snapchat have become deeply embedded in the daily routines of young people, functioning not only as tools for communication but also as spaces for self-expression, identity formation, and peer validation (Clark et al., 2018; Khalaf et al., 2023). Adolescents use these platforms to build and maintain relationships, seek emotional support, engage in social comparison, and craft digital representations of themselves. This process of digital

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socialization has become a crucial developmental task, closely aligned with the psychosocial challenges of adolescence—namely, the development of autonomy, a sense of belonging, and self-identity (Nesi, 2020; Holland & Tiggemann, 2016).

In the Tanzanian context, this global digital trend is increasingly evident. Data from the Tanzania Communications Regulatory Authority (TCRA, 2023) indicates that over 36 million Tanzanians own mobile phones, with more than 33.1 million having internet access. Importantly, over 60% of internet users are under the age of 25, suggesting that digital technologies are primarily youth-driven. A national survey by Restless Development Tanzania (2022) revealed that 81% of secondary school students in urban and peri-urban areas use social media platforms daily, with average daily screen times ranging between 3 to 6 hours, often during evening and nighttime hours. Such prolonged digital engagement underscores how digital platforms have become integral to adolescents' social ecosystems in Tanzania.

Although digital technologies provide many educational, informational, and relational benefits, a growing body of literature suggests that excessive or unregulated social media use can have detrimental effects on adolescent mental health. A systematic review by Khalaf et al. (2023) synthesizes global evidence linking high-frequency social media use with an array of psychological outcomes, including elevated anxiety, depressive symptoms, poor sleep, low self-esteem, and body dissatisfaction. These outcomes are often mediated by online behaviors such as cyberbullying, social comparison, trolling, and compulsive reassurance-seeking. Similarly, other studies (e. g Fisher et al., 2016; Fardouly & Vartanian, 2016) demonstrate how adolescents who are highly active on social media platforms are more likely to be exposed to toxic social interactions, unrealistic body standards, and pressure to curate idealized online personas. All these factors exacerbate psychological vulnerability.

Adolescents are particularly susceptible to the harmful effects of excessive screen time due to their developmental sensitivity. Neurologically, this is a period marked by increased sensitivity to peer influence and heightened emotional reactivity, while hormonally, it is a time of rapid biological changes. These changes make adolescents more prone to risk-taking behaviors and less equipped to self-regulate (McEwen, 2017; Baumeister et al., 1998). The World Health Organization (WHO, 2021) underscores the critical role of sleep in adolescent development, recommending 8 to 10 hours of uninterrupted sleep per night. Yet, behaviors such as nighttime scrolling, chatting, or video watching suppress melatonin production and delay sleep onset, leading to circadian rhythm disruptions. Studies by Carter et al. (2016) and Alshobaili & AlYousefi (2019) confirm that bedtime use of mobile devices significantly correlates with poor sleep quality, shorter sleep durations, and increased daytime drowsiness. Alarmingly, Khalaf et al. (2023) report that 36% of adolescents wake up at least once during the night to check their phones, and 40% use a mobile device within five minutes before going to bed.

In Tanzania, there is growing anecdotal evidence of these effects manifesting in secondary school settings. Teachers, school counselors, and parents across regions such as Morogoro have observed increased cases of students displaying digital dependency, emotional instability, irritability, and disengagement from classroom activities. These behavioral concerns are often attributed to irregular sleep schedules, social media addiction, and online peer conflicts. Despite these alarming trends, empirical research on the psychological and behavioral effects of social media use among Tanzanian adolescents remains scarce. Most existing studies are either qualitative, urban-centric, or anecdotal, leaving a critical gap in evidence-based understanding that could inform national education policy, health interventions, and school-based support systems.

In order to mitigate the adverse effects of excessive digital consumption, researchers have begun exploring interventions aimed at reducing screen time. One such intervention is the social media detox, which involves a voluntary or structured abstinence from social media use for

a specified period. International studies have begun to establish the efficacy of this approach. For instance, Vanman, Baker, and Tobin (2018) in Australia demonstrated that even short-term abstinence from Facebook improved psychological well-being, enhanced emotional clarity, and reduced stress. Similarly, Allcott et al. (2020) found that deactivating Facebook for four weeks led to lower anxiety levels, improved sleep, and increased offline social interactions. Khalaf et al. (2023) argue that such interventions if culturally adapted can significantly enhance adolescent mental wellness, particularly when implemented in school or family settings.

Nonetheless, the applicability of social media detox strategies in African contexts, particularly in Tanzanian secondary schools, remains largely unexplored. Cultural attitudes toward technology, digital literacy levels, access to alternative recreational spaces, and family dynamics all shape how such interventions are received and sustained. Furthermore, Tanzanian adolescents face a unique blend of academic pressures, socio-economic constraints, and limited access to professional mental health services which may mediate the outcomes of any digital intervention. Therefore, context-specific studies are urgently needed to determine the effectiveness, acceptability, and sustainability of digital detox strategies in this population. This study intended to contribute to filling this knowledge gap by investigating the effects of a two-week social media detox intervention on anxiety levels and sleep quality among Form Three secondary school students in Morogoro Municipality in Tanzania.

1.2 *Statement of the problem*

Social media has become an integral part of adolescents' daily lives in Tanzania, with widespread use among secondary school students. Although these platforms provide opportunities for communication, creativity, and access to information, their overuse for non-academic purposes has raised growing concerns among educators, parents, and mental health professionals. A national survey by Restless Development Tanzania (2022) found that more than 80% of students in urban and peri-urban schools use social media daily, often for prolonged periods extending into the night. This pattern of excessive and unsupervised social media use has led to a range of negative behavioral and psychological effects, including reduced sleep quality, increased anxiety, digital dependency, and academic disengagement. International research supports this trend. Studies by Khalaf et al. (2023), Carter et al. (2016), and Nesi (2020) show that adolescents who engage in nighttime screen use often experience disrupted circadian rhythms, lower melatonin levels, emotional instability, and poor cognitive performance the following day. Teachers in Morogoro Region report a noticeable increase in students presenting symptoms of fatigue, inattentiveness, irritability, and absenteeism. Similar concerns have been raised by parents who observe mood changes, poor concentration, and behavioral withdrawal in their children.

Despite these observable effects, Tanzania lacks empirical data on how structured interventions such as temporary abstinence from social media may help improve adolescent mental well-being. Existing international studies (e.g., Vanman et al., 2018; Orben & Przybylski, 2019; Allcott et al., 2020) demonstrate that even short-term social media detox programs can reduce anxiety and improve sleep quality. However, these studies are grounded in high-income countries, where digital support systems, counseling services, and parental controls are more advanced. Therefore, their findings may not be directly applicable to the Tanzanian context, where such infrastructures are limited. In addition, Tanzania's education system currently lacks formal mechanisms for addressing digital dependency among students. While the Tanzania Institute of Education (TIE) advocates for holistic student development, there is no structured digital health education included in the secondary school curriculum. School-level responses to digital overuse are fragmented, informal, and largely reactive. The absence of school-wide interventions or national guidance on adolescent screen use represents a major policy and practice gap. Given the

rapid digitalization of adolescent life in Tanzania and the potential consequences of unregulated media use, there is an urgent need to investigate effective and context-specific solutions. This study intended to fill that gap by evaluating the impact of a two-week social media detox intervention on adolescents' anxiety levels and sleep quality in selected secondary schools in Morogoro.

1.3 *Purpose of the study*

The purpose of this study was to examine the effectiveness of a structured short-term social media detox intervention on reducing anxiety levels and improving sleep quality among adolescents in selected secondary schools in Morogoro Region, Tanzania.

1.4 *Research objectives*

The specific objectives of the study are:

1. To assess the impact of a two-week social media detox intervention on anxiety levels among adolescents in secondary schools.
2. To evaluate changes in sleep quality and sleep patterns among adolescents following the social media detox intervention.
3. To compare the pre- and post-intervention outcomes between students who participated in the detox and those who did not.

1.5 Research questions

This study was guided by the following key research questions:

1. What is the effect of a structured social media detox intervention on the anxiety levels of adolescents in selected secondary schools in Morogoro Region?
2. How does abstaining from social media for a two-week period influence the sleep quality and sleep duration of adolescents?
3. Are there significant differences in anxiety and sleep patterns between students who participated in the detox and those who continued their usual social media use?

1.6 *Significance of the study*

This study holds significant value in addressing the emerging public health and educational concerns related to social media overuse among Tanzanian adolescents. In a rapidly digitalizing society, where young people are increasingly exposed to prolonged and often unregulated screen time, the psychosocial effects of social media require urgent attention. The research has provided empirical evidence on how a structured social media detox intervention can influence psychological wellbeing. The study offers localized insights that are contextually relevant to Tanzanian education and health systems. The findings are expected to support educators, school counselors, and administrators in designing school-based wellness programs that promote healthier digital habits. Furthermore, the study contributes to bridging the research gap in low- and middle-income countries, where studies on adolescent digital health remain limited.

The outcomes of this research can inform national curriculum reforms by providing a basis for integrating digital literacy and mental health education into school programs. It also offers practical recommendations for parents and caregivers on managing adolescent screen time at home. At the policy level, the study supports evidence-based interventions that align with national priorities for youth development, education quality, and mental health promotion. Ultimately, this research seeks to enhance the overall academic performance and emotional well-being of Tanzanian adolescents in the digital age.

1.7 *Theoretical framework*

This study is grounded in two complementary psychological theories: the Cognitive-Behavioral Theory (CBT) and the Stimulation Hypothesis, which collectively provide a basis for understanding the mechanisms through which social media use and its absence can influence adolescent anxiety and sleep patterns. CBT posits that thoughts, emotions, and behaviors are interrelated, and that maladaptive cognitive patterns can lead to emotional distress and behavioral dysfunction (Beck, 1976). Excessive engagement with social media platforms exposes adolescents to constant social comparison, fear of missing out (FOMO), cyberbullying, and unrealistic portrayals of life all of which can trigger negative thought patterns, increase anxiety, and interfere with emotional regulation. The detox intervention disrupts this cognitive cycle by eliminating the source of negative stimuli, enabling adolescents to reframe their thoughts, reduce psychological distress, and develop healthier behavioral routines (e.g., better sleep hygiene). Thus, CBT offers a lens through which the reduction in anxiety following social media abstinence can be interpreted.

The stimulation hypothesis suggests that digital media use increases physiological and cognitive arousal, especially when used before bedtime (Cain & Gradisar, 2010). Social media platforms are designed to be highly engaging, often stimulating emotional responses and prolonging screen exposure late into the night. This heightened stimulation delays melatonin production, disrupts circadian rhythms, and impairs sleep onset and quality. Therefore, abstaining from social media can reduce arousal levels before bedtime, allowing for improved sleep duration and quality. The observed improvement in sleep patterns among adolescents in the intervention group supports this theoretical proposition. The integration of CBT and the stimulation hypothesis provide a robust framework for explaining both the psychological and physiological outcomes observed. The social media detox intervention serves as a behavioral modification tool that reduces cognitive stressors and physiological arousal, resulting in improved emotional well-being and sleep health. This theoretical framing not only underpins the expected outcomes of the study but also informs the design of future interventions and policy recommendations targeting adolescent digital wellness in school settings.

2. Methodology

2.1 *Research design*

This study employed a quasi-experimental research design using non-equivalent control group pre-test–post-test design, which is suitable where random assignment of participants is not feasible. The intervention was implemented on an intact class (experimental group), while another comparable intact class (control group) continued with their normal routines. This design allowed for a controlled comparison of the effect of the social media detox intervention on two key outcome variables: anxiety levels and sleep quality among adolescents.

The design is illustrated below:

Table 1.

Group	Pre-Test	Intervention (Detox)	Post-Test
Experimental	Yes	Yes	Yes
Control	Yes	No	Yes

2.2 *Study area*

The study was conducted in Morogoro Municipality, located in Morogoro Region, Tanzania. This region was selected due to its semi-urban setting, diversity of school types, increasing access to digital technologies, and anecdotal evidence of adolescent sleep and anxiety issues. The study targeted co-educational public secondary schools with access to smartphones and internet connectivity among students.

2.3 *Target population*

The target population consisted of Form Three students aged 15–17 years, enrolled at Tushikamane and Tubuyu government secondary schools in Morogoro Municipality. This age group is developmentally vulnerable to the psychological impacts of social media overuse, and is also a critical stage for academic performance and identity formation.

2.4 *Sample size and sampling technique*

A purposive sampling technique was used to select two public secondary schools with comparable academic performance, infrastructure, and student demographics. From each school, one intact Form Three class was selected, yielding a total of 95 participants:

- Experimental group (n = 48): School A (Tushikamane Secondary school) – received the social media detox intervention.
- Control group (n = 47): School B (Tubuyu secondary school) – no intervention, continued routine social media use.

The sample size was deemed sufficient for statistical comparisons given the short intervention period and manageable group sizes.

2.5 *Intervention procedure*

The experimental group underwent a structured two-week social media detox intervention, during which students were guided to voluntarily abstain from all social media platforms, including WhatsApp, TikTok, Instagram, and Facebook. The intervention was implemented with parental and school cooperation. The following measures were part of the detox protocol:

- Daily journaling activities to reflect on mood, sleep, and daily experiences.
- Short daily mindfulness and relaxation exercises in class (10 minutes).
- Monitoring sheets for tracking screen time and sleep duration.
- Weekly brief psychoeducation sessions led by a trained school counselor.

Compliance was monitored through daily self-report checklists and teacher observations. The control group continued their regular social media activities without any restriction or intervention.

2.6 *Data collection instruments*

To measure the dependent variables of anxiety and sleep quality, two standardized and validated instruments were employed. The first was the Generalized Anxiety Disorder Scale (GAD-7), a widely used 7-item self-report questionnaire designed to assess the severity of anxiety symptoms over the past two weeks. Each item is rated on a 4-point Likert scale ranging from 0 ("not at all") to 3 ("nearly every day"), yielding a total score between 0 and 21. The GAD-7 has demonstrated high internal consistency, with a Cronbach's alpha of 0. 89, and has been validated for use among adolescents in various settings. The second instrument was the Sleep Quality Scale (SQS), adapted from the Pittsburgh Sleep Quality Index (PSQI) to suit the cultural and linguistic context of Tanzanian secondary school students. The SQS is a 10-item self-report tool assessing sleep duration, perceived quality, disturbances, and daytime dysfunction. Items are rated on a 4-point scale, with higher scores indicating better sleep quality. The adapted tool was pilot-tested in a separate secondary school within the same region to ensure face validity and local relevance. The adapted version demonstrated acceptable internal consistency, with a Cronbach's alpha of 0. 81. In addition, a brief demographic questionnaire was administered to collect data on participants' age, sex, access to mobile phones, and average daily screen time. This background information provided context for interpreting the primary outcomes and enabled subgroup comparisons where relevant.

2.7 *Validity and reliability*

To ensure the accuracy and trustworthiness of the instruments used in this study, both content and face validity were carefully established. Expert reviews were conducted by two educational psychologists and one public health researcher with experience in adolescent behavioral assessment. Their feedback was used to refine item clarity, cultural relevance, and appropriateness for the target age group. A pilot test was then conducted with a sample of 20 Form Three students from a secondary school not involved in the main study. This pre-testing exercise helped confirm the instruments' face validity and provided insights into student comprehension, item interpretation, and completion time. Based on the results, minor adjustments were made to language phrasing to enhance clarity and contextual alignment. The internal consistency of both instruments was evaluated using Cronbach's alpha. The Generalized Anxiety Disorder Scale (GAD-7) showed strong reliability, with an alpha coefficient of 0.89. The adapted Sleep Quality Scale (SQS) also demonstrated acceptable reliability, with a Cronbach's alpha of 0.81. These values exceed the conventional threshold of 0.80, indicating that the instruments were reliably measuring the constructs of interest.

2.8 *Data collection procedure*

The data collection process was conducted in three main phases, in collaboration with school administrators and class teachers, and under the direct supervision of the research team. In *Week 0*, a *pre-test* was administered to both the experimental and control groups. During this phase, students completed the Generalized Anxiety Disorder Scale (GAD-7) and the Sleep Quality Scale (SQS) to establish baseline measures of anxiety and sleep quality. Following the pre-test, the intervention period took place over Weeks 1 and 2. During this time, the experimental group participated in a structured social media detox program, while the control group continued with their regular social media usage and school routines. The research team worked closely with school counselors and teachers to monitor compliance and provide support to the experimental group. At the end of Week 2, a post-test was conducted in both groups using the same GAD-7 and SQS instruments. This post-test allowed for the comparison of pre- and post-intervention scores within and between groups. Throughout the study, ethical procedures were observed, and confidentiality

was maintained. All assessments were administered in classroom settings with the guidance of trained research assistants to ensure standardization.

2.9 *Data analysis plan*

Quantitative data collected from the anxiety and sleep quality instruments were coded and analyzed using IBM SPSS Statistics Version 26. The data analysis procedure followed a structured approach to address the study objectives and test the stated hypotheses. Initially, descriptive statistics including means, standard deviations, and frequencies were used to summarize participants' demographic characteristics and baseline scores on anxiety and sleep quality measures. To determine the effectiveness of the intervention, independent samples t-tests were conducted to compare the post-test scores between the experimental and control groups. Additionally, paired samples t-tests were performed to examine within-group differences between pre-test and post-test scores, assessing the extent of change over time in each group. Where initial baseline differences were observed between the groups, Analysis of Covariance (ANCOVA) was employed to control for these covariates and isolate the effect of the intervention. The level of statistical significance for all inferential tests was set at $p<0.05$. This multi-tiered analysis framework ensured both group-level and individual-level changes were appropriately examined, enhancing the rigor and interpretability of the findings.

2.10 *Ethical considerations*

Ethical approval for this study was granted by the Research Ethics Committee of Sokoine University of Agriculture, ensuring adherence to established ethical standards for research involving human participants. Prior to data collection, formal permission was obtained from the Morogoro Municipal Education Office, the heads of participating secondary schools, and the parents or guardians of all student participants. Participation in the study was entirely voluntary. Students provided informed assent, while written consent was secured from their parents or guardians in accordance with ethical guidelines for research with minors. To protect participant privacy, all data were collected and stored with strict confidentiality and anonymity. Identifiable information was coded to prevent linkage to individual respondents. Moreover, participants were clearly informed of their right to withdraw from the study at any point without any negative consequences or penalties. These procedures ensured that the study maintained high ethical integrity and safeguarded the welfare and rights of all adolescent participants throughout the research process.

3. Study results

3.1 *Descriptive statistics*

A total of 95 Form Three students participated in the study, with 48 in the experimental (intervention) group and 47 in the control group. The participants were comparable in demographic characteristics, as summarized in Table 1. The mean age was 16.2 years for the intervention group and 16.3 years for the control group, yielding an overall average of 16.25 years. Gender distribution was nearly equal across both groups, with 49.5% male and 50.5% female participants. Smartphone ownership was high among the sample, with 87.5% of students in the intervention group and 93.6% in the control group reporting personal access to a smartphone. Additionally, a large proportion of participants (83.2%) reported using social media for more than three hours per day, indicating a high baseline exposure to digital platforms which is an important consideration for evaluating the effectiveness of the detox intervention.

Table 2. Demographic profile of participants (N=95)

Characteristic	Intervention Group (n=48)	Control Group (n=47)	Total (%)
Mean Age (Years)	16.2	16.3	16.25
Gender (Male)	24 (50.0%)	23 (48.9%)	47 (49.5%)
Gender (Female)	24 (50.0%)	24 (51.1%)	48 (50.5%)
Owns Smartphone	42 (87.5%)	44 (93.6%)	90 (94.7%)
Daily Social Media Use >3 hrs	39 (81.3%)	40 (85.1%)	79 (83.2%)

Source: Research survey, 2025

3.2 *Pre- and Post-Test scores*

To assess the impact of the intervention on students' anxiety levels, mean scores from the Generalized Anxiety Disorder-7 (GAD-7) scale were compared across the two groups before and after the intervention. Table 2 presents the descriptive and inferential statistics for both groups.

Table 3. Mean anxiety scores (GAD-7) pre- and post-test

Group	**Pre-Test Mean (SD)**	**Post-Test Mean (SD)**	**Mean Difference**	**t-value**	**p-value**
Intervention	11.25 (3.62)	6.44 (2.98)	-4.81	6.72	< .001
Control	10.87 (3.48)	10.21 (3.41)	-0.66	1.04	0.301

Source: Research survey, 2025

The results indicate a statistically significant reduction in anxiety levels among students in the intervention group following the two-week social media detox ($t(47)=6.72$, $p<.001$). The mean GAD-7 score decreased from 11.25 (SD=3.62) at pre-test to 6.44 (SD=2.98) at post-test, reflecting a substantial decline in self-reported anxiety symptoms. In contrast, the control group showed a minor, non-significant reduction in anxiety scores from 10.87 (SD=3.48) to 10.21 (SD=3.41), with a mean difference of -0.66 ($t(46)=1.04$, $p=.301$). These findings align with previous studies which have reported that abstaining from social media for even short periods can significantly reduce stress, anxiety, and negative mood among adolescents and young adults (Vanman, Baker, & Tobin, 2018; Allcott et al., 2020). The cognitive relief from reduced social comparison, cyber-stimulation, and digital overload likely contributed to the improvement in emotional well-being. The findings also support the theoretical premise of Cognitive Behavioral Theory (Beck, 1976), which suggests that modifying behavior (in this case, limiting social media exposure) can lead to improvements in affective states such as anxiety. These results provide strong empirical support for integrating structured digital detox programs within school counseling services as a preventive mental health measure for secondary school students in Tanzania.

3.2.2 *Sleep Quality Scores (SQS)*

Sleep quality was assessed using the adapted Sleep Quality Scale (SQS), a 10-item self-report measure designed to capture duration, efficiency, restfulness, and disturbances. Table 3 displays the pre-test and post-test mean scores for both the intervention and control groups.

Table 4. Mean Sleep Quality Scores (SQS) Pre- and Post-Test

Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference	t-value	p-value
Intervention	22.65 (3.81)	27.13 (3.26)	+4.48	-5.92	< .001
Control	23.08 (4.02)	23.54 (3.97)	+0.46	-0.81	0.422

Source: Research survey, 2025

The intervention group demonstrated a statistically significant improvement in sleep quality following the two-week social media detox. Their mean SQS score increased from 22.65 (SD=3.81) at pre-test to 27.13 (SD=3.26) at post-test, representing a mean gain of 4.48 points ($t(47)=-5.92$, $p<.001$). In contrast, the control group showed a non-significant increase of only 0.46 points ($t(46)=-0.81$, $p=.422$). These results support the stimulation hypothesis (Cain & Gradisar, 2010), which posits that digital media especially when consumed before bedtime stimulates cognitive and physiological arousal that disrupts circadian rhythms, delays sleep onset, and impairs sleep quality. In abstaining from social media, participants in the intervention group likely experienced fewer night-time interruptions, improved melatonin regulation, and more restful sleep cycles. These findings are consistent with previous research showing that reducing screen time before bed significantly improves sleep outcomes among adolescents (Twenge et al., 2020; WHO, 2021). The improvement also underscores the feasibility and potential benefit of integrating social media detox strategies into school-based mental health promotion programs to enhance students' sleep hygiene and academic functioning.

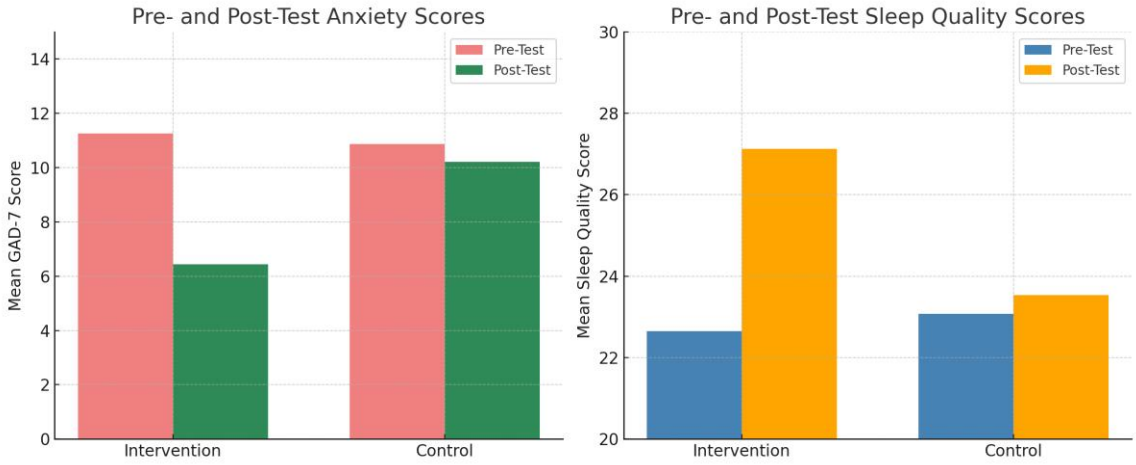
3.3 *ANCOVA Results (Post-Test adjusted for Pre-Test scores)*

To account for minor differences in baseline (pre-test) scores between the groups, an Analysis of Covariance (ANCOVA) was conducted using the post-test anxiety and sleep quality scores as dependent variables and the corresponding pre-test scores as covariates. This allowed for a more accurate estimation of the intervention's effect by statistically controlling for initial group disparities. The results revealed that after adjusting for pre-test anxiety levels, there was a statistically significant effect of the intervention on post-test anxiety scores, $F(1,92)=32.18$, $p<.001$. Similarly, a significant effect was observed for post-test sleep quality scores, $F(1,92)=27.94$, $p<.001$. These findings confirm that the improvements in anxiety and sleep observed in the intervention group were not merely due to baseline differences, but were indeed attributable to the social media detox intervention. These results reinforce the earlier t-test findings and provide further empirical support for the efficacy of digital abstinence in improving adolescent mental health and sleep outcomes in school settings.

3.4 *Summary of key findings*

Students who participated in the two-week social media detox intervention experienced substantial reductions in anxiety symptoms, as evidenced by a statistically significant decline in GAD-7 scores from pre- to post-test. In addition to lower anxiety levels, these students also reported notable improvements in sleep patterns, including increased sleep duration and higher subjective satisfaction with sleep quality. These improvements were consistent across the intervention group and particularly pronounced among students who had reported high baseline screen time (more than three hours of daily social media use). In contrast, the control group who continued their normal digital routines showed no statistically significant changes in either anxiety or sleep scores. These findings suggest that structured abstinence from social media, even for a brief period, can yield meaningful benefits for adolescent mental health and sleep hygiene.

The figure below presents mean scores for anxiety (GAD-7) and sleep quality (SQS) before and after the intervention for both experimental and control groups. The intervention group shows a notable decrease in anxiety and an increase in sleep quality compared to the control group.



4. Discussion and implications

This study investigated the effects of a structured two-week social media detox intervention on anxiety levels and sleep quality among adolescents in selected public secondary schools in Morogoro Region, Tanzania. The findings demonstrated that students in the intervention group, who abstained from platforms such as WhatsApp, TikTok, Instagram, and Facebook, experienced statistically significant reductions in anxiety symptoms and marked improvements in sleep quality. These outcomes were not observed among students in the control group, who maintained their usual social media usage patterns. The magnitude and direction of these effects strongly suggest that the improvements were a direct result of the intervention and not due to confounding factors or natural developmental progression.

These results are consistent with previous international studies that have highlighted the psychological burden associated with excessive social media use among youth. For instance, Vanman, Baker, and Tobin (2018) found that university students in Australia who deactivated Facebook for five days reported lower stress levels and greater overall well-being. Similarly, Allcott et al. (2020), in a large-scale U.S. study, found that reducing social media engagement led to enhanced sleep quality, emotional regulation, and life satisfaction among adolescents. The present study extends this body of knowledge by providing localized, empirical evidence that structured social media abstinence is not only feasible but also effective in a Tanzanian educational context.

From a developmental psychology perspective, adolescents are undergoing critical changes in identity formation, emotional regulation, and social affiliation. According to Erikson's psychosocial theory, the stage of "identity vs. role confusion" is central during adolescence, as young people seek to establish a coherent sense of self. Social media platforms, while offering connection, also present curated images and comparison-driven content that amplify peer pressure and heighten self-consciousness. The constant need for digital validation through likes, comments, and shares can exacerbate emotional distress. The present findings suggest that removing this stimulus, even temporarily, provides adolescents with psychological relief, reduces cognitive overload, and promotes emotional clarity and self-awareness.

Improvements in sleep quality also underscore the biological and behavioral consequences of digital overexposure. Twenge et al. (2020) argue that exposure to screens especially in the evening delays melatonin release and disrupts the body's natural circadian rhythm. This results in delayed sleep onset, fragmented sleep, and daytime fatigue. The students in the intervention group, who abstained from social media and participated in daily mindfulness and journaling activities, reported better restfulness and sleep satisfaction. This is particularly relevant in the Tanzanian context, where recent data from Restless Development (2022) revealed that over 83% of adolescents spend more than three hours per day on social media. Interventions

that reduce digital stimulation and promote healthy pre-sleep routines align with WHO (2021) recommendations for adolescent sleep hygiene and mental health promotion.

The absence of statistically significant changes in the control group further reinforces the validity of the intervention's impact. Their consistent anxiety and sleep scores suggest that without deliberate action, prolonged and unregulated social media use may maintain or even exacerbate psychological strain. This underscores the need for preventive and promotive strategies within schools, particularly in environments where digital literacy is underdeveloped and guidance on healthy media use is lacking. Overall, the findings highlight the viability of low-cost, school-based interventions targeting digital wellness. These interventions are particularly crucial in low-resource settings where access to professional mental health services is limited. Integrating structured digital detox programs into school counseling, health education, and co-curricular activities may serve as a scalable model for enhancing student well-being.

4.1 *Implications for practice*

The findings of this study carry significant practical implications for educational institutions, school health programs, and mental health policy frameworks targeting adolescents in Tanzania. They point to the urgent need for proactive measures to address the rising influence of digital media on student well-being.

4.1.1 *Integration of digital hygiene into school counseling*

The success of the detox intervention suggests that digital wellness and media literacy should be mainstreamed within school guidance and counseling services. Regular activities such as social media detox challenges, reflective journaling, mindfulness exercises, and digital balance clubs can be institutionalized to cultivate healthier digital habits among students. Such interventions should aim not to demonize technology, but to promote intentional, balanced, and mindful usage.

4.1.2 *Teacher and parent engagement*

Both educators and parents are key stakeholders in regulating adolescent digital behavior. They must be sensitized to recognize signs of digital overload, such as sleep disturbances, emotional dysregulation, academic underperformance, and social withdrawal. Schools can organize orientation sessions, workshops, and communication campaigns to promote home-based practices like establishing screen-time boundaries, encouraging device-free study periods, and promoting nighttime device curfews.

4.1.3 *School-based interventions*

Given the low cost, short duration, and ease of implementation, structured digital detox programs can be incorporated into school wellness weeks, psychosocial support programs, or integrated with exam preparation periods to mitigate stress. These school-based models provide a non-pharmacological, scalable approach to improving adolescent mental health, particularly in low-resource contexts where professional counseling services are scarce.

4.1.4 *Policy and curriculum implications*

At the national level, the Tanzania Institute of Education (TIE) and the Ministry of Education, Science and Technology are encouraged to revise curricula to include modules on digital citizenship, media literacy, and adolescent psychosocial development. The findings support the argument that 21st-century life skills must encompass emotional resilience and responsible digital behavior alongside traditional academic competencies.

4.1.5 *Need for longitudinal monitoring*

Although the intervention yielded meaningful short-term improvements, the long-term sustainability of these effects remains unknown. There is a clear need for collaborative, school-based monitoring systems that track student digital engagement, psychological well-being, and sleep health over time. Future research should aim to evaluate the frequency, duration, and format of digital detox interventions that yield optimal and lasting outcomes.

5. Recommendations

Based on the findings and conclusions of this study, several recommendations are put forward for implementation by key stakeholders including schools, parents, policymakers, and future researchers.

i. Firstly, schools and educators should take a leading role in promoting digital wellness among adolescents. This can be achieved by incorporating digital hygiene modules into school counseling and life skills programs. Such modules should focus on responsible digital use, online safety, and the importance of balancing screen time with offline activities. Additionally, schools can initiate monthly or termly social media detox campaigns, offering students a structured opportunity to reflect on their digital habits and regain focus. For boarding schools in particular, structured phone curfews should be established, alongside clear guidelines that distinguish between academic and leisure digital use. These efforts would help foster a healthier digital environment within the school setting.

ii. Parents and guardians also have a critical role to play in supporting adolescents' mental and digital well-being. They should monitor the amount of time their children spend on screens and encourage engagement in alternative activities such as reading, sports, and other creative pursuits. Moreover, it is important that families support school-led detox initiatives by establishing screen-free periods at home, especially in the evening hours and before bedtime. This approach not only reinforces digital discipline but also contributes to better sleep patterns and improved family interactions.

iii. Policymakers and curriculum developers, including the Ministry of Education and the Tanzania Institute of Education (TIE), should prioritize the integration of digital literacy, screen-time management, and sleep education into the national curriculum at both lower and upper secondary school levels. These topics are increasingly relevant to the lived realities of today's students and should be addressed as part of comprehensive life skills education. Furthermore, it is essential to invest in capacity building for teachers and school counselors so that they are equipped to guide students in navigating digital challenges and maintaining mental health.

iv. Finally, future research should explore the long-term impact of digital detox interventions on adolescent development. Longitudinal studies are particularly recommended to assess sustained behavioral and academic outcomes. Further investigations should also consider how factors such as gender, socio-economic background, and urban-rural school contexts influence the effectiveness of detox strategies. Additionally, there is a need to study the varying effects of different types of social media platforms such as messaging apps versus video-based platforms. on adolescent anxiety, sleep quality, and overall well-being. These research efforts would deepen understanding and inform more targeted interventions.

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