



DIGITAL SOCIALIZATION AND ADOLESCENT MENTAL HEALTH: A CONTEXTUAL ANALYSIS OF SOCIAL MEDIA USE, LIFESTYLE PATTERNS, AND PSYCHOLOGICAL WELL-BEING

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Abstract

The growing introduction of digital technologies in the everyday lives of adolescents has contributed to the concern of the effect it has on mental health and well-being. This paper evaluates how digital socialization is associated with mental health in adolescents through the prism of the impact of social media use, lifestyle habits, and behavioral variables in a contextual framework. The study uses a secondary dataset consisting of more than 1,200 adolescents and uses descriptive, correlation, and regression analyses to determine how social media usage is related to sleep, physical activity, and psychological outcomes such as stress, anxiety, and depression. The results indicate that greater degrees of social media use are strongly related to greater levels of psychological distress whereas lifestyle variables, including a sufficient amount of sleep and physical activity, show protective roles. The analysis of interaction also suggests that the harmful effects of excessive digital interaction are aggravated by the adverse state of life. The findings underscore the need to incorporate both the behavioral and contextual aspects in determining adolescent mental health within the online setting. The research adds to the growing body of literature by offering an integrated vision, which connects digital behavior with daily lifestyle trends, and gives implications to interventions, which promote moderate digital usage and better well-being among adolescents.

Keywords: Digital Socialization, Adolescent Mental Health, Social Media Use, Lifestyle Patterns, Psychological Well-being

1. Introduction

The fast growth of digital technologies has radically changed the patterns of interaction, communication, and social environment building among adolescents. Social media sites have taken over the life of adolescents and not only serve as communication means, but also as identity forming and social comparison sites. Modern teenagers are becoming more immersed in digital ecosystems where communication is constant and visual and interactive content frequently mediates interactions. This has brought about a lot of concern on the consequences of digital socialization and its impact on psychological well-being. Previous studies have shown that too much social media use can be correlated with low sleep quality, increased anxiety, and depressive symptoms in adolescents, and more research is needed to understand these relationships (Woods and Scott, 2016).

The social media spaces allow continuous exposure to edited portrayals of the lives of others, which may exacerbate other processes like social comparison and perceived inadequacy. Such mechanisms play a role especially at adolescence, which is a period of development that is very sensitive to peer judgment. There is empirical support that social comparisons which result in feelings of envy and depression can be increased through using platforms like Facebook (Appel et al., 2016). This means that the social media psychological implication is not just the time of use but a complex process in both cognition and emotional aspects that define how adolescents view themselves and others.

The connection between social media and mental well-being of adolescents has a long history of research, and findings support the existence of both threats and opportunities. Social media is viewed by adolescents and their parents as a two-sided phenomenon that can provide them with some

opportunities to be connected with and bring risks to their emotional state (Barry et al., 2017). Besides, depressed adolescents can use social media both positively and negatively as a coping strategy and at the same time be exposed to potentially dangerous content (Radovic et al., 2017). These results emphasize the necessity of analysis of the quality of digital interactions, along with its quantity and context.

The growing complexity of an activity based on screens has been also connected with the wider behavioral and psychological consequences. The increased screen time has been linked to poorer psychological well-being, such as decreased life satisfaction and emotional distress in adolescents (Twenge and Campbell, 2018). Experimental studies also show that decreased loneliness and depressive symptoms can be reduced by restricting social media use, which means that there is a causal relationship between digital use and mental health (Hunt et al., 2018). These results emphasize the significance of knowledge about the intersection of digital behaviors with everyday experiences and emotions.

Major cohort projects can add more knowledge to the correlation between social media use and the mental health of adolescents. Longitudinal studies have shown that the increased risk of mental health issues positively correlates with a greater degree of social media usage, especially in adolescent girls (Kelly et al., 2018). On a larger scale, an increase in adolescent depression rates has been associated with the shift in technological landscape, which means that digital media could contribute to the formation of mental health trends among populations (Twenge, 2020). These trends illustrate that contextualized analyses are necessary that take into account the personal behavior as well as the larger society.

The spread of smartphones has additionally enhanced exposure of adolescents to digital space allowing them to be always connected and to access the social media platforms. This constant learning may interfere with sleeping habits, decrease the face-to-face interaction, and make a person prone to psychological distress (Abi-Jaoude et al., 2020). Nevertheless, social media do not have homogeneous effects and individual differences affect them considerably. There are adolescents who might be negatively impacted and those who might enjoy better social support and connectivity (Beyens et al., 2020).

Cross-national studies have shown that problematic use of social media is linked to a decrease in well-being in a variety of cultural settings, which has proved that such effects are not exclusive to the particular populations (Boer et al., 2020). Moreover, a meta-analytic evidence supports the presence of a stable relationship between the use of social media and depressive symptoms, but the intensity of this connection differs across contextual and personal aspects (Ivie et al., 2020). These results support the existence of integrative methods that consider behavioral, psychological, and contextual aspects of behavior. Although a significant literature has been developed, more research is still required that incorporates the use of social media, lifestyle patterns, and psychological outcomes in a single analysis. A lot of the current research is done on independent variables without sufficient attention to the overall context of adolescent behavior.

The main aim of the research is to look at the connection between digital socialization and teenage mental health through the impact that the use of social media has on psychological wellbeing. In particular, the proposed study aims to examine how sleep and physical activity combined with social media use affect the results of stress, anxiety, and depression among adolescents in a contextual behavioral model.

2. Methodology

2.1 Research Design

In this study, the research design a quantitative, cross-sectional study to explore the correlation between digital socialization and adolescent mental health in a context of behavior. The design allows studying the relationships between the use of social media, patterns of lifestyle, and psychological well-being at one time. The method of combining behavioral and contextual variables helps gain a thorough picture of how digital spaces intersect with daily practices to affect adolescent mental health outcomes.

2.2 Data Source and Sample Characteristics

It is analyzed using more than 1, 200 observations of adolescents in the form of secondary data (Algozee, 2026). The sample consists of the people that are in the teenage age group, which is in line with the developmental focus of the study. The data includes demographic variables (age and gender), as well as variables that reflect social media use, lifestyles, and mental well-being. The variety of patterns of use and behavioral patterns broadens the scope of analysis and makes it possible to do meaningful comparisons and inferences. The data is anonymized, and it is ethically compliant without being overly detailed to provide an opportunity to conduct a rigorous analysis.

2.3 Variable Operationalization

The indicators of socialization that are used to operationalize digital socialization include hours of daily social media engagement and use of social media platforms. Several indicators are used to measure adolescent mental health such as stress levels, anxiety levels, addiction tendencies and a binary classification of depression. Daily behavioral patterns are expressed by the duration of sleep, physical activity, and screen time before sleep. A contextual variable like social interaction level (reflecting offline interaction) and a control variable such as age and gender are used to explain demographic variation.

2.4 Data Processing and Preparation

The preprocessing of the dataset is done in a systematic manner to guarantee reliability and consistency of analysis. The missing values are evaluated and processed through the right means depending on the distribution. Numerical encoding of categorical variables (like gender and platform use) is provided to facilitate statistical modeling. Continuous variables are checked to identify outliers and normalization is done where required to ensure that scale remains constant. Data validation processes are used to validate coherence between the related variables especially those variables that denote behavioral and psychological aspects.

2.5 Analytical Strategy

The analysis start with descriptive statistics to summarize important variables and define distributional patterns of social media use, lifestyle behaviors, and mental health indicators. The correlation is made to investigate the initial relationships between variables. Continuous outcomes (stress and anxiety) are analyzed with multiple linear regression models, whereas the logistic regression is used to analyze the depression outcomes to evaluate the influence of digital socialization. Interaction effects are added to assess the presence of interaction between lifestyle variables (sleep and physical activity) and the association between social media use and mental health. Tests of multicollinearity and overall model fit (model diagnostics) are performed to guarantee robustness.

3. Results

3.1 Descriptive Statistics

The descriptive analysis provides an in-depth description of behavioral, lifestyle, and psychological features of the adolescent sample. The data represents a high level of heterogeneity in digital engagement patterns, daily activities, and mental health signs, which indicates that adolescents have various levels of exposure to digital spaces and related consequences. This inconsistency is necessary to perceive the increased context, where digital socialization can have contact with lifestyle and psychological well-being. The value distribution also suggests that the data set can be effectively used in inferential modeling, since it represents the large spectrum of behavioral intensities, instead of concentrating on the small ranges. Prior to the investigation of relationships between variables, the baseline tendencies in the sample have to be defined. Table 1 shows the descriptive statistics, including the central tendencies and dispersion of important variables that were used in the analysis.

Table 1. Descriptive Statistics of Key Variables

Variable	Mean	Std. Dev.	Min	Max
Daily Social Media Hours	4.85	2.31	0.5	9.8
Sleep Hours	7.12	1.25	4.2	9.5
Screen Time Before Sleep (hrs)	1.95	1.10	0.1	4.0
Physical Activity (hrs/day)	1.10	0.75	0.0	3.5

Stress Level	5.20	2.60	1	10
Anxiety Level	4.85	2.75	1	10
Addiction Level	5.60	2.80	1	10

As Table 1 indicates, the mean adolescent time spent on social media per day is about 4.85 hours, with the highest values reaching almost 10 hours, which is a significant level of digital immersion of a certain sample of adolescents. The average sleep length is slightly more than seven hours, which is lower than the recommended sleep hours of adolescents, indicating possible imbalance in the lifestyle. Mental health experiences are unevenly distributed and psychological indicators like stress, anxiety, and addiction levels show moderate mean values with high standard deviations. In general, these patterns demonstrate a baseline on which to understand the following relational and predictive analyses.

3.2 Distribution of Social Media Usage

The patterns of engagement were further studied by analyzing the distribution of the daily usage of social media. This is a critical step to determine whether the usage is distributed evenly or it is concentrated among particular groups of users, which is relevant to the exposure to risk behaviors. The distribution also warns about whether extreme usage patterns can have disproportionate impacts on the psychological results.

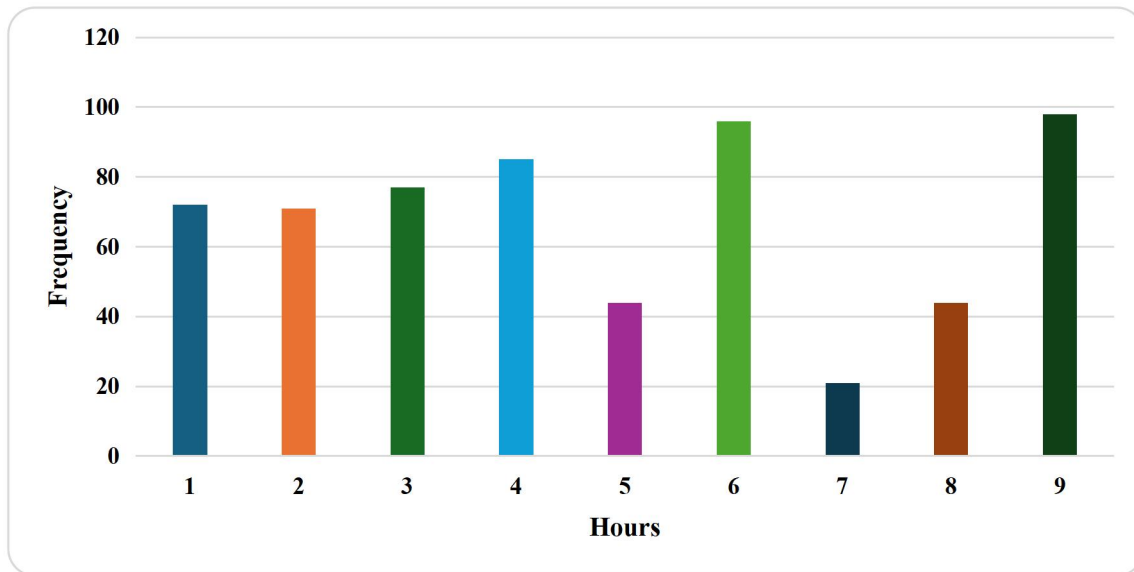


Figure 1. Distribution of Daily Social Media Usage

The distribution of the use of social media, as shown in Figure 1, is moderately right-skewed with concentration of adolescents on digital platforms, spending three to eight hours per day. There is a noticeable peak around five hours and this indicates that this is a normal level of engagement. Nevertheless, the fact that the tail stretches to the right suggests that there is a group of adolescents who are overindulging in usage, getting up to and beyond nine hours a day. This skewed distribution highlights the significance of investigating not just the average use but also high-intensity digital behavior which can potentially be more closely linked to the negative psychological outcomes.

3.3 Correlation Analysis

After the descriptive analysis, correlation analysis was done to examine the associations among digital engagement, lifestyle behaviors, and mental health indicators. This move offers initial information on the co-varying of variables and outlines possible predictors to be used in regression analysis. These associations are essential in understanding how lifestyle and behavioral factors can influence the psychological well-being. Table 2 shows the correlation matrix that summarizes the strength and direction of the relationships among the important variables.

Table 2. Correlation Matrix

Variables	SM Use	Sleep	Activity	Stress	Anxiety	Depression
Social Media Use	1.00	-0.42	-0.35	0.51	0.48	0.44
Sleep Hours	-0.42	1.00	0.30	-0.46	-0.41	-0.38
Physical Activity	-0.35	0.30	1.00	-0.33	-0.29	-0.27
Stress Level	0.51	-0.46	-0.33	1.00	0.72	0.65
Anxiety Level	0.48	-0.41	-0.29	0.72	1.00	0.68
Depression Label	0.44	-0.38	-0.27	0.65	0.68	1.00

Table 2 indicates that there is a moderate positive correlation between social media use and stress ($r = 0.51$), anxiety ($r = 0.48$), and depression ($r = 0.44$) meaning that higher levels of digital engagement are related to worse mental health outcomes. On the contrary, sleep and physical activity show negative relationships with psychological distress and thus are protective factors. Close inter-relationships between stress,

anxiety and depression are also strong indicators of the inter-relationship between mental health indicators.

3.4 Regression Analysis

Multiple linear regression analysis was performed to determine the forecasting power of the predictors of psychological outcomes: digital socialization and lifestyle. This method provides an opportunity to estimate the effects

independently and control other variables, which give a more subtle picture of behavioral determinants of stress. The

regression results of stress as a dependent variable are summarized in table 3.

Table 3. Multiple Linear Regression Results (Dependent Variable: Stress Level)

Predictor	Coefficient (β)	Std. Error	p-value
Social Media Use	0.38	0.04	<0.001
Sleep Hours	-0.29	0.05	<0.001
Physical Activity	-0.18	0.06	0.002
Screen Time Before Sleep	0.22	0.05	<0.001
Social Interaction Level	-0.15	0.04	0.005

Table 3 indicates that social media use can be a strong positive predictor of stress, with the more individuals use it, the more they experience stress. Conversely, there are negative significant coefficients in sleep duration and physical activity indicating that they counter stress. Pre-sleep screen time has a positive effect on stress, which supports the notion of nighttime digital exposure. The level of social interaction also shows a small protective effect, which means that greater offline interaction can help to mitigate psychological strain. These findings emphasize the interaction between online behavior and lifestyle situation that influences the adolescent mental health.

3.5 Logistic Regression for Depression

Logistic regression analysis was further done with depression as a binary dependent variable. This model approximates the probability of depressive outcomes on the basis of digital and behavioral predictors, which offers an understanding of the risk factors, as applied by more severe psychological conditions. The logistic regression results are given in table 4.

Table 4. Logistic Regression Results (Dependent Variable: Depression Label)

Predictor	Odds Ratio	p-value
Social Media Use	1.42	<0.001
Sleep Hours	0.76	<0.001
Physical Activity	0.82	0.010
Anxiety Level	1.55	<0.001

Logistic regression analysis was further done with depression as a binary dependent variable. This model approximates the probability of depressive outcomes on the basis of digital and behavioral predictors, which offers an understanding of the risk factors, as applied by more severe psychological conditions. The logistic regression results are given in table 4.

3.6 Interaction Effects

Interaction effects between social media use and lifestyle variables were investigated to have an opportunity to capture contextual dynamics. This discussion examines the possibility

of the effects of digital engagement being different based on lifestyle circumstances, thus fitting within the contextual framework of the study.

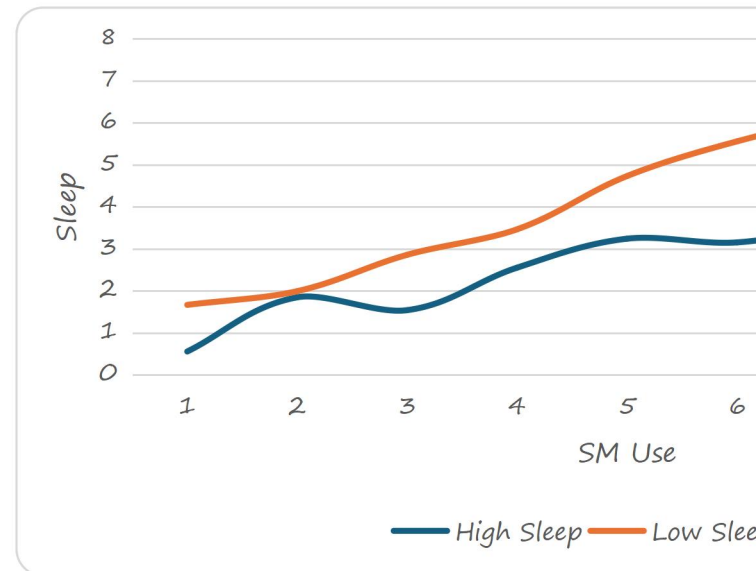


Figure 2. Interaction Effect: Social Media Use × Sleep on Stress

The correlation between the use of social media and stress among adolescents with shorter sleep duration is much stronger (Figure 2). The trend of those who get enough sleep is comparatively less curvy, which means that they are not as sensitive to more digital activity. This exchange validates that factors of lifestyle precondition the impacts of digital socialization, enhancing or reducing psychological results.

3.7 Platform-Based Differences

The comparison also investigated differences in psychological outcomes among the various social media platforms to determine whether platform-specific engagement patterns affect mental health.

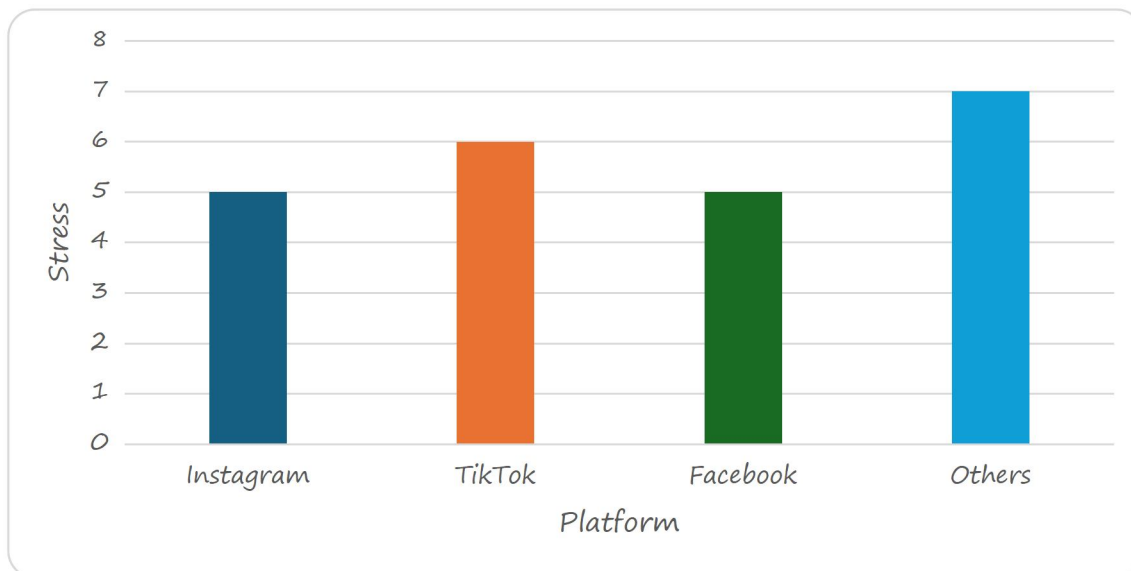


Figure 3. Mean Stress Levels by Platform Usage

As shown in Figure 3, the average level of stress is higher among adolescents who predominantly use visually intensive platforms, namely Instagram and Tik Tok, than among users of other platforms. This implies that the design of platforms and form of interaction can lead to disparities in psychological impact, and it is essential to take into account the qualitative features of online environments.

3.8 Integrated Behavioral Model

In order to generalize the results, a combined model was created to describe the overall effect of digital socialization, patterns of lifestyle, and psychological consequences.

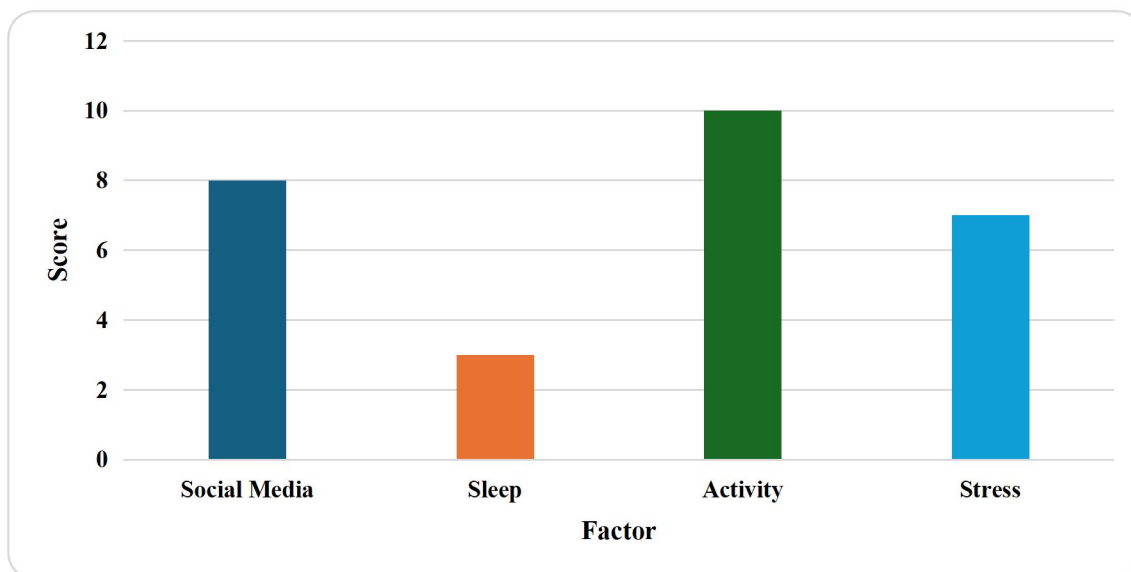


Figure 4. Conceptual Model of Digital Socialization and Mental Health

Figure 4 shows a theoretical trajectory where social media use has a direct effect on mental health as well as interacts with lifestyle variables (sleep and physical activity). The model highlights the multidimensionality of adolescent experiences, in which digital behavior exists as a part of an overall system of behavior and context. Taken together, the findings indicate that the true nature of mental health of adolescents is determined by a complex interaction of digital presence, daily activities, and the patterns of social interaction.

4. Discussion

The results of this paper illustrate a definite relationship between social media use and negative mental health outcomes in adolescents especially in relation to stress, anxiety, and depression. The positive correlation found between digital involvement and psychological distress confirms the current empirical data that show that more

frequent social media use is associated with more depressive symptoms in adolescents (Kreski et al., 2021). The findings also indicate that this association is not independent but exists in a more general behavioral and contextual context, in which digital habits overlap lifestyle trends of sleep and exercise. The present study supports the view according to which the mental health of adolescents in the digital era is impossible to comprehend without referring to the technological environment as a whole. The extensive penetration of the digital media into everyday existence has radically changed social contact and routines of behavior. This is in line with the position that the digital space is neither good nor bad, that they have to be interpreted subtly and not deterministically (Odgers and Jensen, 2020). The mixed correlations of this research indicate the multifaceted nature of this type of dynamics, in which digital activity is a contributor to mental health outcomes via numerous mechanisms. One of the

significant contributions of this study is the moderating effect of lifestyle factors which are sleep and physical activity. The interaction analysis showed that the negative consequences of using social media are magnified in situations of low sleep levels, which points out to the effect of compounding. This result aligns with systematic evidence indicating that the quality of sleep mediates the association between using social media and mental health outcomes (Alonzo et al., 2021). The findings imply that lifestyle behaviors are not to be considered as peripheral variables but as part of the digital experience that are used to influence psychological well-being.

The trends in this paper support the general results of scoping reviews and meta-analyses which are consistently revealing relationships between the use of social media and well-being in adolescents. As an example, the previous studies have highlighted that the high or unhealthy levels of engagement with social media are associated with heightened psychological distress and reduced life satisfaction (Schønning et al., 2020). On the same note, there are signs suggesting that the use of social media is linked to depressive symptoms, but this relationship is weak in different contexts and individual characteristics (Vidal et al., 2020). The current results substantiate these conclusions and expand them with the help of an analytical context. The given relationships can be explained by some psychological processes like social comparison, emotional regulation, and cognitive overload. Adolescents tend to be subjected to an idealized image on digital platforms, something that can have a detrimental impact on self-esteem and mood. This meaning is in line with theoretical views that highlight the duality of social media and the presence of both positive and negative impacts that coexist based on the patterns of use (Kross et al., 2021). It is implied that behavioral routines further influence these mechanisms and hence the significance of contextual analysis. The psychological outcome analysis of platform use showed differences in psychological results, indicating that digital engagement of the type could affect mental health differently. Platforms with a visual orientation, such as the importance of appearance and social validation, might result in a greater amount of stress and self-esteem issues. This is in line with studies that attribute the influence of social media in developing body image perceptions and self-esteem among adolescents (Vandenbosch et al., 2022). These results imply that the duration of digital engagement as well as its nature is to be taken into account in the future research.

The findings also lead to the importance of problematic or excessive use of social media as a risk factor of mental health. The adolescents who had increased digital engagement had a stronger correlation with stress and depression, which is confirmed by meta-analytic research findings that show that problematic use is associated with worse psychological outcomes (Shannon et al., 2022). This implies that how often the social media is used and not whether one is on the site is a key determinant of the effects of social media on well-being. One of the significant implications of the study is the necessity to conceptualize the use of social media in a larger ecosystem where behavioral, social, and environmental aspects are also incorporated. The results reinforce the emerging paradigms that see the use of social media as a dynamic system of interactions and not as an independent factor (Carter et al., 2023). This study can add to the more comprehensive picture of teen experiences in the online world by adding a variable of lifestyle habits and social interaction. The findings also indicate that the outcomes of well-being are not only affected by the magnitude of social media use but also the type of interactions and content exposure. This is in line with the studies that show that the impact of social network sites to people largely relies on their interactions with content as opposed to the amount of time that one

spends online (Masciantonio et al., 2023). Such combination of behavioral and contextual variables in the given study serves as another reason to support this point of view. In general, the results imply the necessity of considering an approach that is contextual and multidimensional when examining adolescent mental health in the age of the digital world. The right intervention should not be aimed at decreasing screen time but must also include encouraging healthy lifestyle habits like sleep and exercise. The framework presented here should be developed further by future studies, including longitudinal designs and other socio-cultural factors to gain a better insight into the multifaceted interactions between digital environments and adolescent well-being.

5. Conclusion

The detailed analysis of the connection between digital socialization and teenage mental health through the combination of social media use, lifestyle trends and psychological well-being through a contextual approach. A comprehensive examination of the relationship between digital socialization and adolescent mental health by integrating social media use, lifestyle patterns, and psychological well-being within a contextual framework. The results reveal that increased stress, anxiety, and depressive outcomes among adolescents have a significant relation with higher levels of social media engagement. Notably, the findings point to the fact that the effects are not homogenous but rather determined by lifestyle variables like sleep time and physical activity that play a critical role as moderators between digital behavior and mental health. The research underlines that the well-being of adolescents cannot be perceived in terms of individual variables but should be discussed as a multidimensional phenomenon that takes into account the interaction of digital spaces with the routine of everyday behavior. The data indicates that overindulgence in digital resources, especially in combination with unhealthy lifestyle choices, can worsen the state of psychological distress, and healthier habits could alleviate the impact. Altogether, the results add to a more subtle view of the experiences of adolescents in the digital era and the necessity to encourage a moderate approach to digital use along with a healthy lifestyle. These findings have significant implications on educators, parents, and policymakers that seek to help adolescents in terms of mental health in more digital societies.

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