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A Comparative Study on the Impact of Social Media on Mental Health

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Abstract: ***This study presents a comparative analysis investigating the differential impacts of social media usage on the mental health of adolescents (ages 13–17) and young adults (ages 18–25). As digital platforms become increasingly integrated into daily communication, understanding their psychological outcomes has become a critical public health objective. Utilizing a cross-sectional comparative research design (N = 300), this project evaluates key psychological dimensions- including anxiety, depression, sleep quality, self-esteem, and social comparison orientation- across passive vs. active consumption modes and gender demographics. Standardized psychometric assessment instruments, including the Patient Health Questionnaire (PHQ-9), General Anxiety Disorder scale (GAD-7), Rosenberg Self-Esteem Scale (RSES), Pittsburgh Sleep Quality Index (PSQI), and Iowa-Netherlands Comparison Orientation Measure (INCOM), were deployed alongside daily screen-time tracking metrics. Empirical analysis revealed significant differences between demographics and usage typologies: passive scrolling (e.g., algorithmic feed consumption, doomscrolling) was correlated with higher rates of depressive symptoms (r = .46, p < .001) and lower self-esteem compared to active social engagement. Furthermore, adolescent females exhibited elevated sensitivity to social comparison online relative to young adult males. These findings highlight the need for tailored digital literacy frameworks, platform-level safety features, and target-specific behavioral interventions.***

Keywords: mental health, social media, digital platforms, adolescent, young adults

1. Introduction

Social media platforms like Instagram, WhatsApp, and YouTube have become integral to daily life. While they provide connectivity and entertainment, they also raise concerns regarding mental health.
This project aims to compare how social media affects different users and identify both beneficial and harmful outcomes.

Human beings are inherently social creatures who crave companionship and communication. It seems as though cooperating with others is the only way to make progress in life, according to lifestyle gurus and networking coaches. Being socially connected to others has never been more important, which explains the immense success of social media networking platforms. Despite the associated risks and dangers of this new invention, people use social media daily and rely on it in various aspects of their lives. Since the concept is relatively new, there are a limited number of studies, which would assess the impact of Instagram, Facebook, or any other platform on users' mental health. Nevertheless, recent research indicates that the unnecessary and excessive use of social media can lead to depression, anxiety, and low self-esteem. The evidence paints a clear picture of the threats people might face as a result of social media use.

Adolescence and young adulthood represent vulnerable neurological and psychological developmental stages characterized by identity formation, social reward seeking, and heightened peer influence. Consequently, interaction with hyper-curated digital environments creates unprecedented exposure to quantifiable peer metrics (e.g., likes, shares, comments), targeted algorithmic streams, and social comparison standards.

Conceptual Usage Typology & Impact Domains

- PASSIVE USAGE: Endless feed scrolling, algorithm-driven consumption, upward social comparison, doomscrolling.
- ACTIVE USAGE: Direct messaging, original content creation, collaborative digital participation, interactive discussions.
- PSYCHOLOGICAL DOMAINS IMPACTED: Depressive affect (PHQ-9), anxiety severity (GAD-7), self-esteem (RSES), sleep architecture disruption (PSQI).

2. Literature Review on the Impact of Social Media on Mental Health

This literature review explores the multifaceted relationship between social media usage and its potential impact on mental health. As social media platforms continue to proliferate and integrate into our daily lives, understanding their implications for mental well-being becomes increasingly critical. The review synthesizes findings from a diverse range of studies, encompassing various demographic groups and cultural contexts. The first section examines the positive aspects of social media, including the potential for social support, connection, and community building. Research suggests that individuals can derive emotional and informational support from their online networks, fostering a sense of belonging and reducing feelings of isolation. Additionally, social media platforms have become valuable tools for disseminating mental health resources and promoting awareness. However, the review also delves into the darker side of social media, exploring the numerous ways in which it can contribute to mental health challenges. The constant exposure to curated depictions of others' lives may lead to social comparison and feelings of inadequacy. Cyber bullying, online harassment, and the pressure to conform to unrealistic beauty standards are

identified as significant risk factors for mental health deterioration, especially among adolescents.

The impact of social media on sleep patterns is another focal point of the review, as the constant connectivity and exposure to stimulating content may disrupt sleep hygiene, subsequently affecting mental health. Moreover, the addictive nature of social media, driven by algorithms designed to maximize engagement, raises concerns about excessive screen time and its potential contribution to anxiety and depression. The review also explores the role of social media in the dissemination of misinformation related to mental health, emphasizing the need for digital literacy and critical thinking skills. The amplification of sensationalized content and the potential for contagion effects in the context of self-harm and suicidal ideation are discussed as important considerations for mental health professionals and policymakers. In conclusion, this literature review underscores the nuanced and complex relationship between social media and mental health. While acknowledging the positive aspects, it highlights the importance of addressing the potential negative consequences. Future research directions and recommendations for mitigating the adverse effects of social media on mental health are discussed, emphasizing the need for a balanced approach that considers both the benefits and risks associated with digital connectivity.

Focus of the Study:
This study focuses on analyzing the impact of social media usage on the mental health of individuals, with special emphasis on a comparative analysis between different age groups, particularly teenagers and adults.

The research primarily examines how the use of popular platforms such as Instagram, Facebook, and Twitter influences emotional well-being, including levels of stress, anxiety, self-esteem, and overall psychological health. It also explores both the positive aspects (such as social connectivity and support) and negative effects (such as addiction, social comparison, and sleep disturbances) associated with social media usage.

Furthermore, the study aims to compare behavioral patterns, screen time, and emotional responses among users to understand which group is more vulnerable to mental health issues due to social media exposure.

Overall, the focus is to identify patterns, differences, and key factors that contribute to the psychological impact of social media and to suggest ways to promote healthier usage habits.

Significance of the Study
This study is significant as it helps in understanding the growing influence of social media platforms such as Instagram, Facebook, and Twitter on the mental health of individuals. In today's digital age, social media has become an essential part of daily life, especially among teenagers and young adults, making it important to examine its psychological effects.

The study provides valuable insights into both the positive and negative impacts of social media, including its role in enhancing communication and social support, as well as its contribution to stress, anxiety, low self-esteem, and sleep disturbances. By comparing different age groups, the research highlights which group is more vulnerable and why.

This study is also important for students, parents, educators, and policymakers, as it raises awareness about responsible social media usage and mental well-being. It can help in developing strategies to reduce harmful effects, encourage healthy digital habits, and promote better mental health practices.

Overall, the findings of this study contribute to a better understanding of how social media affects psychological well-being and provide a foundation for future research and preventive measures.

3. Research Methodology

Methodology& Approach
This project utilizes a quantitative, cross-sectional, comparative survey methodology. Primary data was gathered via structured digital assessment instruments to compare predefined sub-groups.

3.1 Target Population & Stratification

- Cohort A (Adolescents): Ages 13–17 (n = 150)
- Cohort B (Young Adults): Ages 18–25 (n = 150).

A 2 × 2 × 2 factorial comparative design was implemented across the main variables:

Factor	Grouping 1	Grouping 2
Age Cohort	Adolescent (13–17)	Young Adult (18–25)
Usage Type	Passive (Browsing/Scrolling)	Active (Posting/Messaging)
Gender	Female	Male

3.2 Operational Variable Definitions

- Independent Variables (IV): Daily Screen Time (hours), Social Media Usage Mode (Passive vs. Active), Demographic Factors (Age Cohort, Gender).
- Dependent Variables (DV): Depressive Symptom Severity (PHQ-9), Anxiety Severity (GAD-7), Global Self-Esteem (RSES), Sleep Quality (PSQI).
- Mediating Variable: Social Comparison Propensity (INCOM scale).

3.3 Assessment Tools

Data was gathered using standardized, validated psychometric scales:

Scale Name	Measured Construct	Items	Reliability (Cronbach's α)
PHQ-9	Depressive Symptomatic Load	9	.88
GAD-7	General-Anxiety Severity	7	.91
RSES	Global Self-Esteem	10	.86
PSQI	Sleep Quality & Latency	19	.83
INCOM	Social Comparison Tendency	11	.85

4. Data Collection

Data collection was executed using stratified convenience sampling via encrypted online portals and educational institution networks over a 12-week timeframe. Institutional Ethical Review Board (IRB) approval and informed consent/assent were obtained prior to administration.

- Inclusions: Active social media user for ≥ 6 months; Aged 13 to 25 years old.
- Exclusions: Diagnosed clinical neurological conditions; Incomplete survey instruments (< 95% completion).
- Final Sample Size: Total Captured N = 342 | Removed = 42 | Validated Dataset N = 300 (150 Adolescents, 150 Young Adults).

5. Results and Discussion

Empirical Findings Overview

Table 1: Comparative Mean Scores Across Age Cohorts & Usage Typologies

Psychological Measure	Adolescent Passive.	Adolescent Active.	Young Adult Passive.	Young Adult Active
PHQ-9 (Depression)	14.2 ± 3.1	9.1 ± 2.4	11.8 ± 2.8	7.4 ± 2.1
GAD-7 (Anxiety)	13.6 ± 2.9	8.4 ± 2.2	10.9 ± 2.6	6.9 ± 1.9
RSES (Self-Esteem)	14.1 ± 3.8	19.4 ± 3.2	16.8 ± 3.5	21.2 ± 3.0
PSQI (Sleep Index)	11.4 ± 2.2	6.8 ± 1.8	9.2 ± 2.0	5.9 ± 1.4

Note: *Higher scores on PHQ-9, GAD-7, and PSQI indicate greater severity/impairment. Higher RSES scores indicate higher self-esteem.*

Key Statistical Outcomes

1) Usage Type Effect: Independent samples t-tests indicated that passive users across both cohorts exhibited significantly higher depression ($t = 6.42$, $p < .001$) and anxiety scores ($t = 5.89$, $p < .001$) compared to active users.
2) Gender Interactions: A two-way ANOVA revealed a significant interaction between gender and social media consumption on self-esteem ($F(1, 296) = 14.32$, $p < .001$), with female adolescents experiencing the sharpest decrease in self-esteem scores linked to high passive consumption.
3) Sleep Quality Correlation: Nighttime screen exposure correlated positively with global PSQI scores ($r = .52$, $p < .001$), showing that late-night scrolling strongly predicts degraded sleep architecture.

6. Discussion

These results align with modern psychological theories regarding digital environments. The findings demonstrate that overall screen duration alone is insufficient to predict mental health outcomes; the structural mode of usage (active vs. passive) plays a critical role. Passive scrolling exacerbates upward social comparison, leading users to contrast their internal experiences with external highlights of others. Conversely, active communication supports social connection, mitigating isolation.

Adolescents displayed higher vulnerability compared to young adults, likely due to developmental factors related to emotional regulation and identity formation. The amplified impact observed in adolescent females reinforces findings that social comparison and body image concerns are particularly salient within this demographic.

7. Future Scope and Recommendations

7.1 Longitudinal Study Designs

Future research should transition from cross-sectional surveys to multi-year longitudinal designs to track individual developmental trajectories and determine long-term causality.

7.2 Objective Data Integration

Subsequent projects should incorporate objective telemetry data (such as direct platform usage metrics and wearable-derived sleep metrics) to complement self-reported survey data.

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