Team code: TY-04

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Tentative Title: A Comparative Study of the Impact of Social Media Usage on Mental Health Outcomes Among Adolescents and Young Adults

Domain: Psychology & Human Behavior
 Sub Domain:

- Clinical Psychology (Jayraj Kamliya – Roll No: 30)
- Behavioral Science (Hiten Patel – Roll No: 50)
- Mental Health Interventions (Ishwar Sable – Roll No: 59)

Objective Description:
 The objective of this research is to investigate, analyze, and compare the correlations between different patterns of social media usage (such as time spent, platforms used, and type of engagement) and various mental health outcomes among adolescents and young adults. The study is designed to address three interconnected subdomains for a holistic understanding. Under **Clinical Psychology**, the focus is on understanding the internalizing symptoms such as anxiety, depression, loneliness, and fluctuations in self-esteem that are directly linked to individual psychological well-being. Under **Behavioral Science**, the emphasis is on the role of online behaviors, algorithmic amplification, social comparisons, and generational differences in shaping how social media affects mental states. Finally, under **Mental Health Interventions**, the research explores strategies and practical measures including school-based programs, parental mediation, government policy, app-based solutions, and positive online engagement to mitigate risks and enhance protective factors. This division ensures that the study not only identifies negative impacts but also provides evidence-based recommendations for prevention and improvement.

Jayraj Kamliya – Roll No: 30 – Clinical Psychology

PICO 1: The Association Between Time Spent on Social Media and Internalizing Symptoms in Adolescents
 Authors of Paper: Twenge, J. M., & Campbell, W. K. (2018). *Associations between screen time and lower psychological well-being among children and adolescents.*
 Problem: The rapid rise of social media has sparked concerns about its potential harm to adolescent mental health, especially during their developmental years. Understanding the nature of this relationship is crucial for public health.
 Intervention: This large-scale study analyzed survey data from thousands of adolescents, measuring the amount of time they spent on social media and various digital screens.
 Comparison: The mental health outcomes such as depression, anxiety, and suicidal ideation

of heavy users (>5 hours/day) were compared to those of light users (<1 hour/day) and non-users.

Outcome: The study revealed a clear dose-response relationship: adolescents who spent more time on social media reported higher levels of internalizing problems and lower overall psychological well-being.

PICO 2: Social Comparison and Envy on Facebook: A Study on Depressive Symptoms

Authors of Paper: Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). *Social comparison, self-esteem, and social media: A meta-analysis.*

Problem: Passive consumption of highly curated social media content may foster negative emotions such as envy, ultimately affecting mental health.

Intervention: This research focused on the mechanism of social comparison and how observing others' positive posts and achievements can influence psychological outcomes.

Comparison: The mental health state of individuals who primarily consumed content passively was compared with those who actively interacted and connected on social media.

Outcome: Findings indicated that passive users were significantly more likely to experience envy and depressive symptoms, demonstrating that the manner of usage (active vs. passive) is more important than the amount of usage.

PICO 3: The Role of "Likes" and Feedback Seeking on Adolescent Self-Esteem

Authors of Paper: Sherman, L. E., Payton, A. A., Hernandez, L. M., Greenfield, P. M., & Dapretto, M. (2016). *The power of the like in adolescence.*

Problem: Adolescents often seek validation online, which can deeply influence their self-worth.

Intervention: Using fMRI technology, this study observed adolescent brain activity as participants engaged with a simulated social media platform where they received different numbers of "likes."

Comparison: Brain activity in regions linked to reward processing and social cognition was compared when participants received high numbers of likes versus low numbers.

Outcome: Receiving many likes activated the brain's reward centers similarly to addictive substances, creating a feedback loop where self-esteem became tied to online validation.

PICO 4: Cyberbullying Victimization and its Severe Impact on Anxiety and Depression

Authors of Paper: Hinduja, S., & Patchin, J. W. (2018). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying.*

Problem: Cyberbullying is a prevalent issue with serious psychological consequences.

Intervention: This research analyzed various forms of cyberbullying, such as harassment, trickery, and exclusion, while measuring their prevalence.

Comparison: The mental health outcomes of adolescents who experienced cyberbullying were compared with those who had not.

Outcome: Victims were significantly more likely to experience depression, anxiety, social isolation, and in extreme cases, suicidal ideation.

PICO 5: Fear of Missing Out (FoMO) as a Mediator Between Social Media Use and Sleep Disturbance

Authors of Paper: Scott, H., & Woods, H. C. (2018). *Fear of missing out and sleep: Cognitive*

behavioural factors in adolescents' nighttime social media use.
 Problem: The constant anxiety of missing out on social events or updates can disrupt healthy routines.
 Intervention: The study investigated the role of FoMO in influencing late-night social media use.
 Comparison: Adolescents with high FoMO were compared to those with low FoMO while controlling for overall social media use.
 Outcome: High FoMO users frequently checked phones at night, leading to poor sleep quality, which in turn worsened mental health outcomes.

PICO 6: The Potential Benefits of Social Media: Social Support and Identity Formation for LGBTQ+ Youth
 Authors of Paper: Craig, S. L., McInroy, L. B., McCready, L. T., & Alaggia, R. (2015). *Media: A catalyst for resilience in LGBTQ+ youth.*
 Problem: Although social media often receives criticism, it can also provide support to marginalized groups.
 Intervention: This research studied how LGBTQ+ youth use social media to find community, access supportive information, and explore identity.
 Comparison: The mental well-being of LGBTQ+ youth who engaged in supportive communities online was compared with those who did not.
 Outcome: Results indicated that social media can act as a protective tool, reducing isolation and fostering resilience.

PICO 7: Digital Detox Interventions: Can Reducing Social Media Use Improve Well-Being?
 Authors of Paper: Hunt, M. G., Marx, R., Lipson, C., & Young, J. (2018). *No more FOMO: Limiting social media decreases loneliness and depression.*
 Problem: Overuse of social media has been linked to loneliness and depression.
 Intervention: This experimental study limited participants' social media use to 30 minutes per platform per day.
 Comparison: Changes in loneliness and depression were compared between those who limited use and those who continued normally.
 Outcome: Participants in the reduced-use group reported significantly lower levels of loneliness and depression.

PICO 8: A Meta-Analytic Review of Social Media and Mental Health: Current Findings and Future Directions
 Authors of Paper: Kross, E., Verduyn, P., Sheppes, G., et al. (2021). *Social media and well-being: Pitfalls, progress, and next steps.*
 Problem: The field requires synthesis of multiple studies to guide future work.
 Intervention: This paper conducted a meta-analysis of hundreds of studies.
 Comparison: Correlational findings were contrasted with experimental and longitudinal studies.
 Outcome: The review concluded that the effects of social media are complex and depend on context and individual differences.

Hiten Patel – Roll No: 50 – Behavioral Science

PICO 1: The Algorithmic Amplification of Negative Content and its Impact on Body Image
Authors of Paper: Fardouly, J., & Vartanian, L. R. (2016). *Social media and body image concerns: A review of the literature.*
Problem: Much of the existing research focuses on the amount of time users spend online, but the specific content being consumed can have equally important, if not greater, effects on mental health. Algorithms designed to maximize engagement often amplify harmful material, such as idealized body images, creating echo chambers of negative influence.
Intervention: This review analyzed studies on exposure to "fitspiration" (fitness inspiration) and "thinspiration" content. It explored how algorithm-driven curation on platforms like Instagram and TikTok frequently exposes users to repetitive and unrealistic standards of beauty.
Comparison: The mental health and body satisfaction levels of users exposed heavily to appearance-focused content were compared with those of users who followed more diverse accounts that were not focused on physical appearance.
Outcome: The findings demonstrated strong associations between repeated exposure to idealized body imagery and increased body dissatisfaction, appearance-related comparisons, and risks for disordered eating, particularly among young women.

PICO 2: Social Media Use and ADHD-like Symptoms in Adolescents
Authors of Paper: Ra, C. K., Cho, J., Stone, M. D., et al. (2018). *Association of digital media use with subsequent symptoms of ADHD among adolescents.*
Problem: Beyond emotional well-being, the rapid and stimulating nature of modern digital media may impact cognitive development, including attention span and self-regulation.
Intervention: This longitudinal study tracked adolescents over two years to evaluate whether frequent engagement with fast-paced, rewarding digital content (such as notifications and short-form videos) could contribute to ADHD-like symptoms.
Comparison: Adolescents who were heavy users of digital media were compared with those who were light users in terms of emerging symptoms like inattention, restlessness, and difficulty in task organization.
Outcome: Results showed that high-frequency users were significantly more likely to develop symptoms of hyperactivity and inattention over time, suggesting a neurological impact of digital habits on the developing brain.

PICO 3: The "Highlight Reel" Effect: Distortion of Reality and its Impact on Life Satisfaction
Authors of Paper: Chua, T. H. H., & Chang, L. (2016). *Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media.*
Problem: Social media encourages self-presentation, where users often post curated highlights of their lives, which can distort perceptions of reality for viewers.
Intervention: This qualitative study interviewed teenagers about their experiences of posting and consuming curated content, focusing on their awareness of the "highlight reel" nature of social media.

Comparison: Teenagers who consumed content passively and uncritically were compared to those who consciously reflected on its curated nature.

Outcome: Even when users intellectually understood that social media is curated, they often still internalized negative comparisons emotionally, leading to lower life satisfaction. However, greater media literacy helped mitigate these effects.

PICO 4: The Impact of Social Media on Political Polarization and Mental Well-being

Authors of Paper: Bail, C. A., Argyle, L. P., Brown, T. W., et al. (2018). *Exposure to opposing views on social media can increase political polarization.*

Problem: While social media can broaden access to diverse opinions, algorithms often create ideological echo chambers that intensify polarization.

Intervention: This experimental study incentivized participants to follow a Twitter bot that retweeted content from politicians with opposing views, forcing exposure to unfamiliar perspectives.

Comparison: Participants who were exposed to opposing views were compared to a control group that remained within their ideological bubble.

Outcome: Unexpectedly, exposure to opposing views not only failed to reduce polarization but often increased it, along with stress and anxiety, suggesting that breaking algorithmic echo chambers is psychologically difficult.

PICO 5: The Role of "Vaguebooking" (Ambiguous Negative Posting) as a Cry for Help

Authors of Paper: Whitlock, J. L., Powers, J. L., & Eckenrode, J. (2016). *The virtual cutting edge: The internet and adolescent self-injury.*

Problem: Adolescents often use indirect means to express distress online, such as ambiguous status updates hinting at personal struggles.

Intervention: This study investigated the behavior known as "vaguebooking," where users post unclear yet concerning statements like "I can't do this anymore."

Comparison: Adolescents who engaged in vaguebooking were compared with those who either expressed distress directly online or not at all.

Outcome: The research found that vaguebooking is often an indirect cry for help and strongly associated with depression, suicidal ideation, and psychological distress. Recognizing this behavior can help peers and adults intervene earlier.

PICO 6: The Commercialization of Mental Health: Influencers and Self-Diagnosis

Authors of Paper: Chancellor, S., & De Choudhury, M. (2020). *Methods in predictive techniques for mental health status on social media.*

Problem: Mental health awareness on social media has increased, but commercialization and oversimplification pose risks. Influencers often provide content that encourages self-diagnosis without professional guidance.

Intervention: This study examined the rise of mental health influencers and the spread of simplified psychological terms across platforms like TikTok and Instagram.

Comparison: The accuracy of social media-based self-diagnosis was compared to clinical diagnoses from professionals.

Outcome: The trend has dual consequences: while it reduces stigma and raises awareness, it also fosters misinformation, self-labeling, and delayed professional treatment.

PICO 7: The Generational Divide: Differential Effects of Social Media on Gen Z vs. Millennials

Authors of Paper: Twenge, J. M., Haidt, J., Blake, A. B., et al. (2021). *Worldwide increases in adolescent loneliness.*

Problem: Social media may affect different generations in different ways, especially between those who grew up with it and those who adopted it later.

Intervention: A cohort analysis compared rates of loneliness, depression, and connectedness between Millennials (who entered adolescence before the rise of smartphones) and Gen Z (who grew up in the social media era).

Comparison: Generational mental health patterns at comparable ages were contrasted.

Outcome: The study showed that Gen Z exhibited a sharp increase in loneliness and depression coinciding with mass smartphone adoption, highlighting unique vulnerabilities of digital natives.

PICO 8: Ethical Frameworks for Social Media Design: Moving Towards "Humane Technology"

Authors of Paper: Harris, T., & Raskin, A. (2016). *The Center for Humane Technology.*

Problem: Current social platforms are optimized for engagement and profit, not user well-being.

Intervention: This movement proposed ethical frameworks and design principles that prioritize user agency and minimize harm. Suggestions included removing infinite scroll, making metrics private, and restoring chronological feeds.

Comparison: The humane technology model was contrasted with the prevailing "attention economy" design.

Outcome: The research emphasized that systemic redesign is essential to reduce large-scale mental health harms caused by current platform structures.

Ishwar Sable – Roll No: 59 – Mental Health Interventions

PICO 1: Developing and Validating a School-Based Digital Literacy Program to Mitigate Social Media Harm

Authors of Paper: Literat, I., & Kligler-Vilenchik, N. (2021). How popular culture prompts youth collective political expression and cross-cutting talk on social media.

Problem: Recognizing the risks posed by harmful social media use is only the first step. The real challenge is designing and implementing effective interventions that build resilience in adolescents.

Intervention: This study introduced and evaluated a digital literacy curriculum in high schools. The program trained students to critically evaluate online content, recognize algorithmic bias, identify persuasive design techniques, and engage responsibly in digital spaces.

Comparison: The critical thinking skills, resilience, and online behavior of students who participated in the program were compared to a control group who continued with standard media education.

Outcome: The intervention group showed significant improvements in media literacy and resilience, reporting less vulnerability to harmful online comparisons and negative psychological effects.

PICO 2: The Effectiveness of App-Based Interventions for Limiting Screen Time

Authors of Paper: Yoon, S., Kleinman, M., Mertz, J., & Brannick, M. (2019). Is social media use for networking positive or negative? Offline social capital and internet addiction.

Problem: Excessive social media usage is often linked to stress, anxiety, and reduced well-being. While many smartphone apps now track and limit screen time, their effectiveness remains questionable.

Intervention: The study evaluated popular screen-time tracking and limiting apps such as Apple's Screen Time, Freedom, and Moment.

Comparison: Individuals who actively used these apps to monitor and reduce their screen time were compared with those who were aware of such tools but did not use them.

Outcome: The findings indicated that users of these apps did significantly reduce their screen time. However, mental health improvements only occurred when the reduced time was replaced with meaningful offline activities, such as exercise or face-to-face socialization, rather than other digital activities.

PICO 3: Policy Interventions: Analyzing the Impact of Age Verification and Privacy Laws

Authors of Paper: Leiser, M. R. (2019). The role of law in limiting social media use in children and adolescents.

Problem: At a policy level, governments and lawmakers are exploring interventions to protect children and adolescents from excessive or unsafe social media use.

Intervention: This paper examined legislative measures such as stricter age verification for opening accounts, raising the age of digital consent, and stronger privacy protections through laws like GDPR (Europe) and CCPA (California).

Comparison: The safety and privacy landscape for adolescents in regions with strict digital laws was compared with those in regions with more relaxed regulations.

Outcome: While stricter laws improved online safety and shifted responsibility from individuals to companies, enforcement remained highly challenging. The study emphasized the need for multi-pronged approaches combining law, ethics, and education.

PICO 4: The Role of Parents: Comparing Restrictive vs. Active-Mediation Parenting Styles

Authors of Paper: Valkenburg, P. M., Krcmar, M., Peeters, A. L., & Marseille, N. M. (1999). A theoretical framework for the study of children's and adolescents' online communication.

Problem: Parents play a vital role in guiding adolescent media use. However, different parenting strategies produce different long-term outcomes.

Intervention: This study differentiated between restrictive mediation (strictly limiting screen time) and active mediation (co-viewing, discussing content, and encouraging critical thinking).

Comparison: The online behaviors and resilience of children in homes with restrictive parents were compared with those in homes with active mediation.

Outcome: Restrictive mediation was effective for younger children but less so for adolescents, while active mediation proved to be more effective in the long term, helping adolescents develop critical thinking and resilience against online harms.

PICO 5: Building "Positive" Social Media: Interventions that Promote Prosocial Engagement

Authors of Paper: Oh, H. J., Ozkaya, E., & LaRose, R. (2014). How does online social networking enhance life satisfaction?

Problem: Much research focuses on reducing harmful usage, but promoting positive engagement online may be equally important.

Intervention: This study investigated how users could be encouraged to engage in prosocial activities such as joining support groups, civic participation, or using creativity tools online.

Comparison: Mental health outcomes of users engaged in positive, socially supportive, and creative activities were compared with those who passively consumed content and engaged in social comparison.

Outcome: Users who participated in active, meaningful, and prosocial activities reported higher life satisfaction, greater perceived social support, and a stronger sense of community.

PICO 6: The Economic Cost of Social Media's Mental Health Impact: A Public Health Analysis

Authors of Paper: Darity, W. A., et al. (2017). The economics of mental health.

Problem: Mental health challenges related to social media are not only a psychological burden but also create economic costs for society.

Intervention: This research modeled the economic impact of mental health problems stemming from social media use, including healthcare expenses, reduced workplace productivity, and long-term societal costs of untreated disorders.

Comparison: The estimated economic burden was compared with the revenue generated by the social media industry.

Outcome: The study concluded that the external costs of social media—borne by public health systems and society at large—may outweigh the private profits earned by tech companies, providing an economic argument for stricter regulation.

PICO 7: The Future of Research: Using AI to Analyze Social Media for Early Mental Health Detection

Authors of Paper: Chancellor, S., & De Choudhury, M. (2020). Methods in predictive techniques for mental health status on social media.

Problem: While social media contributes to harm, its vast data can also be leveraged for early detection of mental health issues.

Intervention: This paper explored computational methods for analyzing language, emoji use, and posting patterns on social media to create predictive tools that can detect early signs of depression, self-harm, and suicidal ideation.

Comparison: The benefits of early detection were compared with ethical concerns such as privacy, consent, and risks of misuse.

Outcome: Although AI-based tools are technically feasible and could be life-saving, their deployment requires strong ethical safeguards to avoid misuse and ensure trust.

PICO 8: A Call for Interdisciplinary Collaboration: Integrating Psychology, Tech, and Policy

Authors of Paper: The Lancet Psychiatry (2018). Social media and mental health: A collaborative approach to a complex problem.

Problem: Social media's mental health impact is a complex problem that cannot be solved by any single discipline.

Intervention: This editorial proposed interdisciplinary collaboration between psychologists (to understand mental harm), computer scientists (to redesign algorithms), ethicists (to guide frameworks), and policymakers (to enforce regulation).

Comparison: Progress made by siloed disciplines was contrasted with the potential of an integrated approach.

Outcome: The paper emphasized that true solutions require collaboration across psychology, technology, ethics, and policy, centering user well-being as the primary metric of success.