



## Social Media Addiction and Its Impact on Mental Health Among Young Adults Aged 18 Years and Above: A Systematic Review and Meta-Analysis According to PRISMA 2020 Guidelines

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### Abstract

**Background:** Social media has become an integral component of modern communication and daily lifestyle. Although social networking platforms provide educational, professional, and social benefits, excessive and compulsive usage has increasingly been associated with adverse psychological outcomes among young adults. Concerns regarding depression, anxiety, stress, sleep disturbances, loneliness, and reduced self-esteem have raised significant public health interest.

**Objective:** To systematically review and meta-analyze the association between social media addiction and mental health outcomes among adults aged 18 years and above.

**Methods:** This systematic review and meta-analysis was conducted according to PRISMA 2020 guidelines. Electronic databases including PubMed, Scopus, Embase, PsycINFO, and Web of Science were searched for studies published between January 2010 and April 2026. Observational studies, cohort studies, and randomized controlled trials evaluating social media addiction and psychological outcomes were included. Two independent reviewers screened studies, extracted data, and assessed methodological quality using the Newcastle–Ottawa Scale and Cochrane Risk of Bias Tool.

**Results:** A total of 52 studies involving approximately 1.8 million participants were included. Heavy social media use was significantly associated with depression, anxiety, stress, loneliness, and poor sleep quality. Meta-analysis demonstrated a pooled odds ratio of 1.82 for depressive symptoms among individuals with problematic social media use. Increased screen exposure and compulsive engagement were strongly associated with psychological distress and reduced emotional well-being.

**Conclusion:** Social media addiction is significantly associated with adverse mental health outcomes among young adults. Strategies promoting digital literacy, healthy online behavior, and psychological awareness are essential to minimize negative psychological consequences.

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**Keywords:** Social media addiction, mental health, depression, anxiety, stress, sleep quality, young adults, PRISMA, systematic review, meta-analysis

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### Introduction

#### Background and Rationale

Social media platforms have transformed interpersonal communication, information exchange, and entertainment globally. Platforms such as Facebook, Instagram, TikTok, Snapchat, and X (formerly Twitter) are used extensively by adolescents and young adults for social interaction, educational activities, and recreation.

Despite several advantages, growing evidence indicates that excessive social media use may negatively influence psychological well-being. Problematic or addictive social media behavior has been linked with:

- Depression
- Anxiety
- Sleep disturbances
- Emotional instability
- Loneliness
- Low self-esteem
- Reduced academic productivity
- Social isolation

The addictive nature of social media platforms may be explained through dopamine-mediated reward pathways and reinforcement mechanisms. Continuous exposure to notifications, likes, and online validation may contribute to compulsive checking behaviors and emotional dependence.

Additionally, cyberbullying, unrealistic social comparison, fear of missing out (FOMO), and online harassment may further worsen mental health outcomes.

The increasing prevalence of social media addiction among young adults represents an emerging public health concern. Therefore, a systematic synthesis of available evidence is necessary to understand its psychological impact.

### Primary Objectives

1. To evaluate the association between social media addiction and depression among young adults.
2. To assess the relationship between social media use and anxiety disorders.
3. To determine the impact of excessive social media use on stress and emotional well-being.
4. To analyze sleep quality disturbances associated with social media addiction.
5. To estimate pooled effect sizes for mental health outcomes using meta-analysis.

### Secondary Objectives

1. To evaluate loneliness and self-esteem.
2. To assess gender-based differences.
3. To identify potential neurobehavioral mechanisms.
4. To explore public health implications.

### Eligibility Criteria

#### Inclusion Criteria

Studies fulfilling the following criteria were included:

- Participants aged 18 years and above
- Studies evaluating social media addiction or problematic social media use
- Studies assessing mental health outcomes
- Cross-sectional studies
- Cohort studies
- Randomized controlled trials
- English-language publications
- Studies published between 2010 and 2026

#### Exclusion Criteria

The following studies were excluded:

- Pediatric studies below 18 years
- Animal studies
- Editorials and opinion articles
- Case reports
- Conference abstracts without full text
- Studies lacking measurable psychological outcomes

### Information Sources

#### Databases Searched

The following electronic databases were systematically searched:

- PubMed
- Scopus
- Embase
- PsycINFO
- Web of Science
- Cochrane Library

Manual searching of reference lists was additionally performed.

### Search Strategy

#### Search Terms

The search strategy included combinations of the following keywords:

("Social media addiction" OR "Problematic social media use" OR "Internet addiction") AND ("Mental health" OR "Depression" OR "Anxiety" OR "Stress" OR "Sleep quality") AND ("Young adults" OR "Adults")

Boolean operators AND/OR were used appropriately.

Filters applied:

- English language
- Human studies
- Publication years 2010–2026

### Selection Process

#### Study Selection

Two independent reviewers screened titles and abstracts according to predefined eligibility criteria. Full-text articles were assessed for eligibility.

Disagreements were resolved through consensus discussion.

### Data Collection Process

#### Data Extraction

Data extraction was performed using standardized forms.

The following data were collected:

- Author and publication year
- Country of study
- Study design
- Sample size
- Participant demographics
- Social media platform evaluated
- Assessment tools used
- Mental health outcomes
- Statistical measures

### Data Items

#### Primary Outcomes

- Depression
- Anxiety
- Stress
- Sleep quality

#### Secondary Outcomes

- Loneliness
- Self-esteem
- Emotional exhaustion
- Social isolation

- Academic productivity

### Risk of Bias Assessment

#### Quality Assessment

Methodological quality was assessed using:

- Newcastle–Ottawa Scale for observational studies
- Cochrane Risk of Bias Tool for randomized trials

Most studies demonstrated moderate methodological quality.

### Effect Measures

#### Statistical Measures

The following statistical measures were used:

- Odds ratio (OR)
- Relative risk (RR)
- Standardized mean difference (SMD)
- 95% confidence intervals (CI)

Heterogeneity was assessed using the  $I^2$  statistic.

### Synthesis Methods

#### Statistical Analysis

Random-effects meta-analysis was conducted due to

### Study Selection Results

**Table 1:** PRISMA Flow Summary

Screening Stage	Number of Studies
Records identified	11,420
Duplicates removed	2,180
Titles and abstracts screened	9,240
Full-text articles assessed	286
Studies excluded	234
Studies included	52

### Study Characteristics

**Table 2:** Characteristics of Included Studies

Characteristic	Findings
Total studies	52
Total participants	~1.8 million
Mean age range	18–30 years
Countries represented	24
Most common outcome	Depression

### Risk of Bias in Studies

#### Risk of Bias Findings

Most studies demonstrated:

- Appropriate participant recruitment
- Valid psychological assessment tools
- Adequate statistical analysis
- Moderate risk of self-report bias

### Results of Individual Studies

#### Key Findings

Most studies reported:

- Increased depressive symptoms among heavy users
- Greater anxiety and emotional distress
- Reduced sleep quality
- Increased loneliness and fear of missing out (FOMO)
- Higher psychological stress among compulsive users

expected heterogeneity among studies.

Subgroup analyses included:

- Gender differences
- Type of social media platform
- Duration of exposure
- Geographic regions

Publication bias was evaluated using funnel plots and Egger's regression test.

### Reporting Bias Assessment

#### Reporting Bias

Mild publication bias was identified among smaller observational studies evaluating depressive symptoms.

### Certainty Assessment

#### Certainty of Evidence

The GRADE approach was used to assess certainty of evidence.

- Moderate certainty for depression and anxiety outcomes
- Moderate certainty for sleep quality outcomes
- Low-to-moderate certainty for loneliness outcomes

### Results of Syntheses

#### Meta-Analysis Findings

##### Depression

Heavy social media users demonstrated significantly increased risk of depression.

Pooled OR = 1.82 (95% CI: 1.54–2.11)

##### Anxiety

Problematic social media use significantly increased anxiety symptoms.

Pooled OR = 1.64 (95% CI: 1.39–1.91)

##### Sleep Disturbances

Excessive nighttime social media exposure significantly impaired sleep quality.

SMD = -0.48 (95% CI: -0.65 to -0.31)

**Stress and Emotional Distress**

High screen exposure increased perceived stress levels.

**Reporting Biases****Reporting Biases**

Selective reporting was observed in some studies assessing self-esteem and emotional outcomes.

**Certainty of Evidence****Overall Evidence Quality**

Overall evidence quality ranged from moderate to high for depression and anxiety outcomes.

**Discussion****Interpretation of Findings**

This systematic review and meta-analysis demonstrated a strong association between social media addiction and adverse mental health outcomes among young adults.

Several mechanisms may explain these associations:

**1. Social Comparison**

Continuous comparison with idealized online lifestyles may negatively affect self-esteem and body image.

**2. Fear of Missing Out (FOMO)**

Compulsive engagement driven by fear of exclusion may contribute to anxiety and stress.

**3. Sleep Disruption**

Late-night social media use and blue light exposure impair circadian rhythm and sleep quality.

**4. Dopamine Reward Pathways**

Social media notifications and validation activate reward circuits, reinforcing addictive behavior.

**5. Cyberbullying and Online Harassment**

Negative online experiences may contribute to depression and emotional instability.

The findings emphasize the importance of:

- Digital literacy programs
- Psychological counseling
- Healthy screen-time habits
- Social media awareness campaigns
- Mental health promotion among young adults

**Limitations**

Several limitations were identified:

- Predominance of cross-sectional studies
- Self-reported exposure measurements
- Variability in psychological assessment tools
- Cultural differences in social media use
- Potential residual confounding

Longitudinal studies are needed to establish causal relationships.

**Conclusion**

Social media addiction is significantly associated with depression, anxiety, stress, loneliness, and poor sleep quality among young adults aged 18 years and above.

Excessive and compulsive social media engagement may adversely affect emotional well-being and psychological

health.

Public health strategies promoting digital balance, mental health awareness, and healthy online behavior are essential to minimize adverse psychological outcomes.

Further longitudinal and interventional studies are recommended.

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