THE INTERPLAY OF LONELINESS, INTERNET USE, AND SLEEP QUALITY AMONG ADULTS

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Abstract:

This study examines the relationships between loneliness and two significant factors: internet usage and sleep quality. The results reveal a statistically significant, albeit small to moderate, positive correlation between loneliness and internet usage, indicating that individuals who report higher levels of loneliness tend to spend more time online. This finding is consistent with previous studies, which suggest that those who feel lonely may seek the Internet as a means to satisfy social needs, find distractions, or obtain emotional support. Conversely, the analysis of the relationship between loneliness and sleep quality showed a weak negative correlation, which was not statistically significant. This suggests that while there may be a slight indication that increased loneliness correlates with poorer sleep quality, the evidence does not provide a strong basis for definitive conclusions. The research underscores the intricate nature of these variables. It emphasizes the necessity for further exploration into the interactions among loneliness, internet usage, and sleep quality, especially concerning mental health and lifestyle factors. The findings imply that interventions aimed at managing internet use could be advantageous for individuals experiencing loneliness; however, further studies are needed to investigate the impact of loneliness on sleep quality using larger sample sizes and more thorough assessment methods.

Keywords: **loneliness, internet usage, sleep quality.**

INTRODUCTION

Loneliness, internet usage, and sleep quality are three essential factors that significantly impact the physical, psychological, and social well-being of adults. As societies evolve and dependence on digital technology grows, these elements increasingly interact, influencing one another in intricate ways. Loneliness, characterized as the subjective experience of isolation or the disparity between desired and actual social connections, has long been acknowledged as a risk factor for various mental and physical health issues (Hawkley & Cacioppo, 2010). Concurrently, internet usage has revolutionized interpersonal interactions, providing avenues for connection while also promoting detrimental behaviors

such as excessive engagement, which can disrupt sleep and intensify feelings of loneliness (Keles et al., 2020). Sleep quality, a fundamental aspect of overall health, is frequently compromised in this digital age, affected by habits such as late-night internet browsing and the psychological distress linked to loneliness (Leigh-Hunt et al., 2017).

Loneliness is a pervasive issue in modern society, with studies indicating that it affects people of all ages, especially young adults and older populations. It is distinct from objective social isolation, as loneliness refers to the perception of inadequate social relationships, which can occur even when one is surrounded by others (Holt-Lunstad et al., 2015). Research shows that chronic loneliness is associated with an increased risk of cardiovascular diseases, depression, anxiety, and mortality (Cacioppo & Cacioppo, 2018). Psychological mechanisms underlying loneliness include heightened vigilance for social threats and a reduced ability to regulate emotions, which may lead to maladaptive coping strategies such as excessive internet use.Individuals experiencing loneliness frequently seek solace in online platforms to address their social deficiencies. Social media, notably, provides a digital environment for interaction; however, its impact on feelings of loneliness is complex. Although virtual engagements can provide temporary relief from loneliness, they often lack the depth and richness found in in-person relationships, which may lead to increased feelings of isolation over time (Nowland et al., 2018). Furthermore, the experience of loneliness can lead to excessive internet usage, establishing a cycle in which digital interactions supplant significant offline connections, ultimately intensifying the sense of isolation (Keles et al., 2020).Social connectedness is an essential human requirement; however, shifts in society, including urbanization and a growing dependence on technology, have altered the nature of interpersonal interactions. While conventional methods of community engagement have diminished, online communication has significantly increased. Nevertheless, these virtual connections frequently lack the emotional richness found in face-to-face relationships, resulting in feelings of isolation among individuals, even when they engage in frequent online exchanges (Nowland et al., 2018). Moreover, loneliness can influence behavior, leading many individuals to adopt maladaptive coping mechanisms such as excessive internet usage, substance abuse, or social withdrawal. This behavior intensifies negative emotional states, creating a detrimental cycle. Additionally, chronic loneliness has been associated with physiological changes, such as heightened inflammation and disrupted sleep patterns, which further exacerbate its negative health implications (Hawkley & Capitanio, 2015).

Internet usage has become an integral part of contemporary life, providing a wide array of advantages, including access to information, entertainment, and avenues for social engagement. Nevertheless, excessive or inappropriate use of the internet has been associated with several adverse effects. Research indicates that extended periods of internet use can disrupt daily routines, contribute to addictive behaviors, and adversely impact mental well-being (Kuss et al., 2014). How individuals engage with the

internet is also significant; passive activities, such as endlessly scrolling through social media, have been linked to heightened feelings of loneliness and diminished life satisfaction (Twenge et al., 2018). Conversely, engaging in active and meaningful online interactions may alleviate feelings of loneliness, indicating that the consequences of internet use are contingent upon the nature of that use.A particularly pressing concern is the connection between internet usage and sleep quality. Utilizing the internet, particularly during late-night hours, is correlated with delayed sleep onset, reduced overall sleep duration, and inferior sleep quality. The blue light emitted from screens inhibits melatonin production, thereby disrupting the body's natural circadian rhythm and complicating the process of falling asleep (Carter et al., 2016). Furthermore, participation in stimulating online activities, such as gaming or social networking, can heighten arousal levels, making it difficult to unwind before bedtime. For individuals experiencing loneliness, late-night internet engagement may act as a coping strategy, yet it can perpetuate a detrimental cycle of inadequate sleep, increased emotional distress, and a heightened dependence on digital platforms.

The internet has fundamentally transformed how individuals communicate, obtain information, and engage in leisure activities. While it presents unmatched opportunities for connection, education, and personal expression, its improper use can lead to considerable psychological repercussions. The impact of internet usage is particularly pronounced in relation to feelings of loneliness and sleep patterns.

For those experiencing loneliness, the internet frequently serves as a sanctuary, providing access to virtual communities, social media platforms, and various forms of entertainment. Studies suggest that moderate and intentional internet engagement can alleviate feelings of loneliness, especially for individuals with limited social interactions in the physical world (Nowland et al., 2018). Conversely, excessive or passive engagement, such as mindless scrolling through social media or excessive binge-watching, tends to result in adverse effects. These negative outcomes may include increased feelings of inadequacy, social comparison, and emotional fatigue (Keles et al., 2020).The compulsive nature of online activities further exacerbates the situation. Internet addiction, characterized by an inability to regulate online behavior despite adverse effects, has been associated with poor sleep quality, heightened loneliness, and deteriorating mental health (Kuss et al., 2014). Moreover, the type of content consumed—ranging from interactive gaming to social networking—plays a crucial role in determining the psychological effects, with certain types being more harmful than others.The quality of sleep is a crucial factor in determining overall health, affecting cognitive abilities, emotional stability, and physical performance. Insufficient sleep has been linked to a variety of negative consequences, including weakened immune response, heightened risk of chronic illnesses, and deteriorating mental health (Walker, 2017). In adults, inadequate or interrupted sleep can intensify feelings of loneliness by hindering emotional regulation and increasing vulnerability to social threats (Ben Simon et al., 2020). Additionally, loneliness has been

recognized as a predictor of diminished sleep quality, indicating a reciprocal relationship between these factors (Leigh-Hunt et al., 2017).

The rise of digital technology has posed new challenges to sustaining healthy sleep habits. Research indicates that excessive use of the internet, especially during late-night hours, can result in sleep deprivation and insomnia. Moreover, the psychological effects of social media engagement—such as the fear of missing out (FoMO) and exposure to negative content—can lead to increased stress and anxiety, further disrupting sleep patterns (Woods & Scott, 2016). For individuals experiencing loneliness, this dynamic becomes even more significant, as their dependence on online interactions may both arise from and exacerbate poor sleep quality.Sleep is a crucial physiological function that plays a vital role in cognitive performance, emotional stability, and overall physical well-being. Despite its significance, the quality of sleep has deteriorated in contemporary societies, largely due to the rise in screen time and digital interactions (Walker, 2017). Individuals experiencing poor sleep quality often face challenges in initiating sleep, maintaining sleep, or waking up rejuvenated. This condition has been linked to various negative consequences, including compromised immune function, mood disorders, and a heightened risk of chronic diseases (Ben Simon et al., 2020).The interplay between sleep quality and loneliness is reciprocal. Loneliness can hinder sleep by fostering hypervigilance and diminishing the sense of security required for restorative rest. Conversely, inadequate sleep can intensify feelings of loneliness by disrupting emotional regulation and heightening sensitivity to perceived social threats (Leigh-Hunt et al., 2017).In today's digital landscape, internet usage has become a prominent factor contributing to sleep disruptions. The exposure to blue light emitted by screens interferes with the circadian rhythm by inhibiting melatonin production, which results in delayed sleep onset and shorter sleep duration (Carter et al., 2016). Additionally, engaging with emotionally charged content during the late hours, such as social media interactions or competitive gaming, elevates arousal levels, making it increasingly difficult to relax.

METHODOLOGY

PROBLEM STATEMENT:

The study attempted to find the interplay of loneliness, Internet usage, and sleep quality among adults.

AIM:

The aim of this study is to investigate the interplay between loneliness, internet usage, and sleep quality among adults.

OBJECTIVE OF THE STUDY:

- To assess the level of loneliness among adults and examine its relationship with internet usage and sleep quality.
- To evaluate the patterns and duration of internet usage among adults.
- To measure sleep quality among adults using standardized tools and analyze its association with loneliness and internet usage.

- To investigate if high internet usage is linked to increased feelings of loneliness and whether it impacts sleep quality
- To explore if loneliness mediates the relationship between internet usage and sleep quality.

HYPOTHESIS:

H1- There is no significant relationship between loneliness and poorer sleep quality among adults

H2- There is no significant relationship between loneliness and internet usage among adults

RESEARCH DESIGN:

It is a quantitative study examining the interplay of loneliness, internet usage, and sleep quality among adults, a cross-sectional correlational research design is suitable, this cross-sectional design collects data at one point in time to assess the relationship between loneliness, internet usage, and sleep quality without manipulation or intervention, and correlational study examines the degree to which loneliness, internet usage, and sleep quality are related.

SAMPLING TECHNIQUE:

The sampling technique of the study is purposive sampling, in this technique, participants are selected based on ease of access and availability. This method is often used when time and resources are limited, the sample size of the study is 200 participants which are collected from adults who have regular internet access, The age group of the study is adults ranging from 18 to 26.

INCLUSION CRITERIA:

- Participants must be adults aged 18 to 26 years
- Participants must have regular internet access
- Participants should report consistent internet use, such as spending a minimum of 1 hour per day online

EXCLUSION CRITERIA:

- Individuals younger than 18 or older than 35 will be excluded
- Individuals who do not have consistent access to the Internet or who use the Internet infrequently
- Individuals with clinically diagnosed sleep disorders may be excluded

TOOL USED:

UCLA loneliness scale- Russell D. W. (1996)

Pittsburgh Sleep Quality Index – Buysse, D. J. (1989)

Internet Usage Scale- Shaloo Saini and Prof. (Dr.) Parminder Kaur

TOOL DESCRIPTION:

UCLA LONELINESS SCALE:

The UCLA loneliness scale consists of 20 items that assess various aspects of loneliness. Respondents rate each item on a 4-point Likert scale, ranging from 1 (Never) to 4 (often), reflecting how often they experience each feeling. The scale was constructed by Russell, D. W. (1996). The reliability of the scale is Cronbach's alpha coefficient typically reported above 0.90 for the total scale, indicating excellent reliability, The validity of the scale has been demonstrated good construct validity, correlating well with other measures of loneliness and social support.

PITTSBURGH SLEEP QUALITY INDEX:

The PSQI Consists of 19 items that generate seven component scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction. The scale was constructed by Buysse, D. J. (1989) The reliability of the scale is Cronbach's alpha coefficients typically reported between 0.70 and 0.83. The validity, PSQI has shown good construct validity, correlating with other established sleep measures and distinguishing between good and poor sleepers effectively.

INTERNET USAGE SCALE:

The IUS consists of 20 items regarding usage of the internet, The scale was constructed by shaloo Saini, and the reliability of the scale is Cronbach's alpha values often above 0.70, and also shows construct validity which correlates well with other measures related to the internet behavior and psychological constructs.

STATISTICS USED:

The data was collected and analyzed using descriptive statistics and inferential statistics. Descriptive statistics was used to analyze data including frequencies, means, and standard deviations, Inferential statistics was used to examine the strength and direction of the relationship between variables, and correlational statistics was used to find the correlations between the variables.

PROCEDURE:

Loneliness has emerged as a significant concern in contemporary society, particularly among adolescents and young adults. With the rise of digital communication and social media, traditional social interactions have shifted, leading to new forms of feelings of isolation. Sleep quality is another critical factor influenced by modern lifestyles, with many individuals experiencing disruptions linked to increased internet usage, particularly late-night activities on social media and other platforms. Poor sleep quality can further amplify feelings of loneliness and mental health issues. The research study is a quantitative study who adopted the cross-sectional correlational research and convenience sampling technique. The study was done by using questionnaire which was collected by adults who have regular internet access from the age group ranged from18 to 35. The scale used was UCLA loneliness scale, Pittsburgh sleep quality Index and Internet Usage Scale. The data was collected and analyzed using descriptive statistics and inferential statistics.

RESULT AND DISCUSSUION:

DEMOGRAPHIC REPRESENTATION OF THE POPULATION:

TABLE 1: DISTRIBUTION OF SAMPLE BASED ON AGE GROUPS

AGE GROUP	POPULATION
18-22	118
22-24	69
24-26	13
TOTAL	**200**

FIGURE 1: PICTORIAL REPRESENTATION OF SAMPLES BASED ON AGE GROUP

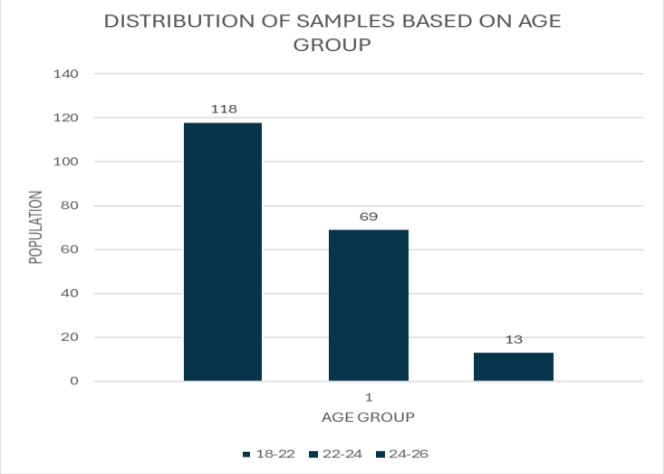

FIGURE 1 The "Distribution of Samples Based on Age Group" bar chart offers a comprehensive analysis of the age demographics within the study population. The total number of participants is 200, categorized into three specific age groups: 18–22, 22–24, and 24–26. The predominant age group is 18–22, encompassing 118 individuals, constituting 59.0% of the overall sample. This finding suggests that most participants fall within this age range, indicating that the study may hold particular significance for younger individuals. The next largest group, 22–24, comprises 69 individuals, accounting for 34.5% of the total sample. Although this group is noteworthy, it is smaller than the 18–22 cohort. The least represented age group, 24–26, consists of only 13 individuals, which corresponds to a mere 6.5% of the total sample. This demographic is the smallest within the study. In summary, the chart illustrates a pronounced demographic inclination towards younger participants, with the 18–22 age group being the most substantial, followed by the 22–24 group, while the 24–26 group is significantly less represented. This age distribution offers important insights into the study's focus and its implications for various age demographics.

TABLE 2: DISTRIBUTION OF SAMPLES BASED ON EDUCATIONAL QUALIFICATION

EDUCATION QUALIFICATION	POPULATION
UG	137
PG	63
TOTAL	200

FIGURE 2: PICTORICAL REPRESENTATION OF SAMPLES BASED ON EDUCATIONAL QUALIFICATION

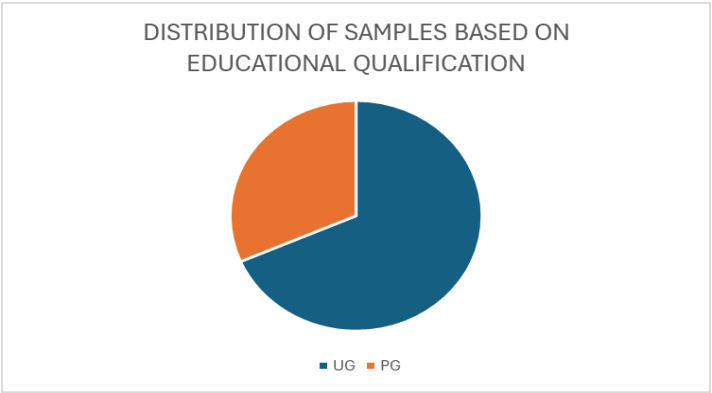

Figure 2 The data, displayed in both tabular and pie chart formats, depicts the distribution of study participants according to their educational qualifications. Among the total sample of 200 individuals, the predominant group comprises undergraduates, totaling 137 participants, which accounts for 68.5% of the sample. This indicates that the research primarily centers on individuals with undergraduate degrees. Conversely, the postgraduate cohort includes 63 participants, representing 31.5% of the sample. This lesser proportion suggests that postgraduates are not as well represented in the study. The breakdown of educational qualifications offers significant context, as it underscores the educational backgrounds of the study population, which may be pertinent in assessing how varying educational levels could influence the study's findings and interpretations.

TABLE 3: DISTRIBUTION OF SAMPLES BASED ON GENDER

GENDER	POPULATION
MALE	123
FEMALE	76
PREFER NOT TO SAY	1
TOTAL	**200**

FIGURE 3: PICTORIAL REPRESENTATION OF SAMPLES BASED ON GENDER

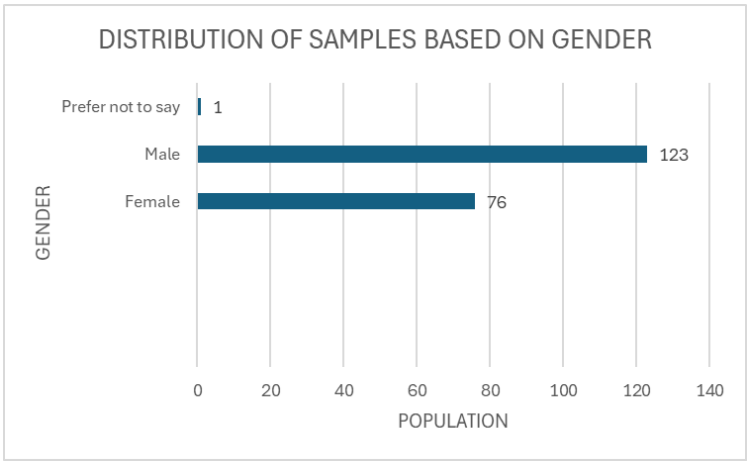

Figure 3 The illustration, which presents data in both tabular and bar chart formats, depicts the gender distribution of the study sample. Out of 200 participants, the predominant group is male, consisting of 123 individuals, which accounts for 61.5% of the total sample. Female participants represent the second-largest category, totaling 76 individuals, or 38.0% of the sample. A minimal fraction of participants (0.5%) opted not to disclose their gender, amounting to just 1 individual. This distribution reveals a significant gender disparity, with males considerably outnumbering females in the study. Recognizing this gender composition is crucial, as it may affect the analysis of gender-related trends or outcomes, thereby providing valuable insights into the demographic characteristics of the participants.

TABLE 4: DISTRIBUTION OF SAMPLES BASED ON THE MARITAL STATUS

MARITAL STATUS	POPULATION
MARRIED	25
UNMARRIED	175
TOTAL	**200**

FIGURE 4: PICTORIAL REPRESENTATION OF SAMPLES BASED ON MARITAL STATUS

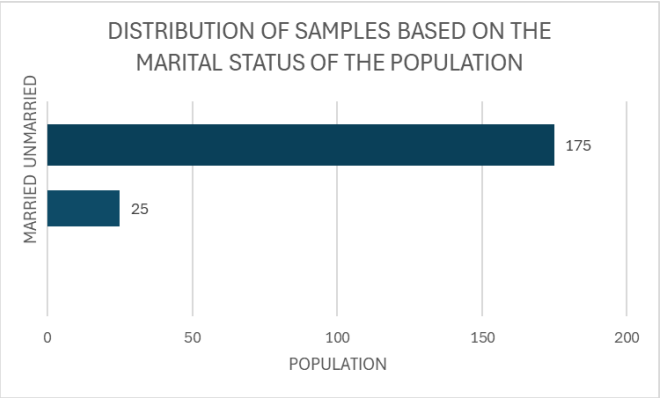

Figure 4 The illustration, presented in both tabular and bar chart formats, illustrates the distribution of participants categorized by their marital status. Among the 200 individuals involved in the study, a substantial majority, comprising 175 participants (87.5%), are unmarried, whereas merely 25 participants (12.5%) are married. This notable disparity indicates that the study predominantly consists of unmarried individuals, which may affect any analyses or conclusions related to marital status. The preponderance of unmarried participants should be a critical consideration if the study intends to investigate the effects of marital status on various outcomes or behaviors.

TABLE 5: LONELINESS AND SLEEP QUALITY

DESCRIPTIVE STATISTICS

	MEAN	STD.DEVIATION	N
LONELINESS	49.90	7.946	200
SLEEP QUALITY	20.25	9.937	200

CORRELATIONS

		LONELINESS	SLEEP QUALITY
LONELINESS	Pearson correlation	1	120 090
	Sig (2-tailed)	200	200
	N		
SLEEP QUALITY	Pearson correlation	120 090	1
	Sig (2-tailed)	200	200
	N		

The examination of the connection between loneliness and sleep quality indicated that, on average, participants exhibited a mean loneliness score of 49.90 (SD = 7.946) alongside a mean sleep quality score of 20.25 (SD = 9.937). A Pearson correlation analysis was performed to evaluate the relationship between these two variables. The findings revealed a weak negative correlation, suggesting that an increase in loneliness is associated with a slight decrease in sleep quality. However, this correlation did not reach statistical significance, implying that the observed relationship may be attributable to random variation rather than a genuine underlying association. Consequently, while there is some evidence pointing to a potential link between loneliness and sleep quality, the strength of this evidence is insufficient to establish a meaningful or reliable relationship within this sample.

TABLE 6: LONELINESS AND INTERNET USAGE

DESCRIPTIVE STATISTICS

	MEAN	STD.DEVIATION	N
LONELINESS	49.90	7.946	200
INTERNET USAGE	55.01	9.267	200

CORRELATIONS

	LONELINESS	INTERNET USAGE
LONELINESS Pearson correlation Sig (2-tailed) N	1 200	301 000 200
INTERNET USAGE Pearson correlation Sig (2-tailed) N	301 000 200	1 200

Correlation is significant at 0.01 level (2-tailed)

The examination of the connection between loneliness and internet usage indicates a small to moderate positive correlation. The average loneliness score is 49.90, accompanied by a standard deviation of 7.946, while the average internet usage score stands at 55.01, with a standard deviation of 9.267. The Pearson correlation coefficient indicates that as levels of loneliness rise, internet usage also tends to increase, albeit the relationship is not particularly strong. Nevertheless, this moderate correlation is statistically significant, suggesting that the observed relationship is unlikely to be due to random chance. This outcome suggests a meaningful association between the two variables, where elevated levels of loneliness are somewhat associated with increased internet usage, even though the correlation remains relatively weak.

SUMMARY:

This research sought to investigate the connections between loneliness and two significant factors: internet usage and sleep quality. The findings indicated a small to moderate positive correlation between loneliness and internet usage, which was statistically significant. This implies that individuals experiencing heightened levels of loneliness are likely to spend more time online, consistent with existing studies that propose lonely individuals may seek the Internet for social engagement, distraction, or emotional support. The positive correlation suggests that as feelings of loneliness rise, internet usage also tends to increase, albeit the strength of this association is relatively modest. Conversely, the relationship between loneliness and sleep quality exhibited a weak negative correlation, indicating that individuals with higher loneliness levels may experience slightly diminished sleep quality. However, this correlation was not statistically significant, suggesting that the observed relationship could be attributed to chance or other confounding variables. The absence of significance implies that the link between loneliness and sleep quality is insufficiently robust to draw definitive conclusions from this sample. In summary, while the study uncovers intriguing patterns, the lack of significant results in the relationship between loneliness and sleep quality underscores the complexity of these variables and highlights the necessity for further investigation to elucidate these dynamics.

CONCLUSION:

1. Loneliness and Internet Usage:

- The research revealed a statistically significant positive correlation between loneliness and internet usage.
- Individuals experiencing higher levels of loneliness are more inclined to participate in online activities, potentially utilizing the internet to address their social needs, seek connections, find distractions, or obtain emotional support.
- Nevertheless, the strength of this relationship is small to moderate, indicating that factors beyond loneliness also influence internet usage.

2. Loneliness and Sleep Quality:

- The association between loneliness and sleep quality was found to be weak and not statistically significant.
- Although there was a minor trend suggesting that increased loneliness might correlate with poorer sleep quality, the evidence was insufficient to establish definitive conclusions.
- Other variables, such as mental health, lifestyle choices, or physical health, may have a more pronounced effect on sleep quality.

3. Implications for Research and Practice:

- The notable positive correlation between loneliness and internet usage implies that interventions aimed at modifying internet behaviors among lonely individuals could prove advantageous.
- Mental health practitioners may consider investigating the role of online platforms as a means of coping with loneliness and their potential effects on emotional health.
- The weak correlation between loneliness and sleep quality highlights the necessity for further research to better understand the impact of loneliness on sleep, particularly through the use of more comprehensive measures and larger participant samples.

LIMITATION OF STUDY

1. The design of the study is correlational, which means it is unable to determine causal relationships between the variables.

2. The sample may not accurately reflect the larger population, which could impact the applicability of the findings.

3. The dependence on self-reported data may lead to biases, including recall bias or social desirability bias.

4. Additional factors, such as mental health or social support, were not considered and may obscure the relationships observed.

5. The cross-sectional design of the study restricts the capacity to track changes over time or to establish causal connections.

FUTURE SCOPE:

1. Implement longitudinal research to investigate causal relationships over extended periods.

2. Employ larger and more varied samples to improve the applicability of findings across diverse populations.

3. Incorporate supplementary variables such as mental health and social support to gain a deeper insight into their influence on loneliness, internet usage, and sleep quality.

4. Apply more thorough and objective assessments of internet usage and sleep quality to enhance precision.

5. Investigate intervention studies to evaluate the impact of altering internet behaviors or addressing loneliness on overall well-being and sleep patterns.

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