

SCROLLING INTO SLEEPLESSNESS: HOW INSOMNIA MEDIATES THE IMPACT OF SOCIAL MEDIA ON WELLBEING-WITH A LIFELINE FROM FAMILY SUPPORT

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Abstract

Background: Excessive social media usage disrupts sleep, leading to insomnia, which negatively impacts psychological well-being. Insomnia heightens stress, anxiety, and depressive symptoms, worsening mental health. However, strong family support can buffer these effects, promoting emotional stability. Understanding these relationships is crucial for improving psychological well-being.

Purpose: Current study is conducted to explore the interplay of insomnia between the relationships of social media on the psychological wellbeing of an individual. Specifically, it examines how family support hinders the impacts of social media usage and insomnia on the psychological wellbeing.

Methodology: The data was collected from 378 employees of Pakistan using Convenient Non –Probability Sampling Technique. Data was analyzed using SPSS and Smart PLS.

Findings: Using a sturdy analytical framework, the findings reveal that Social media usage significantly increases insomnia. Elevated insomnia, in turn, negatively impacts psychological wellbeing. Mediation analysis endorses that insomnia mediates the relationship between social media usage and psychological wellbeing. Additionally, Family Support weakens the relationship between insomnia and psychological wellbeing.

Implications: These findings highlight the crucial roles of insomnia and social media in shaping psychological wellbeing, along with the buffering effects of family support, providing valuable insights for public health strategies and communication interventions.

INTRODUCTION

Lately, social media has ingrained itself into our everyday lives; the majority of people spend hours a day on Facebook, Instagram, Messenger, and other well-known social media sites (Karim et al., 2020). Researchers have found that using social media can have a number of detrimental effects, including increased levels of techno stress, decreased happiness, and decreased productivity (Brooks, 2015). It has also been studied that social media usage lowers the performance and induces fear among the students (Bloemen & Coninck, 2020). Social media usage has also been studied to have a significant impact on the psychological wellbeing on the individuals (Twenge, 2019). Studies have suggested that excessive social media use is possible risk factors for insomnia among adolescents. The constant need to stay connected, fear of missing out (FOMO), and overstimulation from screen exposure can disrupt sleep patterns, leading to difficulty falling or staying asleep (Lin et al., 2021). Social media has many negative impacts on one's psychological well being and also cause many symptoms like insomnia and other conditions. This study is research gap oriented study and addresses three research gaps. Firstly this study add to the existing body of knowledge as it aims to explore the underlying mechanism; does insomnia plays the most crucial role in disrupting the psychological wellbeing of an individual addressing the research call by Keles et al., 2024 who directed the future researchers to explore various mediating factors between social media usage and psychological wellbeing. Secondly this research responds to the research call of Pachi et al ., 2024 this study aims to unveil the positive impact of family support on psychological wellbeing in certain circumstances. Thirdly it addresses the geographical gap of the study conducted by Abdalqader et al., (2018) which explore the relationship between frequent social media usage and insomnia among the private university students of Malaysia.

Theory and hypothesis:

Theoretical Basis:

This fall in the intricate frame work of affective event theory Affective event theory which was established by Weiss & Cropanzano (1996). This provides a framework for understanding how certain events

which can be both planned and unplanned influence emotions and, consequently, their attitudes and behaviors. This theory give emphasis to the impact of specific event trigger emotional reactions, which in turn affect one's performance. This theory has also been used to evaluate psychological wellbeing in response to certain behaviors and events (Van Wagoner, H. P. (2021). Affective event theory focuses on the fact that the idea that these affective events are not simply background noise but play a vital role in influencing various emotional states. These emotional reactions are precarious because they influence consequent cognitive processes and behaviors. For instance, social media use is an activity that induces insomnia among the individual which consequently leads to low level of psychological wellbeing.

Social Media Usage & Insomnia

The concept of insomnia has evolved significantly over time. Initially described as "unsatisfactory sleep" by the American Institute of Medicine in 1979, it was later defined in 1990 by the International Classification of Sleep Disorders as a nearly nightly complaint of insufficient sleep or a persistent feeling of unrest after the usual sleep period (Ohayon, 2002). Now Insomnia is referred to as a condition where people tussles in going to sleep or to stay asleep (Riemann et al.,2023). Many causes and triggering factors of insomnia has been studied, some suggested physical manifestations like peptic ulcer to be the cause of insomnia (Huang et al., 2025). Other studies by Yuan et al (2022) traced nonphysical causes like anxiety to be the cause of insomnia, similarly Kelly, (2024) suggested fear to be the cause of insomnia. Researchers also suggested social insecurity to be one of a potent cause of insomnia (Vázquez-Colón et al., 2024). Social media has recently become parts and parcel of our daily routine; most of the people spend hours each day on popular social media platforms (Karim et al.,2020). Social media has also been studied and conclusively proved to be the aggravating factor for many psychological manifestations like anxiety (Wu, et al 2024) social isolation (Gunnes et al., 2024) depression (Yigiter et al., 2024) and poor mental health (Orben et al.,

2024). Building on the facts stated it is hypothesized that

H1: Social media usage has a significantly positive impact on Insomnia

Insomnia & Psychological Wellbeing

Psychological well-being is broadly defined as “Happiness, life satisfaction, and self-growth, represents one of the most important aspects of efficient psychological functioning” (Vallerand, R. J., 2012). Psychological wellbeing and health are closely linked, three major aspects of psychological wellbeing can be eminent: evaluative wellbeing or simply ‘life satisfaction”, hedonic wellbeing which refers to feelings of happiness, sadness, etc, and eudemonic wellbeing which is actually a sense of purpose and meaning in life (Steptoe et al., 2015). Psychological well-being is about lives going well. It is the combination of feeling good and functioning effectively (Huppert, 2009). Many factors have been studied to alter the levels of psychological wellbeing of an individual like a bi national survey reported financial factor to be most influential in one’s psychological wellbeing (Oskrochi et al., 2018). Some scholars argued that the social support plays an integral role in a person’s psychological wellbeing, a person with social support tends to worry less and for a shorter interval of time (Scott et al., 2020). While different scholars stated various cause of low level of psychological wellbeing, there is observed a consensus in literature that negative stimulus such as stress and frustration is one of the most common cause (Wang et al., 2010). Similarly anxiety has been studied to have negative impacts on physical and psychological health (Wang et al., 2014; El-Gabalawy et al., 2011). Insomnia is the second most common cause of a mental disorder (Van Someren, 2021). With mere glance at the traditional definitions of the insomnia and psychological wellbeing, it becomes clear that there is bound to be some connection between these two. Keeping that in mind, it is hypothesized that

H2: Insomnia has significant and negative impact on psychological wellbeing.

Mediating role of Insomnia

Insomnia is state of prolonged sleep latency, complications to maintain sleep, and compulsive early morning awakening (Riemann et al., 2020). Insomnia symptoms are one of the most frequently reported sleep-related issues in the general population, with prevalence estimates ranging from 10% to nearly 60% (Staner, 2010). A recent study by Blom et al (2024) suggested that Insomnia disorder is among the most common psychiatric conditions, with a point prevalence of approximately 10% and a study by Van Someren, (2021) stated it to be the second most common cause of a mental disorder. This facts clearly illustrate the lethal nature of insomnia. On the other hand social media use has been suggested to be one of the most recent cause of mental physical as well as psychological ailments; recent study by Elvan et al (2024) suggested a significant relation between the social media usage and the complaints of neck stiffness and other ergonomic issues in agreement with the study conducted by Zahmat et al (2023). Similarly many studies also explored the psychological implications of social media usage; like studies suggested that excess social media usage results in anxiety and depression (Wu et al., 2024; Yigiter et al., 2024). Studies also showed that excessive use of social media usage resulted in lowering of the mental health of the adolescents (Sala et al., 2024). Studies have also conclusively proved that social media usage lowers the level of psychological wellbeing of an individual (Lee & Hancock, 2024); however the underlying mechanism is yet not categorically explored. In attempt to find an underlying mechanism and mindful of the fact, that social media usage causes mental comorbidities and insomnia does the same, this study hypothesize that

H3: Insomnia mediates the relationship between Social media usage and Psychological Wellbeing

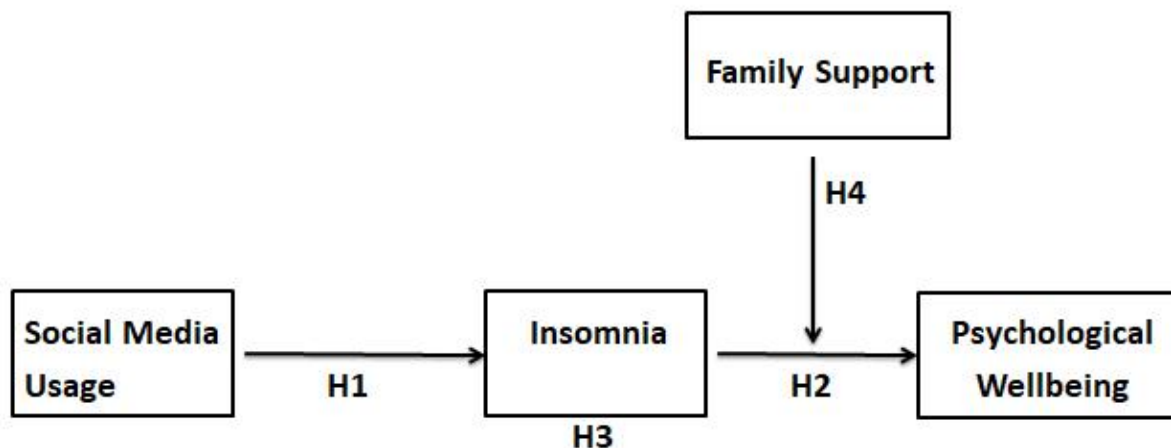
Moderating role of family support

Family support primarily refers to an individual’s perception of the assistance received from family members, such as parents. Numerous studies highlight the significant impact of life stressors on mental health and overall well-being. Additionally, various social and personal resources, including social support, play a vital role in shaping these outcomes. There is a widely accepted consensus that

supportive interactions are essential for maintaining and enhancing an individual’s psychological well-being (An et al.,2024). Family support (FAS) encompasses the emotional and psychological care and assistance provided by family members (Chaudhry et al.,2024). Family support has been studied to greatly enhance the levels of psychological

wellbeing among individual even in hostile conditions (An et al.,2024). This study aims to explore whether the family support is able to hinder the impacts of insomnia on the psychological wellbeing of an individual, it is hypothesized that **H4. Family support weakens the relationship between Insomnia and Psychological Wellbeing**

Research Model:



Research Methodology

Study Setting & Time Horizon

Participants from all around Pakistan who could speak English and, thus, respond to questions were contacted to complete an online questionnaire in order to gather data for this study. Through Google Forms, participants submitted their answers whenever it was most convenient for them. Individuals in this study gave their full consent to participate. Furthermore, in order to ensure the validity and objectivity of the responses, it is crucial to take note of the fact that every participant received excellent guidance regarding ethical policies and privacy standards, including the careful maintenance of anonymity and confidentiality throughout the study. The data collection from the respondents took a period of 6 weeks starting from December 16th, 2024 to January 6th, 2025. For the data collection, since the questionnaire is used to gather data from respondents via an online survey technique, there is little to no possibility of research intervention and collecting data virtually eliminates researcher intervention, which lessens responder bias



Sampling

Convenient sampling, which is essentially a non-probability sampling technique, was chosen to collect the data for this investigation because data collection from the study population depended on accessibility and feasibility moreover this technique though limits the generalizability; it is time saving and economically achievable. An appropriate number of questionnaires were distributed with the help of online link to around 440 individuals living in Pakistan based on convenience sampling technique, out of which 378 people completed and submitted it, giving a response rate of 85.9%.

Scales and Measures

Different segments were created in the survey questionnaire .First one was the segment for demographic and it included gender, age group, education level details that were gathered from the study participants in the first segment. The second section of the survey contained the measurement scales for every study variable that was shown on the conceptual model.

Social Media Usage: The 22 items measure developed by Lin, Wang, and Chen (2016) will be used to evaluate the nature of Social Media Usage.

Insomnia: Insomnia will be assessed using the 08-item Soldatos et al., (2000) scale. Scale has 3 ranges of varying nature.

Psychological Wellbeing: The 08 items measure developed by Lukacs, (2021) will be used to evaluate the Psychological Wellbeing.

Family Support: A scale consisting of 20 items developed by Procidano, M. E., & Heller, K. (1983) will be used to evaluate the nature of Family Support.

Results:

Measurement Model Assessment

The measurement model, also known as the outer model, is valued in PLS-SEM. It comprises three components: average variance extracted (AVE) for calculating convergent validity, individual indicator reliability, and composite reliability (CR) for assessing internal consistency (Hair, 2013).

Reliability Analysis:

Factor loadings were used to calculate the validity and reliability of all the four constructs: social media usage, insomnia, psychological wellbeing and family support. Items with factor loading values of 0.8 were included in the study, whereas those with factor loading values of less than 0.5 were not. Based on evidence from the literature, factor loading values of 0.6 and 0.7 were incorporated into the study (Aguiar-Quintana et al., 2021; Darvishmotevali & Ali, 2020). A few of the elements with values less than 0.6 were eliminated from the research.

Internal Consistency Reliability

Actually, a measuring scale's internal consistency is judged by Cronbach's alpha. The degree of

relatedness among a group of elements. Cronbach's alpha is regarded as a measure of scale reliability; it increases in term with the average inter-item correlation. Cronbach's alpha scores between 0.6 and 0.7 are generally considered acceptable. All scales in the current study had good Cronbach's alpha values (>0.7); only the Family support scale (0.612) was included since it falls within an acceptable range (Ursachi, Horodnic, & Zait, 2015).

Convergent Validity

The process of evaluating a measure's link to other measures of the same variable is known as convergent validity. It explains how a measure compares or differs from the elements that make up the same variable. Convergent validity is the degree to which an item of the same variable is positively correlated with the other items (Hair, 2013). Convergent validity was purposefully examined in this study using the AVE values of each latent variable.

Discriminant Validity

The idea of variable discrimination inside variable discrimination is referred to as discriminant validity. The degree to which one variable differs from other variables in terms of measurements is known as discriminant validity. It explains the phenomenon of how one construct's items correlate with another construct's items when used in a questionnaire, as well as how many indicators only reflect one construct (Hair, 2013). According to Fornell & Larcker (1981), the cross loading score and criterion were utilized to determine the discriminant validity. All measuring variables' discriminant validity is displayed in Table 3, which was determined to be accurate in accordance with (Fornell & Larcker, 1981).

| | 1 | 2 | 3 | 4 | 5 | 6 |
|--------|-------|-------|-------|-------|---|---|
| 1. SMU | 0.894 | | | | | |
| 2. INS | 0.319 | 0.746 | | | | |
| 3. PWB | 0.45 | 0.251 | 0.852 | | | |
| 4. FS | 0.449 | 0.276 | 0.584 | 0.822 | | |

SMU= Social Media Usage INS=Insomnia PWB=Psychological Wellbeing FS= Family Support

Table 1: Fornell-Larcker Criterion

Henseler et al. (2015) state that the reason HTMT, a relatively new method, was developed is that Fornell-Larcker and cross loadings do not always provide a sufficient explanation for discriminant validity. All variable values are smaller than the predetermined minimum threshold value of 0.85, according to the

HTMT ratio results (Voorhees et al., 2016). Furthermore, the HTMT ratio analysis results show that each component was distinct from the others. The results are shown in Table 4. Considering both calculations validates the discriminant validity test.

| | 1 | 2 | 3 | 4 | 5 | 6 |
|--------|-------|-------|-------|---|---|---|
| 1. SMU | | | | | | |
| 2. INS | 0.412 | | | | | |
| 3. PWB | 0.505 | 0.379 | | | | |
| 4. FS | 0.516 | 0.405 | 0.698 | | | |

SMU= Social Media Usage INS=Insomnia PWB=Psychological Wellbeing FS= Family Support

Table 2: HTMT Ratio

Structural Model Assessment

After determining the validity and reliability of the variables in the measurement model, a structural model assessment was carried out. The structural model, also referred to as the inner model, was computed to examine the relationship between the exogenous and endogenous variable constructions. Path coefficients were used in structural model assessment in partial least square structural equation modeling to evaluate the relevance and application of structural model associations.

Hypothesis Testing

The bootstrapping technique was used to test the hypothesis on 10,000 copies. Path coefficients, p-values, and t-statistics were used to assess the outcomes. According to Table 3, which displays a β -value of 0.268 and a p-value < 0.05, there is a significant and positive relationship between social media usage and insomnia. This finding supports the hypothesis evaluation of hypothesis 1, which states that Social media usage is positively and significantly associated with insomnia. The assessment of hypothesis 2, according to which insomnia is significantly and negatively impacted by psychological wellbeing, as shown by Table 3 values for β -value of 0.293 and p-value < 0.05.

| Hypothesis | Path Coefficient value | T statistics | P values |
|------------|------------------------|--------------|----------|
| SMU -> INS | 0.268 | 6.698 | 0 |
| ANX -> PWB | 0.293 | 7.542 | 0 |

Table 3: Path Coefficient

Mediation analysis

Separate model was constructed to assess the mediation analysis and to assess the direct effect of social media usage on psychological wellbeing and the effect of insomnia as a mediator (indirect relationship).

The evaluation of hypothesis 3 which states that insomnia mediates the relationship between social media usage and psychological wellbeing showed that

there does exist a mediation between social media usage and psychological wellbeing by insomnia as can be seen in Table 4 which shows the β -value of 0.127 and p-value < 0.05 which explain how SMU impacts PWB through the insomnia as it also directly impacts the PWB also, as indicated by the values β -value of 0.286 and p-value < 0.05.

| | Path Coefficient value | T statistics (O/STDEV) | P values |
|-------------------|------------------------|--------------------------|----------|
| SMU -> PWB | 0.286 | 5.527 | 0 |
| SMU -> INS -> PWB | 0.127 | 6.319 | 0 |

Table 4 : Mediation Path Coefficient

Moderation Analysis

The evaluation of hypothesis 4 which states that Family support weakens the relationship between insomnia and psychological wellbeing showed that Family support does weakens the relationship between insomnia and psychological wellbeing as can be seen in table 5 which shows the β -value of 0.069

and p-value < 0.05 which explain how INS impacts the PWB through the FM. Negative value of path coefficient and p vale< 0.05 indicated that the family support significantly buffers the impacts of insomnia on psychological wellbeing

| | Path Coefficient value | T statistics | P values |
|----------------|------------------------|--------------|----------|
| INS -> PWB | 0.293 | 7.542 | 0 |
| FS x INS-> PWB | -0.78 | 2.138 | 0.033 |

SMU= Social Media Usage INS=Insomnia PWB=Psychological Wellbeing FS= Family Support

Table 5 : Moderation Path Coefficient

Discussion:

The findings of this study provide valuable insights into the complex interplay between social media usage, insomnia, psychological well-being, and the moderating role of family support. Firstly, the results confirm that excessive social media usage is a significant contributor to insomnia. This aligns with prior research suggesting that prolonged screen exposure, especially before bedtime, disrupts the body's circadian rhythm and suppresses melatonin production, leading to difficulties in falling and staying asleep (Leone & Sigman, 2020). Additionally, social media engagement fosters cognitive arousal and emotional distress, such as anxiety and fear of missing out (FOMO), further exacerbating sleep disturbances as suggested by the recent studies well (Davis & Goldfield.,2024).

Secondly, the study corroborates existing literature indicating that insomnia negatively impacts psychological well-being. Poor sleep quality has been linked to increased stress, anxiety, depression, and overall emotional instability (Riemann et al., 2024). This verifies the research findings that the inability to obtain restorative sleep may impair emotional regulation and cognitive functioning, leading to diminished life satisfaction and an overall decline in mental health (Li et al., 2024; Sala et al., 2024).

Moreover, our research establishes insomnia as a mediator between social media usage and psychological well-being; responding to the research call by Keles et al., 2024. This suggests that the detrimental effects of excessive social media use on mental health are, in part, explained by its role in disrupting sleep patterns. Individuals, who frequently engage with social media, particularly at night, may experience heightened sleep disturbances, which

subsequently deteriorate their psychological well-being. This finding highlights the importance of addressing sleep hygiene in interventions aimed at mitigating the negative psychological effects of social media.

Finally, addressing the research gap suggested by Pachi et al, (2024); the study reveals that family plays a crucial moderating role in this relationship, weakening the adverse impact of insomnia on psychological well-being. Strong family support systems may provide emotional reassurance, stress relief, and healthy coping mechanisms, buffering the negative consequences of sleep deprivation on mental health which is in agreement with the study conducted by An et al.,2024. Family interactions and support may mitigate the emotional distress associated with poor sleep, fostering resilience against the psychological strain caused by insomnia. The weakning effect of family support perfectly aligns with recent studies that suggest that the family support buffers the impacts on psychological wellbeing even in most of the hostile conditions (Chaudhry et al.,2024; An et al.,2024).

Practical Implications

These findings hold important implications for mental health professionals, educators, and policymakers. Efforts to promote responsible social media usage, especially among younger individuals, should be prioritized to prevent sleep disturbances. Additionally, interventions designed to improve sleep quality and enhance family support systems may serve as protective factors against declining psychological well-being. Future research could explore strategies to regulate social media consumption, particularly during nighttime hours,

and further investigate the role of family dynamics in mitigating sleep-related mental health issues. Addressing these interconnected factors may contribute to a more holistic approach to enhancing psychological well-being in the digital age.

Moreover, the study underscores the role of family support in weakening the negative association between insomnia and psychological well-being. This suggests that strong familial bonds and emotional support can serve as protective factors against the psychological distress associated with sleep disturbances. Family-centered interventions, such as open communication and promoting offline social interactions, may help individuals cope better with the psychological consequences of insomnia.

Limitations and Future Directions

While this study provides valuable insights, certain limitations should be acknowledged. First, the study primarily relies on self-reported data, which may be subject to response bias and social desirability effects. Future research should incorporate objective measures of sleep patterns, such as actigraphy or polysomnography, to enhance data accuracy. Second, the study's cross-sectional design limits the ability to establish causal relationships. Longitudinal studies are recommended to examine the long-term effects of social media usage on insomnia and psychological well-being. Additionally, experimental studies that manipulate social media exposure could provide stronger causal evidence. Another limitation is the potential influence of unexamined variables, such as personality traits, socioeconomic status, or pre-existing mental health conditions, which may also impact the observed relationships. Future research should explore these factors to gain a more comprehensive understanding of the mechanisms underlying these associations. Lastly, this study primarily focuses on a specific demographic or cultural context. Future studies should examine these relationships across diverse populations to determine the generalizability of the findings. Cultural factors and varying family dynamics may play distinct roles in moderating the relationship between insomnia and psychological well-being.

Conclusion

In summary, this study establishes that social media usage contributes to insomnia, which in turn lowers psychological well-being. Additionally, insomnia mediates the relationship between social media use and psychological well-being, while family support serves as a protective factor against its negative effects. These findings emphasize the need for responsible social media use, improved sleep hygiene, and strong familial bonds to promote mental health. Addressing these factors through interventions and future research will contribute to a more holistic approach to enhancing psychological well-being in the digital era.

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