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Social media addiction among adolescents: Its relationship to sleep quality and life satisfaction

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Abstract

Background: Social media is a double-edged sword. It provides us with lots of information, communication facilities, and many other benefits in work, education, and even leisure time.

The aim of this study: To assess social media addiction among adolescents and its relationship to sleep quality and life satisfaction.

Subjects and Methods: A Cross-sectional research design was utilized. A multistage random sample was used in this study, and 1014 adolescent students were included. Three tools were utilized in this study included; Tool I: Structured interviewing questionnaire, Part (1): Demographic Characteristics Questionnaire, Part (2): Social media history, Tool II: Social media use addiction scale, Tool III: the Pittsburgh Sleep quality index, and Tool IV: Students' Life Satisfaction Scale.

Results: More than half of the studied adolescents' students had extremely social media use addict, the majority of them had unsatisfactory sleep quality, and more than three-quarters of them had a low satisfaction level toward their life. Also, a moderate negative association between social media use addict and adolescents' sleep quality and their satisfaction toward their life, and there was a strong negative association between adolescent sleep quality with their life satisfaction.

Conclusion: The present study highlighted the social media use addiction increased among adolescents' students and its effect reversely on their sleep quality and life satisfaction.

Recommendation: Continues educational programs regularly is suggested to identify adolescent's student acceptable uses of social media as well as reinforce proper use for social media accounts.

Keywords: Adolescents, life satisfaction, social media use addiction, sleep quality

Introduction

The adolescence stage is a formative period in one's life. The brain and body mature rapidly, and the transformation to maturity entails major improvements to attitudes, appearance, social and family life, and academic performance. Sleep is vital during this period, working behind the scenes to help adolescents achieve their full potential. Adolescents need between 8 and 10 hours of sleep a night, according to the National Sleep Foundation and the American Academy of Sleep Medicine. Adolescents may maintain their physical wellbeing, mental well-being, and academic success by getting this recommended amount of sleep ^[1].

Social media is a double-edged sword. It gives us access to a wealth of knowledge, online services, and a slew of other advantages in the life, schooling, and even leisure time. However, misuse of social media can disrupt various facets of life, such as family issues, schooling, or academic deterioration; even developmental and physical health can be harmed as a result of sedentary behaviour and inadequate self-care. Because of the widespread usage of social media and fast internet access, there is a risk of social media addiction, which is described as the unreasonable and repetitive use of social media to the point that it interferes with other aspects of everyday life. "An impulse-control condition that does not require an intoxicant," according to the definition of social media addiction (IA) ^[2].

Social media addiction is a form of Internet addiction in which adolescent are compelled to use social media in excessive amounts ^[3]. Adolescents who are addicted to social networking are frequently unnecessarily worried with it and are motivated by an uncontrollable need to log in to utilize it ^[4]. Mood, perception, physical and emotional responses, and behavioural and psychiatric disorders are all signs of social network addiction. According to reports, about 12% of adolescent on social networking platforms suffer from social media addiction ^[5].

Adolescents' use of social media has evolved into a way of life. Adolescents expend a significant amount of time on social media, which may be troublesome for others.

The widespread usage of social media, which is mostly available in the bedroom, raises many concerns about teenagers' dependence on it to meet their emotional needs. Users of heavy media, in particular, may change sleeping and waking habits, undermining school success. Furthermore, social media has caused multiple adolescent depression and insomnia^[6].

Furthermore, social networking addiction has the potential to negatively impact life satisfaction. Many researches on social media use and mental wellbeing have shown that long-term use of social media sites like Facebook is positively correlated with mental health issues like tension, anxiety, and depression, and negatively associated with long-term happiness^[7-9]. For instance, among high school students in Central Serbia, time spent on social media was linked to depressive symptoms^[10]. Furthermore, there is a connection between some types of social media usage and poor academic success^[11].

The nurse will help reduce social media addiction by developing and preparing training plans for youth to help them identify the causes, effects, and solutions of social media addiction, as well as clarifying the best ways to utilize social media.

Significance of the study

Currently 40% of the world's population is digitally in today's culture. Furthermore, over the past decade, global internet penetration has increased almost six fold. Egypt's internet penetration rate increased from 21.6% in 2010 to 37.82% in 2015 (around 35 million users)^[12].

A recent research in Egypt found that social addiction is common among Al-Azhar university students and is inversely linked to sleep efficiency^[2].

Addiction of social media is linked to the many mental, relational, health, and success problems. As a result, it's critical to comprehend the causes, effects, and treatments for social media addiction^[13].

Aim of the study

Assess social media addiction among adolescents and its relationship to sleep quality and life satisfaction.

Research questions:

Q1: What are the level of Adolescents' social media addiction, sleep quality, and life satisfaction?

Q2: Are there a relationship between Adolescents' social media addiction, sleep quality, and life satisfaction?

Subject and Method

Research design

A Cross-sectional research design was utilized to achieve the aim of the present study.

Setting

The setting was selected according to regions: Upper Egypt region as (Cairo, Giza, Qalyubia), Middle Egypt (Banisuef, Minia), Lower Egypt (Assiut, New Valley) and Delta region (AL-Gharbiaa, Dakhalia, Kafr Elshekh)

Subjects

A multistage random sample was used in this study. The total number of attendance of students in 2020 was (15400) attendance by using software EPI /info (version 3, 3) with a 95% confidence interval (CI). The estimated sample size was found to be 1014 students.

Inclusion criteria

1. Adolescents use social media > 6 hours.
2. Adolescents agree to participate in the study.

Data collection tools

Data was collected through the utilization of a structured interviewing questionnaire developed & translated into the Arabic language by the investigators after an extensive review of the literature. It consisted of three tools as follows:

Tool I: Structured interviewing questionnaire

Part (1): Demographic characteristics questionnaire

Covers the data related to general characteristics as age, gender, child's rank, residence, governorate name, and academic year

Part (2): Social media history

Which involved daily use of social media/ hours, duration of social media uses, number of accounts, availability of monthly internet package and internet at home, and tea drink.

Tool II: Social media addiction scale (BSMAS)

Developed by Andreassen *et al.*,^[14] to measure the participants' addictive use of social media. It included 6 items concern experiences occurring over the past year. The original English version was compared with the back-translated version to resolve any discrepancies between them. "The researchers translated the scale into Arabic, which was then back-translated into English by another researcher.

Scoring system

This scale rated on 5-point scales ranging from one (Very rarely) to five (Very often) (e.g., "How often during the last year have you felt an urge to use social media more and more?"). Given the characteristics of social networking sites in mainland Egypt, we replaced the examples of social media sites in the original scale, namely "Facebook, Twitter, Instagram and the like," with those popular in Egypt. Participants' ratings were summed across the six items to form a social media addiction score, if total scores less than 59 scores indicating mild social media addiction, if total scores 59 - less than 87 scores indicating moderate social media addiction and if total scores ≥ 87 scores indicating mild social media addiction

Tool III: The Pittsburgh sleep quality index (PSQI)

This tool was developed by Buysse *et al.*,^[15] and Shochat, *et al.*,^[16] to assess students sleeping quality and translated by the researcher to the Arabic language. It consists of seven components included 1) subjective sleep quality 2) sleep latency, 3) sleep duration, 4) habitual sleep efficiency, 5) sleep disturbances, 6) use of sleeping medications, and 7) daytime dysfunction.

Scoring system

The total scores of PSQI are 21 scores. If total scores less than or equal to 5 refer to satisfactory sleep quality, and if total scores more than 5 refer to unsatisfactory sleep quality. The student responses ranged from 0- 3 scales as follows.
Not occur during the past month = 0
Occur once only/ week = 1

Occur twice times / week = 2

Occur three times/ week = 3

Tool IV: Students' life satisfaction scale (SLSS)

This scale was developed by Huebner, ^[17, 18] and updated ^[19]. It is a 7-item self-report scale that assesses global LS for students aged 8-18. As a global measure of life satisfaction (LS), items on the SLSS are context-free (e.g., my life is better than most kids' vs. my family life is better than most kids'). Students are required to respond to each item using a 6-point Likert scale.

Scoring system

Six-point Likert scale was used as following 1 ¼ = Strongly Disagree, 2 ¼ = Moderately Disagree, 3 ¼ = Mildly Disagree, 4 ¼ = Mildly Agree, 5 ¼ = Moderately Agree, and 6 ¼ = Strongly Agree. Items are summed for a total score and divided by seven to create a mean score. Using this rating scale, total scores range from 7- 42, if a total score less than 22.75 is indicated to low life satisfaction and if more than 22.75 indicates high LS.

Content validity

The tools were tested for content validity by a jury of three experts in paediatric nursing. Each of the expert panels was asked to examine the instrument for content coverage, clarity, wording, length, format, and overall appearance.

Reliability

Reliability of the study tools was performed to confirm the consistency of the tool. The internal consistency measured to identify the extent to which the tools measure the same concept and correlate with each other by Cronbach's alpha test were 0.884, 0.905, and 0.802, respectively.

Pilot study

A pilot study was carried out before starting data collection on 107 students (10% of the total sample) to test the clarity, visibility, and applicability of the tools, estimate the appropriate time required to fill the questionnaire, ascertain the relevance of the tool, detect any problem that might interfere with the process of data collection, and final form was developed. They were included in the studied sample.

Ethical consideration

An official letter was granted from the research ethics committee of the Faculty of Nursing, Minia University. Approval to conduct the study was obtained from the dean of the Faculty of Nursing, Minia University. Permission and consent were obtained from the director of the schools at the previous setting. Before the conduction of the pilot study as well as the actual study, consent was obtained from each participant in the study after explaining the nature and purpose of the study. The study subject has the right to refuse to participate and or withdraw from the study without any rationale at any time. Study subject privacy was considered during the collection of data. Participants assured that all their data are highly confidential; anonymity was also assured through assigning a number for each nurse instead of names to protect their privacy.

Data collection procedure

After an extensive review of relevant national and international literature, the researcher developed the tool of

data collection in 2019. Before data collection, a tool for data collection was translated from English to Arabic version language and back translation again from Arabic to English to ensure the original meaning was retained.

The data collection study was carried out from the beginning of September 2019 and finished in November 2020. The researcher attended the previous setting to collect data with an average of three days per week to collect data at official work time by using the structured interview questionnaire sheet. At the beginning of the interview, the researcher greeted each student, utilizing proper communication channel, explained the purpose of the study, and took their oral consent before being involved in the study after explaining the nature of the study its benefits. There are no risks or cost in participation, and there are voluntary participation and confidentiality of each subject who agree to participate in filling the questionnaire. The researchers follow steps of protective measures during data collection because of the spread of COVID- 19 episodes. The researcher filed the questionnaire sheet during 25 - 35 minutes. Finally, the researcher thanked the participants for their cooperation.

Statistical analysis

The collected data were analysed using Statistical Package for Social Sciences (SPSS) version 26 for windows. Data were collected, tabulated, and statistically analysed using frequencies & percentages, mean & standard deviation, and Chi-square test. The correlation coefficient (r) was calculated between continuous variables. Test of significance were considered as: insignificant (NS) $P \geq 0.05$, * significant $P < 0.05$, and ** highly significant $P < 0.01$.

Results

Table 1: Percentage distribution of the demographic characteristics among the studied sample (n = 1014)

| Items | No. | % |
|------------------------------------|-----|------|
| Age/year | | |
| 12<15 | 261 | 25.7 |
| 15-17 | 753 | 74.3 |
| Gender | | |
| Male | 345 | 34.0 |
| Female | 669 | 66.0 |
| Child's rank | | |
| First | 350 | 34.5 |
| Second | 318 | 31.4 |
| Third | 238 | 23.5 |
| Fourth | 86 | 8.5 |
| More than 4 child | 22 | 2.1 |
| Residence | | |
| Urban | 541 | 53.4 |
| Rural | 280 | 27.6 |
| Governorate | 193 | 19.0 |
| Governorate name | | |
| Cairo, Giza, Qalyubia | 229 | 22.6 |
| Banisuef, Minia | 265 | 26.1 |
| Assiut, New Valley | 219 | 21.6 |
| Gharbiaa, Dakhalia, Kafr Elshekh | 301 | 29.7 |
| Academic years | | |
| 2 nd preparatory school | 170 | 16.8 |
| 3 rd preparatory school | 177 | 17.5 |
| 1 st high school | 284 | 28.0 |
| 2 nd high school | 41 | 4.0 |
| 3 rd high school | 342 | 33.7 |

Table (1): shows that three-quarters of the studied adolescent aged between 15 - 17 years, two-third of them

were female, one-third of them were the first child in their family; more than half of them live in the urban area and

one-third of them in the 3rd year of high school.

Table 2: Percentage distribution of adolescent social media history (n = 1014)

| Items | No. | % |
|---|-----|------|
| Daily use of the internet/hour | | |
| 8 | 836 | 82.4 |
| 9 | 15 | 1.5 |
| 10 | 14 | 1.4 |
| 11 | 89 | 8.8 |
| 12 | 50 | 4.9 |
| 13 | 10 | 1.0 |
| Duration of social media uses/year | | |
| 2 | 134 | 13.2 |
| 3 | 197 | 19.4 |
| 4 | 137 | 13.5 |
| 5 | 318 | 31.4 |
| 6 | 188 | 18.5 |
| 7 | 40 | 4.0 |
| Number of social media account | | |
| 1 | 6 | 0.6 |
| 2 | 321 | 31.7 |
| 3 | 473 | 46.6 |
| 4 | 214 | 21.1 |
| The presence of the internet at home | | |
| Yes | 916 | 90.3 |
| No | 98 | 9.7 |
| A subscriber to a monthly internet package | | |
| Yes | 510 | 50.3 |
| No | 504 | 49.7 |
| Drink tea or coffee | | |
| Yes | 684 | 67.5 |
| No | 330 | 32.5 |

Table (2) presents that the majority of the studied adolescent daily use of the internet was 8 hours, near to one-third of them use social media for 5 years, and near to half of them have three social media accounts.

Regarding the presence of the internet at home, most of the studied adolescents have Wi-Fi internet at their home; half of them had monthly internet package, and two-third of them drink tea or coffee.

Table 3: Percentage distribution of sleep quality among the studied sample (n = 1014)

| Component | No. | % |
|-----------------------------------|-----|------|
| Subjective sleep quality | | |
| Very good | 527 | 52.0 |
| Fairly good | 167 | 16.5 |
| Fairly bad | 138 | 13.6 |
| Very bad | 182 | 17.9 |
| Sleep latency | | |
| No | 599 | 59.1 |
| Less than once a week | 211 | 20.8 |
| Once or twice a week | 121 | 11.9 |
| Three or more times a week | 83 | 8.2 |
| Sleep duration | | |
| >7 hours | 468 | 46.2 |
| 6- 7 hour | 167 | 16.5 |
| 5- 6 hour | 262 | 25.8 |
| <5 hour | 117 | 11.5 |
| Habitual sleep efficiency | | |
| >85.0% | 522 | 51.5 |
| 75- 84% | 201 | 19.8 |
| 65- 74% | 115 | 11.3 |
| < 65.0% | 176 | 17.4 |
| Sleep disturbances | | |
| No | 19 | 1.9 |
| Less than once a week | 210 | 20.7 |
| Once or twice a week | 585 | 57.7 |
| Three or more times a week | 200 | 19.7 |
| Use of sleeping medication | | |
| Not during the past month | 354 | 34.9 |
| Less than once a week | 196 | 19.3 |
| Once or twice a week | 233 | 23.0 |
| Three or more times a week | 231 | 22.8 |
| Daytime dysfunction | | |
| No | 136 | 13.4 |

| | | |
|----------------------|-----|------|
| Slight dysfunction | 214 | 21.1 |
| Somewhat dysfunction | 427 | 42.1 |
| Big problem | 237 | 23.4 |

Table (3): shows that near to half of the studied adolescents sleep more than 7 hours/day, more than half of them had once - twice sleep disturbances/week, and more than one-third of them had somewhat daily dysfunction.

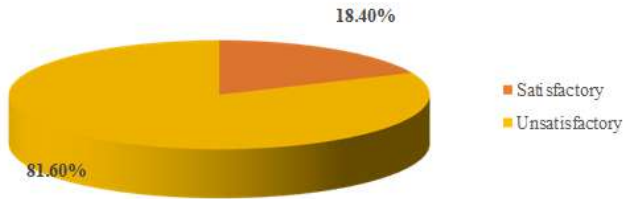


Fig 1: Distribution of the sleep quality levels among the studied adolescent (n = 1014)

Figure (1): illustrates that the majority of the studied adolescents had unsatisfactory sleep quality, and the minority had satisfactory sleep quality.

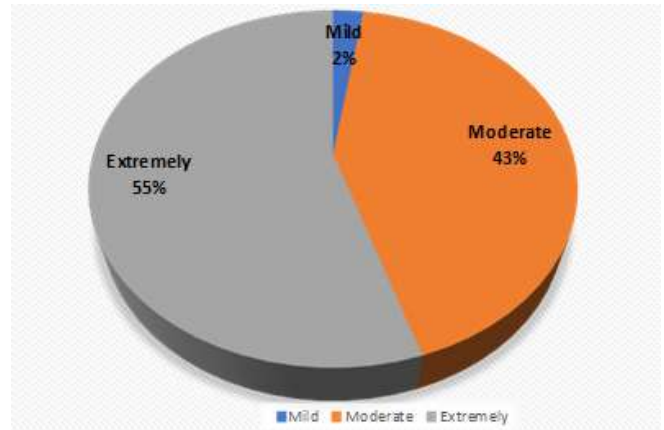


Fig 2: Distribution of the social media addiction among the studied adolescent (n = 1014)

Figure (2): illustrates that more than half of the studied adolescents had extremely social media addiction, more than one-third of them had moderate social media addiction, and the minority of them had mild social media addiction.

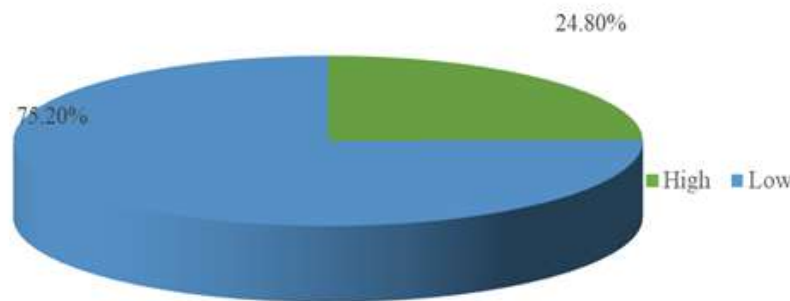


Fig 3: Distribution of life satisfaction level among the studied adolescents (n = 1014)

Figure (3): illustrates that more than three-quarters of the studied adolescent had a low satisfaction level toward their

life, and one-quarter of them had a high satisfaction level toward their life.

Table 4: Relation between demographic characteristics of the studied sample and their social media addiction, sleep quality, and their life satisfaction (n = 1014)

| Items | No. | Social media addiction | | | | | | Sleep quality | | | | Satisfaction toward the life | | | |
|---------------------------|-----|------------------------|-----|--------------------|------|---------------------|------|------------------------|------|--------------------------|------|------------------------------|------|----------------|------|
| | | Mild (n = 24) | | Moderate (n = 433) | | Extremely (n = 557) | | Satisfactory (n = 187) | | Unsatisfactory (n = 827) | | Low (n = 251) | | High (n = 763) | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Age/year | | | | | | | | | | | | | | | |
| 12<15 | 261 | 15 | 5.7 | 123 | 47.1 | 123 | 47.1 | 87 | 33.3 | 174 | 66.7 | 40 | 15.3 | 221 | 84.7 |
| 15-17 | 753 | 9 | 1.2 | 310 | 41.2 | 434 | 57.6 | 100 | 13.3 | 653 | 86.7 | 211 | 28.0 | 542 | 72.0 |
| X ² (P- Value) | | 22.476 (.0001)** | | | | | | 51.819 (.0001)** | | | | 16.772 (.0001)** | | | |
| Gender | | | | | | | | | | | | | | | |
| Male | 345 | 4 | 1.2 | 139 | 40.3 | 202 | 58.6 | 85 | 24.6 | 260 | 75.4 | 45 | 13.0 | 300 | 87.0 |
| Female | 669 | 20 | 3.0 | 294 | 43.9 | 355 | 53.1 | 102 | 15.2 | 567 | 84.8 | 206 | 30.8 | 463 | 69.2 |
| X ² (P- Value) | | 5.181 (.075) | | | | | | 13.346 (.0001)** | | | | 38.496 (.0001)** | | | |
| Child's rank | | | | | | | | | | | | | | | |
| First | 350 | 9 | 2.6 | 132 | 37.7 | 209 | 59.7 | 79 | 22.6 | 271 | 77.4 | 77 | 22.0 | 273 | 78.0 |
| Second | 318 | 12 | 3.8 | 147 | 46.2 | 159 | 50.0 | 50 | 15.7 | 268 | 84.3 | 81 | 25.5 | 237 | 74.5 |
| Third | 238 | 1 | .4 | 98 | 41.2 | 139 | 58.4 | 36 | 15.1 | 202 | 84.9 | 70 | 29.4 | 168 | 70.6 |
| Fourth | 86 | 2 | 2.3 | 46 | 53.5 | 38 | 44.2 | 19 | 22.1 | 67 | 77.9 | 15 | 17.4 | 71 | 82.6 |
| More than 4 | 22 | 0 | .0 | 10 | 45.5 | 12 | 54.5 | 3 | 13.6 | 19 | 86.4 | 8 | 36.4 | 14 | 63.6 |
| X ² (P- Value) | | 17.724 (.023)* | | | | | | 8.371 (.079) | | | | 8.346 (.080) | | | |
| Residence | | | | | | | | | | | | | | | |
| Urban | 541 | 14 | 2.6 | 256 | 47.3 | 271 | 50.1 | 100 | 18.5 | 441 | 81.5 | 132 | 24.4 | 409 | 75.6 |
| Rural | 280 | 8 | 2.9 | 107 | 38.2 | 165 | 58.9 | 54 | 19.3 | 226 | 80.7 | 89 | 31.8 | 191 | 68.2 |
| Governorate | 193 | 2 | 1.0 | 70 | 36.3 | 121 | 62.7 | 33 | 17.1 | 160 | 82.9 | 30 | 15.5 | 163 | 84.5 |

| | | | | | | | | | | | | | | | | |
|------------------------------------|------------------|----|-----|-----|------|-----|------|----|------------------|-----|------|-----|------------------|-----|------|--|
| X^2 (P- Value) | 12.970 (.010)* | | | | | | | | .365 (.833) | | | | 16.259 (.001)** | | | |
| Governorate name | | | | | | | | | | | | | | | | |
| Cairo, Giza, Quawbia | 229 | 6 | 2.6 | 104 | 45.4 | 119 | 52.0 | 40 | 17.5 | 189 | 82.5 | 56 | 24.5 | 173 | 75.5 | |
| Baniseuf, Minia | 265 | 3 | 1.1 | 110 | 41.5 | 152 | 57.4 | 41 | 15.5 | 224 | 84.5 | 68 | 25.7 | 197 | 74.3 | |
| Assiut, New Valley | 219 | 5 | 2.3 | 94 | 42.9 | 120 | 54.8 | 38 | 17.4 | 181 | 82.6 | 51 | 23.3 | 168 | 76.7 | |
| Gharbia Dakhalia, Kafr Elshekh | 301 | 10 | 3.3 | 125 | 41.5 | 166 | 55.1 | 68 | 22.6 | 233 | 77.4 | 76 | 25.2 | 225 | 74.8 | |
| X^2 (P- Value) | 4.173 (.653) | | | | | | | | 5.318 (.150) | | | | .420 (.936) | | | |
| Academic years | | | | | | | | | | | | | | | | |
| 2 nd preparatory school | 170 | 10 | 5.9 | 73 | 42.9 | 87 | 51.2 | 58 | 34.1 | 112 | 65.9 | 18 | 10.6 | 152 | 89.4 | |
| 3 rd preparatory school | 177 | 8 | 4.5 | 74 | 41.8 | 95 | 53.7 | 54 | 30.5 | 123 | 69.5 | 49 | 27.7 | 128 | 72.3 | |
| 1 st high school | 284 | 4 | 1.4 | 151 | 53.2 | 129 | 45.4 | 31 | 10.9 | 253 | 89.1 | 101 | 35.6 | 183 | 64.4 | |
| 2 nd high school | 41 | 0 | .0 | 23 | 56.1 | 18 | 43.9 | 12 | 29.3 | 29 | 70.7 | 1 | 2.4 | 40 | 97.6 | |
| 3 rd high school | 342 | 2 | .6 | 112 | 32.7 | 228 | 66.7 | 32 | 9.4 | 310 | 90.6 | 82 | 24.0 | 260 | 76.0 | |
| X^2 (P- Value) | 50.628 (.0001)** | | | | | | | | 77.567 (.0001)** | | | | 48.018 (.0001)** | | | |

*Statistically significant differences <.05 **, Highly statistically significant differences <.001

Table (4) presents that more than half of the studied adolescent aged between 15 - 17 years, and the first child had extremely social media use addiction, near to two-third of them who lives in the governorate had extremely social media use addiction, and two-third of them in the 3rd high school had extremely social media use addiction with highly statistically significant differences which P-value<0.0001 respectively. Concerning adolescent sleep quality, the majority of the studied adolescents aged between 15 - 17 years and female adolescents had unsatisfactory sleep quality, and most of

them in the 3rd high school had unsatisfactory sleep quality with highly statistically significant differences which P-value<0.0001 respectively. Regarding life satisfaction of the studied adolescent, near to one-third of them who aged between 15 - 17 years, female adolescent, and who lives in a rural area had low satisfaction toward their life and more than one-third of them who attached with 1st high school had low satisfaction toward their life with highly statistically significant differences which P-value<0.0001 respectively.

Table 5: Relation between studied adolescent social media history and their social media addiction, sleep quality, and life satisfaction (n = 1014)

| Items | No. | Social media addiction | | | | | | Sleep quality | | | | Life Satisfaction | | | |
|---|------------------|------------------------|-----|--------------------|-------|---------------------|------------------|------------------------|-------|--------------------------|------------------|-------------------|------|----------------|------|
| | | Mild (n = 24) | | Moderate (n = 433) | | Extremely (n = 557) | | Satisfactory (n = 187) | | Unsatisfactory (n = 827) | | Low (n = 251) | | High (n = 763) | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Daily use of the internet/hour | | | | | | | | | | | | | | | |
| 8 | 836 | 22 | 2.6 | 387 | 46.3 | 427 | 51.1 | 168 | 20.1 | 668 | 79.9 | 213 | 25.5 | 623 | 74.5 |
| 9 | 15 | 0 | .0 | 5 | 33.3 | 10 | 66.7 | 4 | 26.7 | 11 | 73.3 | 5 | 33.3 | 10 | 66.7 |
| 10 | 14 | 0 | .0 | 2 | 14.3 | 12 | 85.7 | 0 | .0 | 14 | 100.0 | 2 | 14.3 | 12 | 85.7 |
| 11 | 89 | 2 | 2.2 | 17 | 19.1 | 70 | 78.7 | 7 | 7.9 | 82 | 92.1 | 24 | 27.0 | 65 | 73.0 |
| 12 | 50 | 0 | .0 | 12 | 24.0 | 38 | 76.0 | 8 | 16.0 | 42 | 84.0 | 2 | 4.0 | 48 | 96.0 |
| 13 | 10 | 0 | .0 | 10 | 100.0 | 0 | .0 | 0 | .0 | 10 | 100.0 | 5 | 50.0 | 5 | 50.0 |
| X^2 (P- Value) | 54.933 (.0001)** | | | | | | 14.439 (.013)* | | | | 16.870 (.005)** | | | | |
| Duration of social media uses/year | | | | | | | | | | | | | | | |
| 2 | 134 | 3 | 2.2 | 60 | 44.8 | 71 | 53.0 | 27 | 20.1 | 107 | 79.9 | 32 | 23.9 | 102 | 76.1 |
| 3 | 197 | 4 | 2.0 | 82 | 41.6 | 111 | 56.3 | 30 | 15.2 | 167 | 84.8 | 69 | 35.0 | 128 | 65.0 |
| 4 | 137 | 0 | .0 | 72 | 52.6 | 65 | 47.4 | 26 | 19.0 | 111 | 81.0 | 24 | 17.5 | 113 | 82.5 |
| 5 | 318 | 11 | 3.5 | 124 | 39.0 | 183 | 57.5 | 59 | 18.6 | 259 | 81.4 | 53 | 16.7 | 265 | 83.3 |
| 6 | 188 | 6 | 3.2 | 82 | 43.6 | 100 | 53.2 | 44 | 23.4 | 144 | 76.6 | 61 | 32.4 | 127 | 67.6 |
| 7 | 40 | 0 | .0 | 13 | 32.5 | 27 | 67.5 | 1 | 2.5 | 39 | 97.5 | 12 | 30.0 | 28 | 70.0 |
| X^2 (P- Value) | 14.987 (.133) | | | | | | 11.478 (.04)* | | | | 32.795 (.0001)** | | | | |
| Number of social media account | | | | | | | | | | | | | | | |
| 1 | 6 | 0 | .0 | 1 | 16.7 | 5 | 83.3 | 6 | 100.0 | 0 | .0 | 5 | 83.3 | 1 | 16.7 |
| 2 | 321 | 2 | .7 | 151 | 47.0 | 168 | 52.3 | 40 | 12.5 | 281 | 87.5 | 91 | 28.3 | 230 | 71.7 |
| 3 | 473 | 22 | 4.7 | 218 | 46.0 | 233 | 49.3 | 91 | 19.2 | 382 | 80.8 | 100 | 21.1 | 373 | 78.9 |
| 4 | 214 | 0 | .0 | 63 | 29.4 | 151 | 70.6 | 50 | 23.4 | 164 | 76.6 | 55 | 25.7 | 159 | 74.3 |
| X^2 (P- Value) | 45.773 (.001)** | | | | | | 37.816 (.0001)** | | | | 16.698 (.001)** | | | | |
| The presence of the internet at home | | | | | | | | | | | | | | | |
| Yes | 916 | 18 | 2.0 | 388 | 42.4 | 510 | 55.7 | 165 | 18.0 | 751 | 82.0 | 235 | 25.7 | 681 | 74.3 |
| No | 98 | 6 | 6.1 | 45 | 45.9 | 47 | 48.0 | 22 | 22.4 | 76 | 77.6 | 16 | 16.3 | 82 | 83.7 |
| X^2 (P- Value) | 7.687 (.021)* | | | | | | 1.158 (.282) | | | | 4.136 (.04)* | | | | |
| A subscriber to a monthly internet package | | | | | | | | | | | | | | | |
| Yes | 510 | 6 | 1.2 | 207 | 40.6 | 297 | 58.2 | 89 | 17.5 | 421 | 82.5 | 77 | 15.1 | 433 | 84.9 |
| No | 504 | 18 | 3.6 | 226 | 44.8 | 260 | 51.6 | 98 | 19.4 | 406 | 80.6 | 174 | 34.5 | 330 | 65.5 |
| X^2 (P- Value) | 9.256 (.01)* | | | | | | .670 (.413) | | | | 51.357 (.0001)** | | | | |
| Drink tea or coffee | | | | | | | | | | | | | | | |
| Yes | 684 | 11 | 1.6 | 290 | 42.4 | 383 | 55.9 | 110 | 16.1 | 574 | 83.9 | 151 | 22.1 | 533 | 77.9 |
| No | 330 | 13 | 3.9 | 143 | 43.3 | 174 | 52.7 | 77 | 23.3 | 253 | 76.7 | 100 | 30.3 | 230 | 69.7 |
| X^2 (P- Value) | 5.589 (.061) | | | | | | 7.782 (.005)** | | | | 8.089 (.004)** | | | | |

*Statistically significant differences <.05 **, Highly statistically significant differences <.001

Table (5) shows that the majority of the studied adolescent who uses the internet 10 hours daily had extremely social media use addiction, more than two-thirds of them who had four social media account had extremely social media use addiction, and more than half of them who had internet at home and monthly internet package had extremely social media use addiction with highly statistically significant differences which P-value<0.0001, 0.001, 0.021, 0.01 respectively.

Concerning adolescent sleep quality, most of the studied adolescents' increasing daily uses of the internet, their

duration/year, and the number of social media had unsatisfactory sleep quality with highly statistically significant differences which P-value<0.013, 0.04, 0.0001 respectively.

Regarding life satisfaction of the studied adolescent, half of them who use internet 13 hours/ day, one-third of them who had social media from 6 years, and the minority of the studied adolescent who had internet at home and monthly internet package had low satisfaction toward their life with highly statistically significant differences which P-value <0.0005, 0.0001, 0.04, 0.0001 respectively.

Table 6: Correlation matrix between social media addiction, sleep quality, and life satisfaction among the studied adolescent (n = 1014)

| | | Social media addiction | Sleep quality | Life satisfaction |
|------------------------|----------|------------------------|---------------|-------------------|
| Social media addiction | r | 1 | | |
| | P-value | | | |
| Sleep quality | r | -.593 | 1 | |
| | P- value | .0001** | | |
| Life Satisfaction | r | -.696 | -.753 | 1 |
| | P- value | .0001** | .0001** | |

**Correlation is significant at the 0.01 level (2-tailed)

Table (5) evidence that there was a moderate negative association between social media addiction and adolescent sleep quality and their satisfaction toward their life and there was a strong negative association between adolescent sleep quality with their life satisfaction.

Discussion

Using social media—such as Facebook, Instagram, Snapchat, and WhatsApp—has become one of the most popular leisure-time activities among adolescents. The increasing amount of time adolescents spend using social media has raised concerns about its potential negative influence on adolescents’ health and well-being, including sleep. Sleep is vital for adolescents’ learning capacity, memory processes, emotional regulation, and related behaviours. Insufficient or disturbed sleep is related to attention problems, poor school performance, daytime tiredness, depression, and obesity [20].

Regarding social media history Table (2), the present study illustrated that the majority of the studied adolescent use the internet for 8 hours/day, near to one-third of them use social media for 5 years, and near to half of them had three social media account. Most of the studied adolescents had Wi-Fi internet at their home; half of them had a monthly internet package. This result comes in line with Tsukayama, [21] who studied and reported that teens are spending more than one-third of their days using media such as online video or music — nearly nine hours on average.

The present study differs from Scott, *et al.* [22], who studied "Social media use and adolescent sleep patterns: cross-sectional findings from the UK millennium cohort study" and mentioned that the (31.6%, n = 3720) were average social media use was 1 to <3 hours per day. 33.7% were classed as low users (<1 hour; n = 3986); 13.9% were high users (3 to <5 hours; n = 1602) and 20.8% were very high users (5 + hours; n = 2203) and ÜNAL [23] who studied "the effect of social media use to the time spent with family members" and reported that 3.8% of the participants' partners spent less than 30 minutes on Facebook; 7.2% of the participants' partners spent 30 minutes to 1 hour on Facebook; 7.5% of the participants' partners spent 2-3 hours on Facebook; 1.2% of the participants' partners spent 4-5 hours on Facebook, and 1.4% of the participants' partners

spent more than 5 hours on Facebook. These results show that participants' partners most commonly spent 30 min. to 1 hour and 2-3 hours on Facebook.

Also, this result is inconsistent with Akakandelwa and Walubita [24], who studied " Students' Social Media Use and its Perceived Impact on their Social Life: A Case Study of the University of Zambia" and stated that 22.0% of the respondents spent 30 minutes or less per day on social media; 37.9% of the respondents spent 31-60 minutes per day on social media; 21.1% of the respondents spent 61-90 minutes per day on social media; 6.6% spent 91-120 minutes per day on social media, and 12.3% spent more than 120 minutes per day on social media.

As the number of social media accounts, the present study comes in accordance with Lenhart [25], who studied "Teens, Social Media & Technology Overview 2015" and reported that the number of social media accounts the majority of teens — 71% — report using more than one social network site.

As regarding the access to the network, the current study was confirmed by Anderson and Jiang [26], who studied "Teens, Social Media & Technology 2018" and reported that most middle and high school age youth have access to a computer and network (88%) at home. However, nearly all teens age 13-17 (95%) own a smartphone.

Concerning the sleep quality Table (3), the current study showed that near to half of the studied adolescents sleep more than 7 hours, and more than half of them had once - twice sleep disturbances/week, and more than one-third of them had somewhat daily dysfunction. This result comes in line with Karki, *et al.* [27], who studied "Internet addiction and slept quality among adolescents in a peri-urban setting in Nepal: A cross-sectional school-based survey" and reported that around 29% of the participants had slept on an average of 7 hours and 23% had slept 8 hours.

Also, this result was confirmed by Garrett, *et al.* [28], who studied "The relationship between social media use and sleep quality among undergraduate students" and suggests that social media use is associated negatively with sleep quality among students. Moreover, Alonzo, *et al.* [29], who studied "interplay between social media use, sleep quality and mental health outcomes in youth: a systematic review" mentioned that poor sleep quality may be an important

mediator between excessive social media use and anxiety/depression.

As the social media addiction Figure (1), the present study illustrated that more than half of the studied adolescents had extremely social media addiction, more than one-third of them had moderate social media addiction, and the minority of them had mild social media addiction. This result comes in line with Muflih and Amestiasih^[30], who studied the "effect of social media addiction on anxiety and the risk of a social health disaster in adolescents" and reported that 84.4% among adolescents experience heavy addiction.

In addition, this result was supported by Jahan, *et al.*^[31], who studied "Association between internet addiction and sleep quality among students: a cross-sectional study in Bangladesh" and reported that more than two-third 68.4% of the students are having moderate to severe internet addiction and Azizi, *et al.*^[32] who reported that near to three-quarters of the students had moderate addiction (254 students and 70.6%).

Regarding the sleep quality Figure (2), the present study illustrated that the majority of the studied adolescent had unsatisfactory sleep quality, and the minority of them had satisfactory sleep quality. This result was confirmed by Jahan, *et al.*^[31] reported that more than two-third 69.5% of the studied sample had poor sleep quality and Ayran, *et al.*^[1], who studied "Effect of Internet Addiction on Sleep Quality in University Students" and reported that more than half of the studied sample the internet affect their sleeping.

Concerning adolescent satisfaction levels toward their life Figure (3), the current study illustrated that more than three-quarters of the studied adolescent had unsatisfactory satisfaction levels toward their life, and one-quarter of them had satisfactory satisfaction levels toward their life.

This result comes in line with Hawi and Samaha^[34], who studied "the relations among social media addiction, self-esteem, and life satisfaction in university students" there exists mediated negative relationship between social media addiction and satisfaction with life.

This result was confirmed with many studies reported that technological addictions, including addictions on the Internet and social networking sites, had positive associations with stress, anxiety, and depression and negative association with academic performance, all of which negatively affects satisfaction with life^[35]

Regarding the relation between demographic characteristics of the studied sample and their social media addiction, sleep quality, and their satisfaction toward their life, table (4), the present study showed that more than half of the studied adolescent aged between 15 - 17 years, and the first child had extremely social media addiction, neat to two-third of them who lives in the governorate had extremely social media use addiction and two-third of them in the 3rd high school had extremely social media use addiction with highly statistically significant differences which P-value<0.0001 respectively.

This result is inconsistent with Azizi, *et al.*^[32], who studied "The relationship between social networking addiction and academic performance in Iranian students of medical sciences: a cross-sectional study" and reported that the highest and lowest levels of social networking addiction were related to age groups of less than 20 years old and 31 to 40 years old (with the mean of 53.78 ± 14.95 and 50.57 ± 11.45 , respectively), which showed no statistically significant difference.

Concerning adolescent sleep quality, the majority of the studied adolescents aged between 15-17 years and female adolescents had unsatisfactory sleep quality, and most of them in the 3rd high school had unsatisfactory sleep quality with highly statistically significant differences which P-value<0.0001 respectively.

The present study comes in line with Vernon, *et al.*^[36], who studied a cross-sectional study among Australian adolescents aged 12-18 years found that problematic social networking was related to more sleep disturbances and poorer sleep quality.

Similarly, two cross-sectional studies of students with a mean age of 20 years demonstrated that Facebook dependence and social media addiction were associated with a poorer sleep quality^[37, 38].

This result comes in line with Karki, *et al.*^[27] who studied "reported that higher age group participants were found to be associated with poor sleep quality.

Regarding the relation between the social media addiction, sleep quality and life satisfaction, table 5, the present study showed that most of the studied adolescent who had extremely social media addiction had unsatisfactory sleep quality with highly statistically significant differences which P-value <0.013, 0.04, 0.0001 respectively.

This result comes in line with Wolniczak, *et al.*,^[37] who studied "Association between Facebook Dependence and Poor Sleep Quality: A Study in a Sample of Undergraduate Students in Peru" and reported that there is a relationship between Facebook dependence and poor quality of sleep. More than half of students reported poor sleep quality.

This result was confirmed by Arora, *et al.*^[39], who studied "Associations between specific technologies and adolescent sleep quantity, sleep quality, and parasomnias" and reported that difficulty falling asleep was significantly associated with frequent mobile telephone use, video gaming, and social networking, with music listeners demonstrating the greatest effect.

Regarding the correlation matrix between social media addiction, sleep quality, and life satisfaction among the studied adolescent, table (6), evidence that there was a moderate negative association between social media addiction and adolescent sleep quality and their satisfaction toward their life and there was a strong negative association between adolescent sleep qualities with their life satisfaction.

This result comes in line with Hawi and Samaha^[34], who studied "the relations among social media addiction, self-esteem, and life satisfaction in university students" there exists mediated negative relationship between social media addiction and satisfaction with life and Hussain and Griffiths^[40] who studied "the associations between problematic social networking site use and sleep quality, attention-deficit hyperactivity disorder, depression, anxiety, and stress" and reported moderate positive correlations between Social networking sites uses and poor sleep quality. Also, this result comes in line with Lin, *et al.*^[41], who studied "The Relationship between sleep quality and internet addiction among female College students" and reported that internet addiction was found to be significantly associated with subjective sleep quality, sleep latency, sleep duration, sleep disturbance, use of sleep medication, and daytime dysfunction.

This result is inconsistent with Guven,^[42] who studied the "relationship between social media use, self-esteem, and

satisfaction with life" and reported no correlation between life satisfaction and social media use.

Conclusion

The present study highlighted the social media addiction increased among adolescents' students and its effect reversely on their sleep quality and life satisfaction. The majority of the studied adolescent who uses the internet 10 hours daily had extremely social media use addiction, more than two-thirds of them who had four social media account had extremely social media use addiction, and more than half of them who had internet at home and monthly internet package had extremely social media use addiction with highly statistically significant differences. Concerning adolescent sleep quality, most of the studied adolescents' increasing daily uses of the internet, their duration/year, and the increasing number of social media had unsatisfactory sleep quality with highly statistically significant differences. Regarding life satisfaction of the studied adolescent, half of them who use internet 13 hours/ day, one-third of them who had social media from 6 years, and the minority of the studied adolescent who had internet at home and monthly internet package had low satisfaction toward their life with highly statistically significant differences.

Recommendations

Based on the findings of this study, the following recommendations are derived:

1. Adolescent students should be aware of the effect of social media use addiction on their sleep quality and their life satisfaction.
2. Continues educational programs regularly are suggested to identify adolescent's student acceptable uses of social media and reinforce proper use for social media accounts.
3. Further research design needs to determine causative factors and more risky groups to social media use addiction.

Limitation of the study

The studied samples were school students, and replicating this study for targeting other student populations should be made to generate a more relationship among the constructs examined in this study.

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