Analyzing the Bidirectional Relationship between Mental Health and Social Media

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Introduction

Through the USDA-funded Science Influencers program, Texas A&M undergraduates integrated communication with science. After a spring course, I completed a 10-week summer internship with Dr. Jung Wang and Project SMART, a research initiative focused on technology and behavioral health. My project, "Data-Driven Insights on Social Media and Mental Health in Diverse Adolescents," examined how digital behaviors influence psychological well-being. Under the research team's supervision, I worked to bridge the gap between complex health data and public understanding.

Background

Adolescence is a critical period for neurobiological development, and social media has introduced new variables into youth mental health. Project SMART at Texas A&M University addresses these complexities by examining digital behaviors through a data-driven lens. This research identifies how specific online interactions correlate with psychological well-being in diverse populations. During my REEU, I served as an undergraduate researcher tasked with bridging the gap between high-level behavioral data and public understanding. I acted as a "Science Influencer," translating complex health insights into narratives that resonate with adolescents, parents, and educators.

Procedures

Using data from the Project SMART initiative, I employed quantitative analysis to observe patterns of social media usage among adolescents. The methodology included cleaning and analyzing large datasets to pinpoint correlations between screen time, specific platform engagement, and self-reported mental health markers such as anxiety, depression, and loneliness. I specifically looked at the "Team 2" focus area: data-driven insights on diverse adolescent populations. Beyond the data science aspect, I practiced communication techniques such as framing and storytelling. This ensured that the statistical findings—often dense and technical—could be effectively disseminated to non-academic stakeholders through virtual platforms.

Findings

The analysis revealed significant trends regarding the types of social media engagement that most heavily influence adolescent stress levels. Key findings suggested that "passive" scrolling and high-frequency social comparison were more closely linked to negative mental health outcomes than "active" or creative digital engagement. Furthermore, the data underscored the importance of digital literacy and parental mediation as protective factors for marginalized and diverse youth, highlighting a critical need for targeted educational interventions. These

results demonstrate that it is not simply the *amount* of time spent online that impacts mental health, but the *quality* and *nature* of the digital interaction itself.

Summary

This REEU experience has been instrumental in my development as both a researcher and a science communicator. Working with Project SMART taught me to synthesize high-level data into meaningful narratives that can influence public behavior and policy. I have undergone significant professional growth, moving from basic data entry to sophisticated analysis and public speaking. These experiences are directly applicable to my future career in public health and behavioral science, where I intend to continue advocating for safer digital environments. By participating in the Annual Research Symposium, I aim to share these findings to foster a more informed digital generation.